DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER – CORE- I (NON-CHORDATES 1)

PART -I

A) Fill up the blanks.

1) How many species of plasmodium cause malaria in human beings?

2) The infective stage of parasite in human beings is___.

3) *Entamoeb*a is derived from Greek word Entos meaning __ and amoeba meaning ___.

4) __ first discovered *E.histolytica* and ___ proved its pathogenic nature .

5) Who causes Amoebic dysentry?

6) Pre-cystic stage of *E.histolytica* is also called ___.

7) *Entamoeba histolytica* can be cultured in ___.

8) The most common site for amoebiasis is ___.

9) In tissues, amoebiasis is treated with __, __, ___.

10) The karyosome of *Entamoeba histolytica* is ____.

11) *Entamoeba histolytica* cysts have ___ nuclei.

12) Chromatoid body in *Entamoeba histolytica* are found in ___.

13) How many young amoebae hatch out from a cyst of *E. histolytica*?

14) The excretion in *Entamoeba histolytica* take place __.

15) Most active form of *Entamoeba histolytica* ___.

16) Monopodial locomotion does not occur in __.

17) The minuta form of *Entamoeba histolytica* differs from Amoeba proteus in having ___.

18) *Entamoeba histolytica* is a human parasite usually found in ____.

19) Metacyst undergoes series of nuclear and cytoplasmic division producing ___ uninucleate daughter amoebula called Metacystic trophozoite.

20) When trophozoites reach other parts of body like liver, lung, brain through blood circulation it leads to destruction of these tissues and formation of_____

21) Infective stage of *E.histolytica* is ___ and pathogenic stage is __.

22) *Plasmodium vivax* is transmitted by ___.

23) *P. Vivax* has _____

24) The diagnosis of *Entamoeba histolytica* infection is typically made through ___.

25) The symptoms of *Entamoeba histolytica* infection include __.

26) The primary location of *Entamoeba histolytica* infection is ___.

27) Which of the following groups is at the highest risk for *Entamoeba histolytica* infection?

28) Trophozoites, schizonts, and gametocytes of all the malarial parasites are seen in the peripheral blood smear except __.

29) Blackwater fever is a special manifestation of malaria caused by __.

30)___ occurs when the infection persists in the blood at undetectable levels and becomes detectable again.

31) __ are seen in *P.vivax*, ___ are seen in *P. malariae*, ___are seen in *P. falciparum* and __ are seen in *P. ovale*.

32) The duration between initial Sporozoite infection and first appearance of parasite in blood is ___.

33) Pre-patent period is __ days.

34) The period between infection and appearance of first malarial symptoms is __ and ___ days in *P.vivax.*

35) Merozoites in the blood cells increase in size and develop into sexual forms that grow into male __ or female __.

36) Development of gametes from gametocytes are known as ___.

37) A small conical projection formed of *P.vivax* is ___.

38) The zygote remains inactive for some time after which it becomes elongated, vermiform structure and performs wriggling and gliding movement is called ___.

39) Oocyst is ___.

40) __ test is used for presence of malarial parasite.

41) ___ month has marked as Anti-malarial month by National Vector Borne Disease Control Programme of India.

42) __ is treated with synthetic drugs like Quinine, Camoquin , Chloroquin , Pentaquine.

43) Quinine is extracted from the bark of ___ plant.

44) To treat malaria during pregnancy WHO recommends the use of __ in early pregnancy and ___ in later stages.

45) Longitudinal Binary fission shown by __, ___ etc.

46) __ is the division of the multinucleate Protista into many multinucleate offspring by the division of cytoplasm but without any nuclear division.

47) ___ is a form of a gamogenesis in which unfertilized egg or gamete develops into a new individual.

48) __ is formation of the whole body of an organism from a small fragment or replacement of lost part.

49) If the gametes are identical morphologically, they are called __ and their syngamy is ___.

50) If the gametes are differing in size and morphology, they are called ___ and their syngamy is called ___.

51) Temporary union of two individuals which exchanges the micronuclear material is called ___.

52) In some protozoa the nucleus divides into two, two nuclei fuse together to form single cell called ___.

53) Who first observed endomixis in *Paramecium aurelia*.

54) Solation occurs at the __ end.

55) Contraction of plasmagel tube at the trailing end exerts __ pressure on plasmasol.

56) Reticulopodia are characteristics of __.

57) Lobopodia found in _, __.

58) Axopodia occur in __ and ___.

59) ____ locomotion is slow worm like movement which is performed with the help of a wave of contraction and expansion in the body.

60) __ arrangement found in axoneme.

61) _____ is the name of the dried skeleton of ‘Venus’s flower basket'.

62) Collared, flagellated cells that cover large parts of the inner chambers of sponges, helping water circulation to continue are ____.

63) __ is a flagellated larva of *Leucosolenia.*

64) Poriferan evolution from protozoans is evidenced by animals such as __.

65) The chamber common to all the types of the canal system of sponges is __.

66) Digestion in porifera is ___.

67) __ is commonly called as bath sponge.

68) Skeleton of sponge is produced by __.

69) Choanocytes in sponges found in ___.

70) Gemmules are helpful in ___.

71) The body of porifera has a thin wall and spongocoel this cavity is also known as __.

72) The opening of radial canal into spongocoel is called ____.

73) The openings of the incurrent canals into flagellated chamber are called __.

74) In *Leucilla* ___ type of canal system found.

75) *Stelleta , Geodia* have ___ type of canal system.

76) Spongilla have ___ type of canal system.

77) ___ first observed the flow of water in the body wall by adding powerded caramine to the water.

78) Spicules are composed of ___ in the form of needle shaped pieces whereas spongin fibres are formed of ___.

79) Spongin is soluble in __.

80) __ will keep the dermal ostia and canals open throughout the life.

81) Ctenophores are commonly called as Comb Jellies or Sea walnuts due to presence of __ for locomotion.

82) __ first recognized ctenophora as a distinct group.

83) Larval form of Ctenophores is __.

84) Nematocyst is filled with a proteinaceous poison fluid called ___.

85) In *Aurelia* the balance and equilibrium organs are present called ___.

86) Corals form a symbiotic relationship with __.

87) The type of reef is directly attached to a shore with an intervening shallow channel called __.

88) Red sea is the example of __ reef.

89) Suvadiva of Maldives, Bikini, Orona are examples of ___.

90) __ encircle the coasts of an island or continent with a large strech of water called lagoon.

91) ___ is a ring like circular or horse shoe shaped reef which partly or completely encloses a central lagoon.

92) In *Obelia gastrozooid* and hydrotheca collectively form __.

93) In *Obelia gonozooids* , gonophores , gonotheca collectively form ___.

94) The mesenteries attached to the stomodeum are known as ___.

95) The function of a dactylozooid in polymorphic colony is ___.

96) Polymorphism is found in ___.

97) The function of a tentaculocyst in *Aurelia* is ___.

98) An example of a soft coral ____.

99) The scientific name of precious red coral is ___.

100) A sea anemone was found growing on a Gastropodan shell occupied by a hermit crab shows ___ type of relationship.

101) The larva of *Physalia* is ___.

102) Example for a permanently sessile Scyphozoan is ___.

103) Mesogloea secreted by ___.

104) Most sensitive region of the body of Hydra is __.

105) Pennatula generally known as ___.

106) Based on the feeding habit of Obelian medusa it is called as __.

107) Alternation of generation as seen in *Obelia*, is termed as ___.

108) Obelia is ___.

109) Medusa of Obelia differs from Aurelia in having ___.

110) The number of tentacles of *Obelia medusa* is __.

111) Larva of Obelia is ___.

112) *Obelia* is a hydroid of __.

113) The stolen of *Obelia* is known as __.

114) Coenosarc is a __.

115) Nutritive zooid of *Obelia* is __.

116) Blastozooid is ___.

117) Manubrium and velum are the parts of ___.

118) Haploid stage in life history of *Obelia* is ___.

119) How many gonads present in a medusa ?

120) Statocyst is a sense organ present in ___.

121) *Fasciola miracidium* develops into the next stage inside __.

122) Planorbis and Lymnaea are the intermediate host of __.

123) Which of the infective stage to primary host of *Fasciola*?

124) One of the following larval stage of *Fasciola* does produce several larvae ?

125) Which layer of Dugesia contains rhabdites ?

126) In *Fasciola* the region where the shell gland opens into is the ___.

127) *Fasciola* hepatica is a parasite that lives in the ___.

128) In *Fasciola* the germ cells of the redia gives rise to __.

129) Liver fluke is not affected by enzymes of host because of __.

130) The stage of life history of the liver fluke when it infects the primary host is ___.

131) Which stage of Liver fluke infects the intermediate host ?

132) Primary host of *Fasciola* is __.

133) For attachment *Fasciola* has __.

134) In *Fasciola* germ balls of Redia give rise to __.

135) Which of the infectious stage to secondary host of *Fasciola* ?

136) Protonephridia perfer the function in *Fasciola* is __.

137) The cause of 'liver rot' in sheep is __.

138) Where does *Fasciola* hepatica primarily reside in the definitive host?

139) What is the primary method of transmission for *Fasciola hepatica*?

140) What are the symptoms of *Fasciola hepatica* infection in humans?

141) What is the primary treatment for *Fasciola hepatica* infection in humans?

142) How is *Fasciola hepatica* diagnosed in humans?

143) What type of habitat is suitable for the snail intermediate host of *Fasciola hepatica*?

144) In Taenia, cross fertilization between different proglottids of the same individual occurs and this is called __.

145) Taenia belongs to order ___.

146) A proglottid is called gravid proglottid when it has ____.

147) In Taenia, scolex bears in the middle a prominent ___.

148) In *Taenia solium* the proximal portion of the oviduct that leads into the vagina is called ___.

149) A gravid proglottid of Taenia has ___.

150) Cysticercosis is a disease caused by accidental infection of ___.

151) Area for proliferation in body of Taenia is __.

152) Apolysis is a process in Taenia for ____.

153) Suckers in tape worm are meant for ___.

154) Secondary host of Taenia is ___.

155) Taenia lack of __.

156) The excretory product of Taenia is ___.

157) Larval forms of Taenia is ___.

158) In which forms Taenia pass through feacal metter of man is ___.

159) Pig acquired infection of Taenia by ingestion of is ____.

160) Cysticercus in pig muscle can remain for __ .

161) *Taenia saginata* is commonly known as ___.

162) *Taenia solium* is commonly known as ____.

163) The encystment of bladder worm occurs in man is ___.

164) In Cnidaria the mouth is centrally located in a projection is called __.

165) Medusome theory was proposed by __.

166) Euglena belongs to ____ class .

167) The Surface - tension theory of amoeboid movement was given by ____.

168) __ larva of *Fasciola hepatica* is called juvenile fluke.

169) Body cavity of *Ascaris lumbricoides* is __.

170) __ nematodes parasite exhibit Viviparity.

171) How is *Ascaris lumbricoides* transmitted ?

172) What is the most common symptom of *Ascaris lumbricoides* infection?

173) How is *Ascaris lumbricoides* diagnosed?

174) What medication is commonly used to treat *Ascaris lumbricoides* infection?

175) Who is at a higher risk of *Ascaris lumbricoides* infection?

176) How long does *Ascaris lumbricoides* infection last without treatment?

177) What is the best way to prevent *Ascaris lumbricoides* infection?

178) How many people worldwide are estimated to be infected *with Ascaris lumbricoides*?

179) What is the life cycle of *Ascaris lumbricoides* ?

180) What part of the body does *Ascaris lumbricoides* infect?

181) Ascaris has _____ cells in the excretory system.

182) Syncytial epidermis is found in___.

183) _____ is known as a coelom derived from blastocoel.

184) ___ is the basis on which female Ascaris can be identified.

185) In Ascaris, the period of incubation outside the human body is ___.

186) In the life cycle of Ascaris, the infective stage is ___.

187) The body cavity of Ascaris is pseudocoel as ____.

188) *Ascaris lumbricoides* is found living in the intestine of __.

189) The process of morphological differentiating male and female sexes is known as ____.

190) Filariform larvae are observed with ___.

191) The filarial larva can be collected from the sample of ___.

192) The sperm of nematodes are ___.

193) The causative of filariasis is ____.

194) Filariasis in India is transmitted by ___.

195) *Ascaris lumbricoides*, commonly is known as ____.

196) Elephantiasis has incubation period in human beings is ____ days .

197) Parasite of elephantiasis is __.

198) The first stage of juvenile of elephantiasis is __.

199) Inside the mosquito muscles microfilariae are transformed into ___ .

200) Filariasis is also known as elephantiasis because of __.

201) Wuchereria is found in___.

202) Disease restricted to particular areas or population is __.

203) Internal bleeding, muscular pain , blockage of intestinal passage and anaemia are symptoms of infection by ___.

204) The body of the helminthes is covered by thick covering is called as __.

205) In *Fasciola hepatica*, Miracidium larva has __ and Cercaria larva has a __ for locomotion.

206) ____ is known as trophic organs.

207) Diethylcarbamize , Ivermectin , or Albendazole are used for the treatment of ___.

208) A ___ is an organism that acts initially as a true parasite and spends a significant portion of its life history in the host.

209) Female ___ penetrates into intestinal villi , peritoneum, or mesenteric lymph glands to release larva.

210) __ are Chemoreceptors and __ tangoreceptors of nematodes.

ANSWERS:-

1) 4	**106) carnivorous**
2) Sporozite	**107) Metagenesis**
3) Within and changes	**108) Dimorphism**
4) Lambel and Losch	**109) A thopalium**
5) Entamoeba histolytica	**110) 16**
6) Minute	**111) Planula**
7) Diamond's medium	**112) Marine water**
8) Cecum	**113) Hydrorhiza**
9)Tinidazole, Nitazoxanide,Metronidazole	**114) Inner, tubular, living**
10) central	**115) Gastrozooid**
11) 1-4 nuclei	**116) Gonozooid**
12) Trophozoite	**117) Medusa**
13) One	**118) Gametes**
14) General body surface	**119) Four**
15) Trophozoite	**120) Medusa**
16) Entamoeba gingivalis	**121) Limnea trunculata**
17) No food vacuoles	**122) Fasciola**
18) Intestine	**123) Metacercaria**
19) 8	**124) Cercaria**
20) Abscesses	**125) Epidermis**
21) Quadrinucleate mature cyst and Trophozoite	**126) ovovitelline duct**
22) Female Anopheles mosquito	**127) Liver of sheep**
23) Digenetic host	**128) Daughter redia larva**
24) Stool sample analysis	**129) Cuticle**
25) Diarrhea and abdominal pain	**130) Cercaria larva**

26) Intestine	**131) Cercaria larva**
27) Individuals living in areas with poor sanitation	**132) Sheep**
28) *P. falciparum*	**133) Two suckers**
29) P. falciparum	**134) Daughter redia**
30) Recrudescence	**135) Miracidium larva**
31) Schüffner's dots , Ziemann's stipplings , Maurer's clefts , James' dots or James' stippling	**136) Excreation**
32) Pre-patent period	**137) Fasciola hepatica**
33) 8 days	**138) Bile ducts of the liver**
34) Incubation period and 14 days	**139) Consumption of contaminated water or vegetation**
35) Microgametocytes and Macrogametocytes	**140) Abdominal pain, diarrhea, fever, and fatigue**
36) Gametogony	**141) Antiparasitic medications, such as triclabendazole**
37) Reception zone	**142) Through a physical examination, blood test, ultrasound or CT scan**
38) Ookinete Stage or Vermicule	**143) Wetlands and marshes**
39)Diploid	**144) Human**
40) RDT	**145) Pig**
41) June	**146) 2-7 meters**
42) Malaria	**147) Taeniasis and Cysticercosis**
43) Cinchona	**148) Receptaculum semines**
44) Quinine plus Clindamycin and ACT	**149) Well developed male reproductive system and degenerate female reproductive system**
45) Euglena , Vorticella	**150) Bladderworm of Taenia**
46) Plasmotomy	**151) Neck**
47) Parthenogenesis	**152) Regular detachment of Proglottid from strobilla**
48) Regeneration	**153) Attachment to intestinal wall**
49)Isogametes and Isogsmy	**154) Pig**
50) Anisogametes and Anisogamy	**155) Digestive, Reproductive, and Excretory system**
51) Conjugation	**156) Ammonia and Fatty acids**
52) Automixis	**157) Oncosphere , Hexanth , Cysticercus**
53) Erdmann	**158) Oncosphere**
54) Uroid end	**159) Oncosphere**
55) Hydraulic pressure	**160) 7 years**
56) Elphidium	**161) Beef tapeworm**
57) Amoeba , Entamoeba	**162) Pork tapeworm**
58) Heliozoans and Radiolarians	**163) Brain**
59) Wriggling locomotion	**164) Manubrium**
60) 9+2 arrangement	**165) Haeckel**
61) Euplectella	**166) Euglenoidea / Mastigophora**
62) Choanocytes	**167) Berthold**

63) Parenchymula	**168) Metacercaria**
64) Proterospongia	**169) Pseudocoelom**
65) Paragastric cavity	**170) *Wucheria bancrofti***
66) Intracellular	**171) Through ingestion of eggs in contaminated food or water**
67) Euspongia	**172) Abdominal pain**
68) Sclerocytes	**173) Stool sample analysis**
69) line of the gastric cavity	**174) Anthelmintic medication**
70) Survival in drought	**175) Children**
71) Paragastric cavity	**176) Several years**
72) Apopyle	**177) Practicing good hygiene**
73) Prosopyles	**178) 1 billion**
74) Eurypylous type canal system	**179) Adult, egg, larvae**
75) Aphodus canal system	**180) Small intestine**
76) Diplodal type canal system	**181) Renette cells**
77) Robert Grant	**182) *Ascaris lumbricoides***
78) Lime or Silica and Scleroprotein	**183) Pseudocoel**
79) KOH	**184) Straight posterior end**
80) Spicules	**185) 15-30 days**
81) Eight comb like plates	**186) Second larva**
82) Eschscholtz	**187) bound extremely by muscle layer and internally by intestines**
83) Cydippid larva	**188) Homo sapiens**
84) Hypnotoxin	**189) Sexual Dimorphism**
85) Tentaculocyst or Rhopalia	**190) *Ascaris lumbricoides***
86) Zooxanthellae	**191) Peripheral blood at midnight**
87) Lagoon	**192) Amoeboid**
88) Fringing reef	**193) *Wuchereria banocrofti***
89) Atoll	**194) Culex fatigens**
90) Barrier reef	**195) Round worms**
91) Atoll	**196) 5-18 days**
92) Hydranth	**197) Ovoviviparous**
93) Gonangium	**198) Microfilariae**
94) Primary	**199) 3rd stage of infective juveniles**
95) Offence and defense	**200) Excessive enlargement of body parts like eggs**
96) Cnidaria	**201) Lymph nodes**
97) Balancing	**202) Endemic**
98) Alcyonium	**203) Ascaris lumbricoides**
99) Corallium rubrum	**204) Tegument**
100) Commensalism	**205) Cilia and Tail**
101) Planula larva	**206) Organs of nutrition**
102) Lucernaria	**207) *Wuchereria bancrofti***
103) Ectoderm and Endoderm	**208) Parasitoid**
104) Mouth	**209) Trichinella spiralis**
105) Sea pen	**210) Amphids and Sensory papillae**

PART- II

B) Very Short Notes.

1) Pre- cystic stage of *E.histolytica*

2) Excystation

3) Treatment of *E.histolytica*

4) Amoebiasis

5) Metacyst

6) Signet ring stage

7) Schizont stage

8) Ookinete stage

9) Longitudinal binary fission

10) Multiple fission

11) Plasmotomy

12) Axopodia

13) Fliopodia

14) Wriggling locomotion

15) Calcarea

16) Mastigophora

17) Demospongia

18) Ascon type canal system

19) Significance of Canal system

20) Chaonoflagelletes

21) In current canal

22) Radial canal

23) Syncytial theory of evolution of Metazoa

24) Difference between Colonial and Synyctial theory

25) Megascleres types of spicules

26) Composition of spicules

27) Significance of spicules

28) Spongin fibres

29) Comb plates of ctenophora

30) Cydippid larva

31) Bioluminescence in Ctenophora

32) Scyphozoa

33) Siphonophora

34) Gastrodermis

35) Significance of coral reef

36) Atolls

37) Volcanic crater theory

38) Threats to Coral reef

39) How do symbiotic algae enhance the formation of coral skeleton ?

40) Hydrorhiza

41) Hydrocaulus

42) Perisarc

43) Differentiate between Coenosarc and Perisarc

44) Differentiate between Nutritive poly and Reproductive poly

45) Pneumatophore

46) Significance of Polymorphism

47) Dactylozooids

48) Nectophores

49) Bracts

50) Cestoda

51) Flame cells

52) Sporocyst larva

53) Cercaria larva

54) Scolex

55) Tegument

56) Oncosphere larva

57) Mehli's gland

58) Apoysis

59) Proglottids

60) Degeneration of organs parasitic adaptation

61) Pseudocoel

62) Rennate cells

63) Rhabditiform larva

64) Symptoms of Ascaris

65) Treatment of Ascaris

66) Microfilariae

67) Elephantiasis

68) Chyluria

69) Anti enzymes

70) Reproductive adaptation of helminthes

PART -III

C) Short Notes.

1) Differentiate between Obligatory and Facultative parasite

2) Organs of attachment of helminthes

3) Digram of Life cycle of *Fasciola hepatica*

4) Morphological Structure of *Wuchereria bancrofti*

5) Morphological Structure of *Ascaris lumbricoides*

6) Rotifera

7) Differentiate between Ectoparasite and Endoparasite

8) Strobilla

9) Scolex

10) Nematoda

11) Cysticercus larva

12) Redia larva

13) Sporocyst larva

14) Miracidium larva

15) Metacercaria larva

16) Tegument of helminthes

17) Taenoidea

18) Digenea

19) Monogenea

20) Trematoda

21) Modification of Polyps

22) Origin of Polymorphism

23) Differentiate between Polyp and Medusae

24) Alternation of generation

25) Siphonophora

26) Differentiate between Gonozooid and Gastrozooid

27) Body wall of Obelia

28) Fringing reef

29) Barrier reef

30) Atoll

31) Darwin-Dana theory

32) Daly-Glacial control theory

33) Zones of Coral Reef

34) Hydrozoa

35) Anthozoa

36) Cydippid larva

37) Affinities of Anthozoa with Ctenophores

38) Affinities of Platyhelminthes with Ctenophores

39) Differentiate between Colonial theory and Syncytial theory

40) Ascon type canal system

41) Sycon type canal system

42) Rhagon type canal system

43)Eurypylous type of Canal system

44) Diplodal Canal system

45) Calcarea

46) Amoeboid movement

47) Flagella

48) Cilia

49) Automixis

50) Endomixis

51) Spore formation

52) Sporozoite

53) Trophozoite

54) Cystic stage

55) Pseudopodial locomotion

PART- IV

D) Long questions with suitable labelled diagram.

1) Explain life cycle of *Entamoeba histolytica*.

2) Give an account of life cycle of *P.vivax* and methods for its control.

3) What is Conjugation? Discuss the methods of Conjugation.

4) Discuss the asexual reproduction of protists.

5) Give an account of different modes of locomotion in protists.

6) Discuss the general characteristics of Porifera and its classification.

7) Discuss the general characteristics of Cnidaria and its classification.

8) What is Canal system? Discuss the canal system in porifera.

9) Give the general characteristics of *Ctenophores* and write its affinities.

10) Discuss the general characteristics of Cnidaria and classification of Cnidaria upto order.

11) What is Coral Reef? Discuss the types and formation of coral reef . Explain various theories of formation of coral reefs.

12) Discuss the metagenesis in obelia?

13) What is Polymorphism? Write an essay on Polymorphism in Cnidaria.

14) Discuss the general characteristics and classification of Platyhelminthes upto order .

15) Discuss the life cycle of *Fasciola hepatica*.

16) Discuss the life cycle of *Taenia solium*.

17) Discuss the life cycle of *Ascaris lumbricoides*.

18) Discuss the life cycle of *Wuchereria bancrofti*.

19) Discuss the general characteristics and classification of Nematohelminthes upto order.

20) Discuss the parasitic adaptation of *helminthes*.

DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

Paper – CC – II(ECOLOGY)

Part-I

A. Fill in the blanks.

1) The main nitrogen reservoir in the biosphere is _____.
2) The Law of minimum was proposed by _____.
3) _____ rule represents that a Birds andMammals attain a greater body size in cold region than in warm region.
4) In a population the unrestricted reproductive capacity is called as _____.
5) The association of species in which both populations are benefited and the relation is Obligatory called _____.
6) In an ecotone, the species which became abundant are known as_____.
7) Succession initiating on sand is_____.
8) A group of organisms of same species living in a particular area for a particular period of time form a _____.
9) The term Ecology was coined by _____.
10) The ecological study of individual species is called _____.
11) The synonym of synecology is _____.
12) The word Ecosystem was first coined by _____.
13) Flowing or running water refer to _____ecosystem and standing water bodies called ___ ecosystem.
14) Shallow water region of pond/lake close to the shore with light penetration to the bottom is called ___Zone.
15) The well lit, open surface waters in a pond /lake away from the shore is called ___.
16) The Zone of pond/ Lake which is beyond the reach of light is called_____.
17) The bottom sediment (rock, sand) of lake/pond is called _____.
18) Lakes formed by earthquakes are called as_____.
19) Euglena, Volvox, Eudorina, Anabaena, Oscillatoria etc. are _____ of pond ecosystem.
20) Lake's poor in nutrient matter is are called _____.
21) The submerged as well as floating algae with weak system naming Spirogyra, Chara, Oedogoniumetc are _____ type of algae.
22) Pistia, Lemna, Wolfia, Eichhorniaetc are _____ type of plants.
23) Aspergillus, Rhizopus,Penicillium, Alternaria, Trichoderma etc are ___ of pond ecosystem.
24) The region of sufficient light and active photosynthesis extends upto 50 meters are called _____.
25) The region with decreasing light and increasing depth up to 200 meters are called _____.
26) The region without light beyond 200meters are called _____ .

27) The angle of descent of the continental shelf when changes abruptly andbecomes a steep slope is called _____.
28) The Continental Slope levels off into a more / less horizontal expanse which forms the ocean floor at a depth of several thousand meters are called _____.
29) _____ is the ability of ecological systems to maintain stable system properties despite perturbations.
30) The term Homeostasis was coined by ___.
31) The evolutionary stability or preservation of a system's flow or pulsing process as a pathway of change through time is called _____.
32) The term homeorhesis was coined by _____.
33)_____ pyramid is always upright.
34) Inverted pyramid of biomass is found in _____ ecosystem .
35) Inverted pyramid of number is found in _____.
36) "A vertical bar graph in which the number of organisms or their biomass or the energy available at each trophic level is shown with the producers forming the base and successive trophic levels the apex is called _____.
37) _____ coined the term ecological pyramid.
38)_____ is a graphic representation of holistic, non-linear web of primary producers, primary consumers, & higher level consumers used to describe ecosystem structure & dynamics.
39) The connection between a grazing and detritus food chain is described by _____ model.
40) The sequential interlinking of organisms involving the transfer of food and energy from the producers through a series of organisms with repeated eating and being eaten is called as _____.
41) 10% law was given by _____.
42) If the energy available to the plants from the sun is 30,000J _____wouldbe the energy available to the lion in the food chain.

43) The rate of photosynthesis during the measurement period including the organic matter used up in photosynthesis is called _____.
44) The rate of storage of organic matter in the plant tissues in excess of respiratory utilization by the plants during the period of measurement is called _____.
45) If Pg> R_____ &Pg<R _____.
46) Oxidation of ammonia (NH_3) to Nitrite(NO_2) is called _____.
47) Nitrosomonas,Nitrosospira, Nitrosococcus, Nitrosolbus are ____ type of bacteria and Nitrobacter,
Nitrospina, Nitrococcus _____ type of bacteria.
48) Release of ammonia from organic nitrogenous compounds is called _____.
49) Pseudomonas, Bacillus, Proteus, Clostridium and Micrococcus are _____ type of bacteria.
50) Animals that can tolerate very large variations in salinity are called _____.
51) The idea that an organism is no stronger than the weakest link in its ecological chain of requirements was first clearly expressed by _____.
52) When animals are confronted with lights of equal brightness they move towards or away to a position that is distance between the two light is called _____.
53) The velocity or speed of the movement of certain animals is regulated by light is called _____.

54) When larvae of Musca domestica are exposed to light only a part by the body of an animal deviates always from the source of light is termed as _____.
55) The light directed growth mechanism shown by organisms is termed as _____.
56) ____ shows positively phototactic.
57) The phenomenon in which development of certain animals morphological growth and development is suspended or greatly retarded is called _____.
58) The layer of warm water at the surface of lake is called____ and below the epilimnion is a transitional zone where temperaturesof water rapidly changes with depth is called _____.
59) The darker and colder region of lake is called _____.
60) The high temperature at which locomotion becomes uncoordinated and the animal loses its ability to escape is termed as ____.
61) According to Allen's rule the mammals from colder climates have ____.
62) _____ rule says that the body shapes and proportions of endotherms vary by climatic temperature by either minimizing exposed surface area to minimize heat loss in cold climates or maximizing exposed surface area to maximise heat loss in hot climates.
63) _____ rule states that finray, vertebrae or scale numbers to increase with decreasing temperature.
64) _____ rule States that races of birds with relatively narrow and more acuminate wings tend to occur in colder region, while those in warmer climates tend to bebroader.
65) The relation between seasonal changes of temperature and body form is manifested in a remarkable phenomenon termed as _____.
66) "The size and colouration of animals are subject to influence by temperature." states _____rule.
67) Organisation responsible for Red Data book/Red List is _____.
68) The formula for exponenitial population is _____.
69) In a population unrestricted reproductive capacity is called as _____.
70) Birth and death ratio is called as _____.
71) Natality is mathematical represented as _____.
72) When the size of a populationincreasing in an exponential manner is plotted against time on a graph, the resultant population growth curve resembles _____ curve.
73) The Carrying Capacity (K) of a population is determined by its _____.
74) The concept that population tends to increase geometrically while food supply increases arithmetically was put forward by _____.
75) _____ phases does a logistic growth curve.
76) _____ is the initial phase in logistic growth curve.
77) In _____ phase of logistic growth curve organisms in a population multiply at a faster rate.
78) Match the following.

A	B
a) Log phase	i) Organisms growth gradually reduce
b) Negative Acceleration Phase	ii) Organisms multiply at faster rate
c) Deacceleration Phase	iii) Organism increases slowly and tend to adopt new environment
d) Lag Phase	iv) Organisms increase slowly

79) _____ phase population achieves zero growth.
80) Exponential growth is observed in ___ fashion.

81) Logistic growth curve equation is _____.
82) Logistic growth curve proposed by _____.
83) r strategy and k strategy shows_____ and _____ type of surviourship curve respectively.
84) _____and _____ type Succession found in r & k selection respectively.
85) A biologist studied of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20, emigration 30.The net increase in population is ___.
86) Cuscuta is an example of __.
87) Mycorrhiza is an example of___.
88) __ type of association is found in between Entomophilous flower and pollinating agent.
89) Two different species cann't live for long duration in the same niche or habitat. This law is ___.
90) The abundance of a species population within it's habitat is called __.
91) Association of animals where both partners are benefitted ___.
92) Competition for light, nutrients and space is most between _____.
93) The functional role played by the organism where it lives is called _____ .
94) The relationship in which A is benefited (+) but B has no effect (0)_____ type of interaction.
95) A type of symbiosis in which one organism benefits at the expense of the other is called ___.
96) A fundamental niche is maximum niche having no _____.
97) The association in which one species adversely affects another population but itself remains unaffected is called __.
98) The association which is harmful to both the partners is __.
99) ___ is a type of partnership between two separate species organisms in which both benefit, but the relationship is not necessary.
100) Other name of Protocooperation is _____.
101) The interaction between ants andaphids is an example of _____.
102) Gauses' principle is otherwise known as _____.
103) When the leader of a group is female than it is _____ group and leader is male ___ group.
104) Elephants a and red deers have _____group.
105) Kangaroos, monkey, lion, tiger, hippocampus, zebras, antelopes etc. have _____ group.
106) Lincoln index measures _____.
107) Inhibition of growth of one species by another by the production of toxins is called _____.
108) The eggshell of birds becomes thin by the pollution from pesticides due to the interference in the activity of _____.
109) The interaction in which the larger members eat up the smaller ones of their own species is called___.
110) A _____ is a semichemical emitted by an organism which mediates interspecific interactions in a way that benefits an individual of another species which been receives it without benefitting the emitter.
111) Cuckoo and cowbird which don't built nests of their own but deposit their eggs in the nests of other species is called _____.
112) _____are organisms whose larval development occurs inside or on the surface of another organism, resulting the death of host.
113) _____ which help in increase the biodiversity of communities by preventing a single species from becoming dominant.

114) The process of evolution toward niche divergence in the face of competition is called _____.
115) The types of species found in a community are known as _____.
116) Measure of diversity among communities is known as _____.
117) The layering of organisms or environmental conditions within a biotic community is referred to as_____.
118) The term (p_i) in the Shannon-Weiner index is _____.
119) On an ecological time scale the process of directional change in community composition is known as _____.
120) _____ selection pressure is obtained in late succession stage.
121) _____ is the entropy of the early succession community.
122)_____succession processess describes the development of bare are without any form of life.
123) The term climax in the coined by _____.
124) _____ developed Polyclimax theory.
125) _____term is given to the process of successful establishment of species.
126) The place where two major communities blend together is called _____.
127) The narrow zone of habitat transition is frequently termed as an _____.
128) The sum of the squares of the deviationsof the values of a variable is least when the deviations are measures from _____.
129) The mediation of the observations 2,4,4,5,6,6,6 is _____.
130) The harmonic mean of 3,4,5 is _____.
131) Empirical relation between mean, median and mode is _____.
132) The suitable average for qualitative data is _____.
133) The arithmetic mean of the absolute deviations ofthe observations of adistribution from its mean, median or mode is known as __.
134) The positive square root of the arithmetic mean of the squares of the deviations of the values of a distribution from its arithmetic mean is called ___.
135) Standard deviation is denoted by symbol _____.
136) The square of standard deviation is called __.
137) Standard deviation is always calculated from __.
138) The measures of dispersion can never be __.
139) The value of which represents the characteristics of the entiredataset considering each and every value in the set of data is called ___ .
140) A hypothesis which is to be actually tested for acceptance or rejectionis termed as ___.
141) Null hypothesis is denoted by ___.
142) T- t-test to know the significance of difference of means of two sampleswas applied by __.
143) Chi Square test was developed by ___.
144)___ is used todetermine the conformity between an experimental result and theoretical expectation.
145) ___ goodness of fit test is always a right tail test.
146) ___ is a non parametric test.
147) Chi Square test is denoted by _____.
148) _____ test used of an observed sample correlation cofficient and regression coefficient.
149) The scatter in a series of values about the average is called_____.
150) In ecological succession, the intermediate developmental phase is known as ___.

151) Formation of a bare area by several reasons such as volcanic eruption , flooding, erosion called ___.
152) The successive establishment of species in a bare area called __.
153) Monoclimax concept was discovered by __.
154) Polyclimax theory developed by _____.
155) Climax pattern theory developed by __.
156) Climax community is in a state of ___.
157) _____ plants occupying the second state of hydrosere.
158) Order of basic process involved in succession is ___.
159) The effects of individual of same species upon each other is called as ___.
160) Number of species is more at ecotone this phenomenon is known as __.
161) Pioneer community in xerosere is ___.
162) Succession which shows changes in communities at a place is called __.
163) ___ hotspot region has highest number of endemic endangered animals.
164) The term conservation was first coined by ___.
165) The wildlife act was introduced in ___.

ANSWERS :-

1)Atmosphere	**84) Early and Climax**
2) Justus Von Leibig	**85) Zero**
3) Bergmann's rule	**86)Ectoparasite**
4) Biotic potential	**87) Symbiotic relationship**
5) Mutualism	**88) Co-evolution**
6) Edge species	**89) Gause's hypothesis**
7) Psammosere	**90) Niche density**
8)Population	**91) Mutualism**
9) Ernst Hackel	**92) Closely related organism growing in same niche**
10) Autecology	**93) Niche**
11) Community ecology	**94) Commensalism**
12) A.G. Tansley	**95) Parasitism**
13) Letic& Lotic Ecosystem	**96)Competitors**
14) Littoral zone	**97) Amensalism**
15) Limnetic zone	**98) Competition**
16) Profoundal zone	**99) Protocooperation**
17) Benthic Zone	**100) Synergism**
18) Tectonic lake	**101) Protocooperation**
19) Oligotrophic	**102) Competitive exclusion principle**
20) Producer	**103) Matriarchal and Patriarchal group**
21) Filamentous Algae	**104) Matriarchal group**
22) Surface floating plants	**105) Patriarchal group**
23) Decomposers	**106) Population size**
24) Euphotic Zone	**107) Alleopathy**
25) Dysphotic zone	**108)coATPase**

26) Aphotic Zone	**109) Cannibalism**
27) Continental Slope	**110) Kariomone**
28) Abyssal plane	**111) Brood parasites**
29) Homeostasis	**112)Parasitoids**
30) Walter Cannon	**113) Keystone Species**
31) Homeorhesis	**114) Character displacement**
32) Waddington	**115) Species composition**
33) Pyramid of energy	**116) Gamma diversity**
34) Pond ecosystem	**117) Stratification**
35) Parasitic food chain	**118) Intermediate frequency of disturbance**
36) Ecological Pyramid	**119) Succession**
37) Charles Elton	**120) K-Selection**
38) Fool web	**121) High**
39) Y. Shaped food chain model	**122) Nudation**
40) Food Chain	**123) Cowles**
41) Lindeman	**124) A.G .Tansley**
42) 300 j	**125)Ecesis**
43) Gross primary productivity	**126)Ecotone**
44) Net primary productivity	**127) Edge**
45) Biomass decreases and Biomass increases	**128) Arithmetic mean**
46) Nitrosification	**129) 5 phase**
47) Ammonium oxidizer bacteria and Nitrite oxidizer bacteria 48)Ammonification	**130) 0.038**
49)Ammonifying bacteria	**131)Mean-Mode=3[Mean-Median]**
50) Euryhaline	**132) Median**
51) Justus Von Leibig	**133)MeanMeviation**
52) Phototropotaxis	**134) Standard deviation**
53) Photokinesis	**135) Sigma**
54) Photokilokinesis	**136) Variance**
55) Phototropism	**137) Mean**
56) Ranatra	**138) Negative**
57) Diapause	**139) Central tendency**
58) Epilimnion and Metalimnion	**140) Null hypothesis**
59) Hypolimnion	**141) Ho**
60) Critical thermal	**142) W.S. Gosset**
61) Shorter ears and limbs	**143) Garret**
62) Allen's rule	**144) Goodness of fit**
63) Jordan's rule	**145) Chisquare test**
64) Rensch's rule	**146) Chisquare test**
65) Cyclomorphosis	**147) x2**
66) Gloger's rule	**148) Students t-test**
67) IUCN	**149) Dispersion**
68) dN/dt =rN	**150) Sere**

69) Biotic potential	**151) Nudation**
70) Vital index	**152) Invasion**
71) dNn / Ndt	**153) F.E .Clements**
72) J shaped	**154) A.G. Tansley**
73) Limiting resources	**155) Whittakar**
74) Thomas Malthus	**156) Equilibrium**
75) 5 phases	**157) Vallisneria**
76) Lag phase	**158) Nudation _Invasion Completion & Coaction →Reaction _Stabilization**
77) Log phase	**159) Coaction**
78) a =ii ,b= i,c= iv , d=iii	**160)Edge Effect**
79) Stationary phase	**161)Crustose Lichen**
80) Geometric	**162)Biotic Succession**
81) dN /dt = rN (K-N / K)	**163) Sundaland Hotspot**
82) P.F. Verhulst	**164) Gifford Pinchot**
83) Type iii and Type i , ii	**165) 1972**

PART-II

B. Write Very short notes .

1) Autecology
2)Synecology
3)Leibig's law of minimum
4)Photoperiodism
5) Circadian rhythms
6) Cyclomorphosis
7) Thermal Stratification
8)Rensch's rule
9)Allen's rule
10)Bergman's rule
11) Gloger rule
12) Jordan's rule
13) Parasitic food chain
14) Fecundity table
15)DefineEcotone.
16) Write about Gouse's principle.
17) Null hypothesis
18)Define Range.
19) What is trophic link.
20) Natality
21) Age ratio
22) Upright pyramid of Number
23) Emigration
24) Survivorship Curves

25)Altruism
26)Leadership
27) Pheromones
28) Allomone
29) Cannibalism
30)Visual signalling
31) Protocooperation
32) Ammensalism
33) Obligatory parasite
34) Kairomone
35)Depressants
36) Threshold Security
37) Species Richness
38) β- diversity
39) Edge effect
40) Ecotone
41) Keystone species
42) Ammonification
43) Ecesis
44) Invasion
45) Difference between Autogenic and Allogenic Succession.
46) Difference between Pioneer and climax community.
47) RAMSAR wetlands sites
48) WWF
49)Red data book
50)ICBMA
51)IUCN
52) Carrying capacity

PART-III

C. Answer short notes .

1)Food Chain
2)Food web
3) Ecological pyramid
4) Difference between r and K population
5)Shelfords Law
6) Difference between Poikilotherm and Homotherm
7)Productivity
8) Y-Shaped energy flow model
9) 10% Law
10)Mortality
11) Population dispersion
12)Sigmoid Growth pattern (S-Shaped curve)
13) J-Shaped Curve

14) Character Displacement
15) Distinguish between Interspecific and Intraspecific relationship
16) Temporal stratification
17)Horizontal stratification
18) Shannan -weiner index
19) Simpson's Diversity index
20) Difference between Ecotone and Ecocline
21)Nitrification
22) Denitrification
23)Polyclimax theory
24) Climax pattern hypothesis
25)Difference between Natality and Mortality
26) Biodiversity Hot Spot
27) Mean
28) Median
29)Mode
30) t-test
31) Chi Square test
32) Standard deviation
33) Mean deviation
34) Difference between Density dependent and density independent factors
35)Difference between J shaped and S shape growth curve
36) Difference between Realized and Potential natality
37) Difference between Beta and Gamma diversity
38) Difference between Hydrarch and Xerarch succession
39) Difference between Primary and Secondary succession
40) Difference between Mutalism and Commensalism
41) Difference between Commensalism and Amensalism
42) Difference between Mutualism and Competition
43) Difference between Mutualism and Parasitism

PART-IV

D. Long questions.

1)Describe energy flow through the ecosystem.
2)Discuss Laws of limiting factor.
3)Discuss effect of light in animals.
4) How does temperature act as limiting factor? Explain the effect of temperature on animals?
5) What is Ecosystem? Describe the Structure of an ecosystem by taking the example of pond ecosystem.
6) What is meant by population ? Describe the characteristics of population.
7) Explain the pattern of Exponential and Logistic growth curve.
8) What is population interaction?Discuss Intraspecific and Interspecific interaction?
9) Discuss Lotka and Volterra's prey-predator competition equations.
10)Discuss Gause's principle of competitive exclusion principle.

11) What is biogeochemical cycle? Describe the nitrogen cycle with appropriate diagram.
12) What is succession? What are the causes of Succession? Give a detailed account of the general process of successcion.
13) Describe the ecological succession on bare rock surface.
14) Describe the ecological succession in pond.
15) Write the methods of graphical representation of data.
16)Write the measures of central tendency of a given data.
17)Find the mean, median and mode of data Sets 10, 20, 30, 40, 50.
18)10 individuals are chosen from a population and their heights are found to be 63, 65, 66, 67, 68, 69, 70 , 71, 70, 71 inches. Can we say that the variance of distribution of the height of the population is 70 inch?
19) What is Climax Community? Write briefly about the theories that have been forwarded to explain the concept of Climax.
20) What is Standard deviation?Find the Standard deviation of set of observations - 10 ,12, 18 ,13 ,7.
21) In a nutritional study, 13 children were given a useful diet plus certain vitamin supplements while the second comparable group of 12 children was taking the useful diet. After 12 months, the gain in weight in pounds was noted as given in the table below. Can we say that the vitamin supplements were responsible for the difference in weight gain?

	Gain in weight (Ib)												
Children on vitamin	5	3	4	3	2	6	3	2	3	6	7	5	3
Children on usual diet	1	3	2	4	2	1	3	4	3	2	2	3	__

DERABIS COLLEGE, DERABISH
QUESTIONS BANK
SUBJECT - ZOOLOGY
PAPER – CORE – III

UNIT-1

1 marks questions

1. In which phylum for the first time did true coelom appear?
2. Define metamerism.
3. Enteronephric nephridia in Pheretima discharge their wastes into alimentary canal. This is primarily meant for_____.
4. What term is used for the nephridia which discharge their excretory products into the lumen of gut?
5. The difference between septal and pharyngeal nephridia in earthworm is the presence of_____.
6. In which class of phylum Annelida are sexes separate?
7. In which class of phylum Annelida clittelum absent?
8. In how many classes phylum Annelida is divided?
9. Name the kind of segmentation found in annelids.
10. Write one primary characteristic of phylum Annelida.
11. In which class of phylum annelida animals bearing numerous setae.
12. Name of the larva of annelida is_____.
13. Protodrilus belongs to the class _____ of Annelida.
14. Annelids have _____ body organization.
15. Blood vascular system is _____ type.
16. Define nervous system in annelids.
17. Locomotory organs present in annelids are_____.
18. Receptor organs present in annelids are_____.
19. Define protonephridia.
20. Define nephromixia.

1.5 Marks question

1. Define true coelom.
2. Define coelomducts.
3. Define metamerism in annelida.
4. Define parapodia.
5. What is metamerically segmentaion?
6. What are micronephridia and meganephridia?
7. What are exonephric and enteronephric?
8. Write a short note on Locomotory organs in annelids.
9. Classify phylum annelida upto classes.
10. Write the excretory organs present in Annelids.
11. Write functions of nephridia.
12. What is a nephrostome?

2 Marks question

1. List down the diagonsitic features of tubicolous polychaetes.
2. What are the special features of an Archiannelida?

3. List down the different regions of the tube dwelling polchytae Chaetopterus and the functions performed by them.
4. Explain why earthworm and leech are included under one phylum.
5. Define parapodia?
6. Give an account on sense organs in annelids?
7. Describe briefly abot the annelids.
8. Give only the outline classification of Phylum annelida.
9. Write short notes on Metamerism in annnelida.
10. Write short notes on coelom in Annelida.
11. Differentiate between exonephric and enteronephric nephridia.
12. What is protonephridia and metanephridia?
13. Compare the nephridia and coelomoduct in Annelida by giving three important features of each.
14. Differentiate micronephridium from meganephridium. 6 Marks Questions

1. Write a note on evolution of coelom and metamerism.
2. Write about general characters of annelids classify upto classes.
3. Write a note on Excretion in annnelids.
4. Describe in detail the coelom and metamerism.
5. Give an account of nephridia and coelomducts in Annelida.

UNIT-2

1 mark questions

1. What is the meaning of word “Arthopoda”?
2. What is the Characteristic feature common to all insects?
3. How many pairs of legs are found in spiders?
4. What is the scientific name of Giant water bug?
5. Name the insect Which transmits plague.
6. What is the study of insects called?
7. Body Cavity of arthopods is_____.
8. Give an example of parasitic copepod.
9. What is respiratory organs of Crustacea?
10. How Many classes does phylum arthopoda have?
11. What is the respiratory organ in spider?
12. What is the respiratory system is in Aphelocheirus?
13. The connecting link between Annelida and Arthopoda is _____.
14. Peripatus breaths by_____.
15. The excretory structures in Peripatus are_____.
16. What is ecdysome?
17. What is corpora allata?
18. What is corpora cardiaca?

1.5 Marks questions

1. Define ametabolous development.
2. Define pauro-metabolous development.
3. Define Holometabolous development.
4. What Is metamorphosis?
5. Name any three fresh crustaceans found in Delhi.
6. Name any four diseases spread by dipterous insects.
7. Name the animal group where the crystalline cone is present.

8. Explain exoskeleton in Arthopoda.
9. What do you mean by mandibulata?
10. What are beneficial inscets?
11. Enumerate four distinctive characters of Archnida.
12. Write down five important characters of Arthopods.
13. Why is peripatus regarded as connecting link between Annelida and Arthopoda?
14. What are male reproductive organs of peripatus? Write structures and position of testes.
15. Name the seven geographical groups in which species of peripatus included.
16. What is the function of slime glands in peripatus?
17. What are excretory organs found in peripatus?

2 Marks questions.

1. Write a note on geographical distribution of peripatus.
2. Describe the habit, habitat and external morphology of peripatus.
3. Describe briefly the caste system in social inscets studied by you.
4. Describe briefly Hormonal control of metamorphosis.
5. What is parthenogenesis? Give an example of class insecta.
6. What are beneficial insects?
7. Write notes on beneficial and harmful inscets.
8. Write ntes on destruction of wood by termites.
9. Write notes on gastric mill in lobster.
10. Give a brief account of the structure of a typical trachea of an insect.
11. Give an account on respiratory organs in Arthopoda.
12. Classify the peripatus giving two peculiar features in their structure and or life history.
13. Mention the annelidian features of peripatus.
14. Define discontinuous distribution and give an example.
15. Discuss the systematic position of Onchophora.

6 Marks Questions.

1. Discuss the salient features of peripatus and mention its taxonomic importance.
2. Give an account of the geographical distribution general organization and affinities of Onychophora.
3. Discuss the Vision in Arthopods.
4. Discuss ‘respiration in inscets’.
5. Write an essay on Metamorphosis in inscets.
6. Give an account on role played by inscets in human welfare.
7. Give an account on Social life in inscets and bees.
8. Give distinctive features of the phylum arthopoda and its main subdivision upto classes.
9. Classify Arthopoda up to classes giving their diagnostic charcters and familiar examples.

UNIT-3

1 marks questions.

1. Which animal is commonly known as devil fish and why?
2. What is zoological name of keyhole limpet?
3. The study of Mollusca is generally known as_____.
4. Shell of mollusca is secretedby_____.
5. Torsion is characteristic of_____.
6. Mytilus belongs to which class of phylum Mollusca?
7. Define the term Mollusca.

8. What is the generic name of shipworm?
9. What is the use of inksac and in which animal it is found?
10. Concology is the study of_____.
11. Mode of respiration in mollusca is _____.

1.5 marks questions.

1. How does torsion occur?
2. What is detorsion?
3. What are keber's organ? Where do you find them? 4. Describe the habit of Mollusca
5. Describe Scaphopoda.
6. Give the major characteristic of Cephalophoda.
7. What are identical characterstic of Mollusca.
8. Name the two respiratory pigments in the molluscan blood.
9. Define sinistral and dextral shells. Give examples for each.
10. What is Cteniduim?

2 marks questions

1. Write down the specific characters of Phylum Mollusca.
2. Is octopus dangerous for Man?
3. What is the significant feature of members of class Cephalophoda?
4. Write a short note on torsion in gastropoda.
5. Define Pallial Respiration.
6. Define Branchial Respiration.
7. Write the effects of Torsion.
8. Write the difference between torsion and coiling.
9. What is the site of torsion?
10. Write the features of Class Monoplacophora.

6 Marks Questions.

1. Classify Mollusca up to classes, giving diagnostic characters and representative examples.
2. Discuss in detail different kinds of respiration met within different molluscs.
3. What is torsion? How does it affect Gastropods?
4. Discuss 'Evolutionary significance of Trocophore Larva'.
5. Write the characters of phylum Mollusca and classify up to classes.
6. Discuss detorsion in Gastropods.

UNIT-4

1 marks questions.

1. Define an echinoderm.
2. What is aristole's latern?
3. What is zoological name of sand dollar?
4. What is the common name of echinus and which class belongs to?
5. What type of coeloms is found in echinoderms?
6. What are tube feet?
7. Madriporite absent in_____.
8. Sea pentagon is _____.
9. In starfish the water vascular system is derived from_____.
10. Sea urchin is common name of _____.

11. Brittle star belongs to the class:_____.
12. Tiedmann bodies produce free_____.

1.5 Marks questions.

1. Mention an Echinoderm with no spines and no pedicellariae.
2. Define the term trivium and bivium.
3. Define enterocoelic type of coelom formation.
4. Classify Asterias.
5. Which basic factor classified the Echinodermata?
6. Discuss the problem of symmetry in echinoderms.
7. Compare the water vascular system of a starfish with that of a holothurian.
8. Define tube feet.

2 marks Questions.

1. How will you describe echinoderms?
2. What are water vascular system and haemal system?
3. Into how many classes is phylum Echinodermata divided? Write their characterstic features .
4. Give general characters of Phylum Echinodermata.
5. Give the distinguishing characters and one example of the class Crinoidea.
6. Distinguish between Asteroidea and Ophiuroidea.
7. Which basic characters classified the Echinodermata?
8. List the basic features of Echinoderms. 9. Comments on bipinnaria larva 10. Discuss the brachiolaria larva.

6 Marks questions.

1. Give an account of the characters of Phylum Echinodermata and classify it up to classes giving examples.
2. Discuss ‘Larval forms in Echinodermata’.
3. Discuss the Affinities of Echinodermata with Chordates.
4. Discuss the water vascular system and its importance in Echinodermata.

DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER – CC - IV(CYTOLOGY)

PART -I

A) Fill up the blanks.

1) Who first studied the unicellular microscopic organisms?

2) Where does the electron transport chain occur in prokaryotes?

3) " Ominis cellulae cellula "i.e. new cells arise from pre-existing cells. Who has given the statement?

4) Who referred protoplasm as the "Physical basis of life".

5) What is the name of the space occupied by DNA in the prokaryotic cells?

6) Who discovered Prions?

7) Who suggested unit membrane concept of plasma membrane?

8) Which is a special term used for the diffusion of water through cell membranes.

9) What is the pumping of molecules or ions through a membrane against the concentration gradient?

10) Which pump maintains the cellular sodium and potassium-ion concentrations?

11) Which type of gap junctions are found in plant cells?

12) What is the alternative name of occluding junctions or tight junctions?

13) The genetic material of prokaryotic cells lacks _____ proteins.

14) Cell theory was formulated by _____ and _____.

15) Felix Dujardin described protoplasm as _____.

16) _____ gave the name "protoplasm" the first substance.

17) An older name for Mycoplasma was _____.

18) A new term _____ was proposed to denote the small proteinaceous infectious particle.

19) The fluid mosaic model of cell membrane was proposed in 1972 by_____ and _____.

20) _____ is a transmembrane protein that form hydrophilic channel which greatly accelerate the process of osmosis.

21) Carriers that transport two types of molecules in the same direction are called _____.

22) _____ is a transporter used to pump cations across the membrane and flip the membrane phospholipids.

23) $F_0 - F_1$ ATPase is a membrane bound enzyme found in the inner membrane of _____.

24) _____ are button like junctions made of two types of cadherin family proteins.

25) Tight junctions are present only in _____ and _____ contain a junction called septate junction.

26) Which are responsible for the diffusion of the drugs through the cells.

27) Which protein is present in large amount in tight junctions?

28) _____ was the first tight junction protein discovered in the year 1986, which is abbreviated as ____.

29) The claudin based pores have a radius of ____.

30) Who discovered plasmodesmata?

31) The plant cells have around _____ plasmodesmata, which connects them with the neighbouring cells.

32) Gap junctions are absent in _____ and _____.

33) What is the gap junction in nerves called?

34) The gap junctions have a wide diameter of about ____.

35) Rotigaptide has a chemical formula of _____ which is shortly known as ZP-123.

36) Which cell organelle covers the plasmodesmata of the cells?

37) Which genetic disorder is associated with dysfunction of gap junction?

38) Which of the disease associated with the nervous system is caused by disorder in gap junctions?

39) Which of the following proteins forms channels that permit electrical communication between cells across gap junctions?

40) What are the two major proteins that comprise tight junctions, cellular junctions that prevent fluids from traveling between cells and generally contribute to morphology by holding cells together?

41) Adherens junctions are formed by linking the _____ cytoskeleton to transmembrane proteins known as _____.

42) _____ is a method that uses a light microscope to track the passage of molecules across a live cell's plasma membranes.

43) Hemolytic anaemia is characterised by aberrant erythrocyte morphologies, which have been linked to abnormalities in plasma membrane proteins present in erythrocytes called _____ .

44) The major interaction responsible for stabilizing plasma membrane _____.

45) In the plasma membrane, lipid molecules are arranged in ____.

46) In the plant cell, this layer is present nearest to the plasma membrane _____.

47) Transverse diffusion (flip-flop) is the movement of _____.

48) The mobility of integral proteins can be measured by physical state of the _____.

49) The average thickness of plasma membrane of a eukaryotic cell is _____.

50) Glycolipids in plasma membrane are usually located at _____.

51) GPI anchored proteins are present in _____.

52) The main role of Carbohydrates in the cell membrane is _____.

53) A person having the enzyme which adds galactose to the end of glycolipids which determine the blood group. The blood group of person will be _____.

56) The cleavage of Spectrin network in the cell by the Proteolytic enzyme calpane indicate _____ of cell.

57) An important domain of ankyrin protein which binds to apoptosis inducing proteins of the cell is _____.

58) Ankyrin proteins have binding site for the ___ subunit of spectrin proteins.

59) The main function of Band 3 proteins in the plasma membrane of RBC is _____.

60) Which type of movement is least possible for phospholipid in the plasma membrane?

61) Which type of ER is comparatively more stable?

62) Who first observed the Golgi apparatus in 1897 ?

63) What is the name of Golgi components characterized by their dilated edges, compactly arranged in parallel fashion?

64) Which cytoplasmic organells react only with silver salt and osmic acid i.e. osmic or argentophilic in nature?

65) Which cytoplasmic organells have a high content of acid phosphatase and other hydrolytic enzymes?

66) Who first isolated lysosomes?

67) What are commonly known as 'power houses' of the cells?

68) Who introduced the term mitochondria?

69) How many principal hypotheses have been advanced to account for the oxidation and phosphorylation in mitochondria?

70) Who postulated Chemiosmotic coupling hypothesis?

71) The endoplasmic reticulum occurs in all the eukaryotic cells except _____ of mammals.

72)Camillo Golgi first described the internal reticular apparatus in the nerve cells of _____ as a special cytoplasmic area impregnated with silver nitrate.

73) Structures similar to golgi bodies found in plants have been referred to as _____.

74) Two types of golgi complex are known as ____ and _____.

75) Neurotransmitter release from neurons occurs by _____ secretory vesicles.

76) _____ is regulated as " Sucidal bag of the cells ".

77) Cytoplasmic organells called ____ are centres for cellular respiration.

78) The term ____ derived from the electrochemical gradient described as the measure of the potential energy stored as a combination of proton and voltage gradient across a membrane.

79) Detoxification of organic compounds like barbiturates and ethanol in the liver is carried out by _____.

80) Which enzymes are responsible for detoxification of organic compounds carried out by the smooth endoplasmic reticulum?

81) The signal sequence that determines whether a protein will be synthesized on a free ribosome or ribosome attached to endoplasmic reticulum is located at _____.

82) Which of the following enzyme present in the rough endoplasmic reticulum removes the signal sequence from nascent polypeptides?

83) The cysteine residues present in the reduced form in peptides that enter the endoplasmic reticulum lumen are converted into _____ when they leave the compartment.

84) Glycolipids are synthesized in the ER and _____.

85) Name the site where detoxification of xenobiotic compounds takes place?

86) Name the sequence which allows the resident protein to retain in ER lumen?

87) Which of coated vesicle transport protein from ER to Golgi?

88) Name the coated vesicle which is used to transfer protein from plasma membrane to endosome?

89) The word endoplasmic means within the cytoplasm and the word reticulum means _____.

90) How many distinct region of ER?

91) The cytoplasmic surface of which ER region lacks ribosomes?

92) Which cells are rich in smooth ER ?

93) The hydrolysis of glycogen releases glucose from the liver .This reaction takes place in which region of ER?

94) Functions of rough ER includes _____.

95) Digestion of cell's own component is known as_____.

96) _____ is formed when autophagosome fused with the endosomes.

97) The release of melanosomes from melanocytes is mediated by which of the process?

98) Name the single membrane which surrounded the vacuoles?

99) Which of the following organelle is called_____ Suicidal bags" of the cell?

100) The lysosomal membrane is rich in _____.

101) What is the pH of a lysosome?

102) Which enzymes are used as a marker for the lysosomes?

103) Lysosomes are involved in_____.

104) Which of the following staining techniques are used to locate the lysosomes?

105) Why are lysosomes considered the "garbage trucks" of a cell?

106) Name two diseases caused by lysosome malfunction?

107) Lysosomes are membrane-bound vesicles that arise from the_____.

108) Who first discovered peroxisomes?

109) Peroxisomes are usually _____in diameter.

110) Which cells in our body contains abundant peroxisomes?

111) What enzyme is used to detoxify alcohol in our body?

112) What cell organelle assists in the oxidation of fatty acids along with peroxisomes?

113) _____ syndrome is an autosomal recessive systemic disorder caused by the impairment of peroxisomes biogenesis.

114) Which organelle is used in the production of white matter in the nervous system?

115) The site of aerobic respiration in eukaryotic cells is_____.

116) Which of the following division technique is similar in mitochondria and bacteria?

117) Name the organelle which is used for aerobic respiration and ATP synthesis in *Entamoeba histolytica.*

118) Mitochondria is the organ for _____.

119) The protruding invaginated sheets inside mitochondria is known as _____.

120) The inner boundary membrane and inner cristal membrane are joined by ____.

121) Which part of mitochondria has almost 70-75% protein content?

122) Which part of mitochondria is responsible for the degradation of many enzymes?

123) In the inner membrane of mitochondria, there is one protein molecule for approximately every _____.

124) Cardiolipin present in inner mitochondrial membrane plays a role in _____.

125) Porins are present in _____.

126) Human mitochondrial DNA encodes for _____.

127) Cristae in mitochondria serves as sites for _____.

128) Inner membrane of mitochondria is rich in phospholipid _____.

129) Mt DNA is _____.

130) Oxysomes of $F_0 - F_1$ particles take place on _____.

131) Typically, the inner membrane of mitochondria is highly convoluted to form a series of infolding known as _____.

132) Mitochondria in the human sperm cell are occupied at _____.

133) Cyanide is a mitochondrial toxin . The mechanism of action of Cyanide is by inhibiting _____.

134) Cellular organelle(s) involved in the regulation of Ca^{+2}level in the cell _____.

135) Which of the membrane lipid constituent can be considered as the lipid marker of inner mitochondrial membrane?

136) A network of fibers suspended through the cytoplasm is called _____.

137) Which cell component is associated with motility?

138) From how many fibers the cytoskeleton is constructed?

139) During which process the components of the cytoskeleton help the membrane to form food vacuoles?

140) The wall of the hollow tube of microtubules is composed of globular proteins called _____.

141) What is the diameter of intermediate filaments?

142) Microfilaments are composed of the protein _____

143) Cilia and flagella are _____.

144) What are flagella and cilia of eukaryotic cells made of?

145) Cell lining of the lumen of the fallopian tube is involved in ciliary action to transport the egg from the ovary to the uterus. The cytoskeleton structure responsible for this movement is _____.

146) The intermediate filaments found in hairs and nails are a type 1 IF protein, composed of _____.

147) Malformation of these cytoskeleton structures can be linked to an inability to contract a muscle _____.

148) This is a microfilament inhibitor _____.

149) ____ is the heterogeneous type of cytoskeleton filament.

150) A network of microfilaments and microtubules is classified as _____.

151) Which type of macromolecules make up the wall of microtubules?

152) How many protofilaments are present in a single mammalian microtubule?

153) All the protofilaments of a microtubule have the same _____.

154) The plus-end of the microtubule is terminated by a row of beta-tubulin subunits and the opposite, minus-end of the microtubule is terminated by a row of alpha-tubulin subunits.

155) The microtubule-binding activity of MAPs is controlled by _____.

156) Neurofibrillary tangles, found in the brain cells of persons with neurodegenerative disorders consists of _____.

157) The drug colchicine promotes microtubule _____.

158) Movement of materials in an axon are mediated through _____ that serve as cytoskeletal tracks.

159) Which motor protein superfamily does not move along the microtubules?

160) Smallest micro tubular motor proteins are _____.

161) Kinesins are plus end-directed microtubular motor proteins.

162) In an axon, microtubules are oriented with their _____ facing the cell body.

163) Which protein moves towards the minus end of the microtubule track?

164) Which of the following family of kinesins is incapable of movement along the microtubules?

165) How many types of polypeptides are found in intermediate filaments?

166) The type V intermediate filaments are called _____.

167) Intermediate filaments radiate through the cytoplasm of a cell and are interconnected to other cytoskeletal elements through cross-bridges made up of _____ protein.

168) Unlike other cytoskeletal elements, in the assembly of intermediate filaments there is no requirement of _____.

169) Intermediate filaments tend to be less sensitive to _____.

170) Which is a type of intermediate filament found in epithelial cells?

171) Neurofilaments are the type _____ intermediate filaments.

172) Absence of the intermediate filament desmin, has a negative impact on _____.

173) Vimentin is a _____ intermediate filament, found in macrophages, fibroblasts, white blood cells.

174) Epidermolysis bullosa simplex' is caused by the deficiency of _____ polypeptide.

175) Aggregation of neurofilaments leads to _____.

176) _____ and _____ coined the term "Meiosis".

177) Chromatids coiling in the meiotic and mitotic division is _____.

178) Chromatids coiling in the meiotic and mitotic division is _____

179) The condensation of chromosomes is observed in _____.

180) Nuclear DNA replicates in the _____ phase.

181) _____ is a form of cell division which results in the creation of gametes or sex cells.

182) ____ is the number of DNA in the chromosome at the G2 stage of the cell cycle.

183) The stage which serves as a connecting link between meiosis 1 and meiosis 2 is _____.

184) The longest stage in the cell cycle is _____.

185) The _____ state implies the exit of cells from the cell cycle.

186) Synapsis is defined as the pairing of _____.

187) Mitosis can be observed in _____.

188) The spindle apparatus is formed during the _____ phase of mitosis.

189) Cyclin is associated with _____.

190) If an individual wants to view diakinesis, which of these would be _____.

191) Chromosome structure can be observed best during ____.

192) In which phase is chromosome condensation initiated?

193) In which phase do the centrosomes start moving to the opposite poles of the cell?

194) Which of these structures is the site of attachment of chromatids?

195) What are asters made of?

196) What are the constituents of the mitotic apparatus?

197) In which phase does the nuclear envelope disintegrate?

198) In which phase of mitosis can the chromosomes be studied easily?

199) What is the shape of a kinetochore?

200) How many types of cell signalling are there?

201) In which type of signalling, the cell that expresses messenger molecules also produces receptors?

202) Paracrine messenger molecules are usually _____.

203) Endocrine messengers are also called _____.

204) Protein kinases and phosphatases act by altering _____ of the signalling proteins.

205) The process by which extracellular messages translate into intracellular changes is termed as _____.

206) Steroids are derived from _____.

207) Which messenger molecules are derived from arachidonic acid?

208) G-protein coupled receptors contain _____ transmembrane alpha helices.

209) Which G-protein takes part in the regulation of vision?

210) The signalling pathway, followed by T-lymphocytes in response to antigenic stimulation, is _____.

211) Extracellular signalling in animals is carried out by _____.

212) The hormone, also called the ligand is considered as_____.

213) Steroids and Vitamin D3 are _____.

214) _____ is concerned with the intrinsic pathway of apoptosis

215) Apoptotic bodies can be recognized with the presence of these on the surface _____.

216) Apoptotic cells detach due to the inactivation of this _____.

217) Shrinking of the nucleus is caused when this inactivates _____.

218) _____organelle participates actively in animal apoptosis.

219) _____ can stimulate cytochrome release from mitochondria.

220) _____ is an anti-apoptotic protein.

221) _____ are immune cells that recognize and kill the pathogen infected target cells in an orderly manner (apoptosis).

222) The term _____ was coined in the year 1972 by John Kerr, Andrew Wyllie, and A. R. Currie of the University of Aberdeen, Scotland.

223) Molecular basis of apoptosis were revealed by studies conducted on _____.

224) CED3 gene product in nematodes has homologous _____ in mammals.

225) Which of the following is also termed as a death receptor?

226) The last proteins to involve in the apoptotic pathway induced by TNF are _____.

227) Which family of proteins regulates the intrinsic pathway of apoptosis?

228) Which of the following is involved in the intrinsic pathway of apoptosis?

229) Cytokines serve as _____ for apoptosis.

230) Name the process by which a malignant cell spread throughout normal cells?

231) What is the origin of the cancerous cells ?

232) Name the process of transition from normal cells to cancerous cells?

233) _____ is the process of formation of new blood vessels in the cancerous cells.

234) ____ is a tumour suppressor gene, which inhibits cell cycle progression while proto-oncogenes which help in cell division and reduce cell death.

235) Burkitt's lymphoma caused by the translocation between _____ and ____.

236) _____ is an eye cancer which is caused by the deletion in chromosome number 13

237) _____ tumour caused due to deletion in chromosome 11.

238) Name the genes which directly inhibit cell growth or promote cell death.

239) If DNA is damaged, which of the following gene arrest cell cycle?

240) Name the chemical carcinogen which causes prostate cancer.

241) _____causes lung cancer, arsenic is responsible for lung and skin cancer, and _____causes cancer of gastrointestinal tract.

242) What is the largest cellular organelle in animal cells?

243) Who first discovered Nucleolus ?

244) _____ and _____ are molecular motors that drive the chromosomal migration.

245) Type I and II consist of two groups of _____.

246) Type VI - IF protein is _____ which is expressed in stem cells of CNS.

247) _____ is the process of abrut transformation of a filament from growth stage to shrinkage stage or vice-versa.

248) _____ function as a molecular motor and moves towards the minus end of the microtubules which is usually directed to the nucleus of the cell.

249) _____ has three structural domains- head, neck and tail.

250) _____ is responsible for the movement of cellular materials or cargo along the microtubules towards the periphery of the cell from minus end (-) to plus end (+).

251) The nuclear pores are enclosed by _____.

252) The linear double helical DNA called the relaxed DNA, bends or twists upon its own axis which is called _____.

253) Thickest tubular components of _____ and thinnest fibre of cytoskeleton are called _____.

254) The network of cytoskeleton known as _____ becomes denser towards the nucleus, and then the fibres radiate towards the surface.

255) Microfilaments consisting of ____ fibres were found crisscrossing the cell Outline.

256) ____ is the Ca binding protein in protofilaments.

257) Early microspist ____ observed a " lumen " the nucleus in RBC of salmon.

258) The nuclear _____ separates the nucleus from the cytoplasm.

259) What are the proteins that drive the progression from one step of the cell cycle to next are a series of protein complexes composed of?

260) What is prevented due to spindle assembly checkpoint?

261) What is the name of an important checkpoint in Gi which has been identified in mammalian cell?

262) What is commonly referred to as a Mitosis Promoting Factor (MPF).

263) In which type of cell division the number of chromosomes in the daughter reduced by half to produce haploid gametes?

264) Who were the first to study cell division during the cleavage of zygote of frag?

265) Which type of division meets normal wear and tear of the individual?

266) At which stage of mitosis, the nuclear envelop breaks down and nucleolus disappears?

267) Which type of daughter chromosome appears V-shaped during anaphase?

268) What type of mitosis is found in plants in which spindle has no aster?

269) Which type of nuclear division produces random assortment of chromosomes, in production of a large number of variations?

270) Which sub-stage of prophase 1 is called as thin thread stage?

271) What is the third type of division where the nucleus elongates, constricts in the middle and divides directly into two daughter nuclei.

272) There is a very brief interphase between meiosis I and meiosis II. There is no DRA replication ie ____ is absent.

273) What are the vast networks of communication between and within each cell in our body?

274) For a typical rapidly proliferating human cell in culture with a total cycle time of approximately 24 hours, the G1 phase might last about.....hours, S phase about.....hours, G2 about.....hours and M about.....hour.

275) Cyclin-dependent protein kinases (CDKS) constitute a family of functionally related protein kinases which are enzymes that add _____groups to target substrates.

276) Prokaryotes (bacteria) undergo a vegetative cell division known as ____.

277) _____ is the synonym for equational division.

278) Microtubules from each centrosome connect to specialized regions in the centromere called _____.

279) The division of the nucleus is referred to as_____ vs _____ mitosis is found in animals in which spindle has two asters, one at each pole.

280)When a cell grows in size, ratio decreases but is restored by mitosis.

281) The synonymes of _____ is reductional division or dis-juctional division.

282) The nuclear division that forms haploid cells is called _____.

283) Pairing of homologous chromosomes takes place in a zipper-like manner during _____ sub-stage of prophase 1.

284) During _____sub-stage of prophase I the chiasmata are almost fully terminalized and the two chromosomes remain together by their extreme terminal chiasma.

285) _____proposed "omniscellulaecellula" and "cell lineage theory".

286) Doubling of chromosome number without cytokinesis by the application of alkaloid colchicine is known as _____.

287) Procaspase 8 and Procaspase 10 are inactive proteins they interact with activated _____.

288) Activated BAX and BAK causes a condition known as _____.

289) The signal molecules mainly act by regulating the levels or activity of members of _____ and ____.

290) The term Progression coined by _____ refers to stepwise transformation of a benign tumour to a neoplasm and to malignancy.

291) Ras, myc ,wnt genes are examples of _____.

292) According to '_____' hypothesis mutation is successful only when both the copies of the gene are mutated.

293) The altered cell divides in an uncontrolled manner leading to an excess of cells in that region of the tissue are called _____.

294) Additional genetic changes in the hyperplastic cells lead to increasingly abnormal growth is called _____.

295) Which cancers are solid tumours of connective tissues , such as muscle , bone , cartilage and fibrous tissue ?

296) Which cancers arise from the blood forming cells and from cells of the immune system respectively

297) _____ proteins function as support for closely located signalling molecules.

298) _____ is involved in vertebrate morphogenesis , growth , cellular differentiation and tissue homeostasis.

299) Mammalian genome has a short repeated sequence are called _____.

300) Vitamin D receptor is also called _____.

ANSWERS:-

1) Leeuwenhoek	**151) Globular proteins**
2) Cell membrane	**152) 13 protofilaments**
3) Rudolf Virchow	**153) Polarity**
4) T.H. Huxley	**154) β-tubulin subunits and α-tubulin subunits**
5) Nucleoid	**155) Phosphorylation**
6) Stanley B. Prusiner	**156) Microtubule- associated proteins**
7) J. David Robertson	**157) Disassembly**
8) Osmosis	**158) Microtubules**
9) Active transport	**159) Myosin**
10) Na+ - K+ pump	**160) Kinesin**
11) Plasmodesmata	**161) Kinesin**
12) Zonulae occludents	**162) Minus end**
13) Histones	**163) Ncd**
14) Schleiden and Schwann	**164) Kinesin-13**
15) Sarcode	**165) 5**
16) J.E. Purkinje	**166) Lamins**
17) PPLO	**167) Pectins**
18) Prion	**168) ATP or GDP**
19) S.J.Singer and G.L.Nicolson	**169) Chemicals**
20) Aquaporins	**170) Keratin**
21) Sympoters	**171) Type IV**
22) P type ATPase	**172) Muscle cells**
23) Mitochondria	**173) Type III**
24) Desmosomes	**174) Keratin**
25) Vertebrates and invertebrates	**175) Neurodegenerative disorder**
26) Tight junctions	**176) Farmer and Moore**
27) Claudin	**177) Plectonemic in mitosis and paranemic in meiosis**
28) Zonula occludens – 1, ZO-1	**178) Differentiation of euchromatin & Heterochromatin decreases**
29) 4^0A	**179) Prophase 1**
30) Strasburger	**180) S phase**
31) 1000	**181) Meiosis**
32) All motile cells and Erythrocytes	**182) 2**
33) Electrical synapses	**183) Interkinesis**
34) 1.2-2 cm	**184) Interphase**
35) $C_{28}H_{39}N_7O_9$	**185) G_0**
36) Smooth endoplasmic reticulum	**186) Homologous chromosome**
37) Vohwinkel's syndrome	**187) Haploid, Diploid, Polyploid individuals**
38) Brain ischemia/ Cerebral ischemia	**188) Metaphase**
39) Connexin	**189) Mitosis**

40) Claudins and occludins	**190) Onion root**
41) Actin and Cadherins	**191) Metaphase**
42) FRAP	**192) Prophase**
43) Ankyrin or Spectrin	**193) Prophase**
44) Hydrophobic interaction	**194) Centromeres**
45) Head parallel	**195) Microtubules**
46) Secondary wall	**196) Asters, Spindle Fibre**
47) Phospholipid	**197) Metaphase**
48) Membrane phospholipids	**198) Metaphase**
49) 5 to 10 nm	**199) Disc shaped**
50) Outer leaflet of plasma membrane	**200) 3**
51) Peripheral proteins of plasma membrane	**201) Autocrine**
52) Recognition	**202) Unstable**
53) B	**203) Hormones**
54) A	**204) Conformation**
55) Sialic acid	**205) Signal transduction**
56) Necrosis	**206) Cholesterol**
57) Death domain	**207) Eicosanoids**
58) Beta	**208) 7**
59) Exchange of Chloride ion with bicarbonate ions	**209) Gi family**
60) Flip-flop	**210) Autocrine signalling**
61) Rough Endoplasmic reticulum	**211) Autocrine, Endocrine, Juxtracrine signalling**
62) Casmillo Golgi	**212) First messenger**
63) Cisternae	**213) Hydrophobic ligands**
64) Golgi cisternae	**214) Cytochrome b**
65) Lysosome	**215) Phosphatidylserine**
66) De duve	**216) FAK**
67) Mitochondria	**217) Lamin**
68) Bendra	**218) Mitochondria**
69) Three	**219) Bid**
70) Peter Mitchell	**220) Bfl 1**
71) Erythrocytes	**221) T lymphocytes**
72) Barn owl	**222) Apoptosis**
73) Dictyosomes	**223) C.elegans**
74) Smooth and Coated Vesicles	**224) Caspases**
75) Regulated	**225) TNFR1**
76) Lysosome	**226)Procaspase-8**
77) Mitochondria	**227) Bcl 2**
78) Electrical Proton motive force- PMF	**228) Cytochrome C**
79) Smooth endoplasmic reticulum	**229) Internal stimuli**
80) Oxygenases	**230) Invasiveness**
81) N-terminal	**231) Monoclonal**

82) Signal peptidase	**232) Transformation**
83) Disulfide bonds	**233) Angiogenesis**
84) Golgi bodies	**234) Rb**
85) SER	**235) Chromosome 8 and Choromosome 14**
86) KDEL	**236) Retinoblastoma**
87) COP II	**237) Wilms tumor**
88) Clathrin	**238) Gate keeper genes**
89) Network	**239) p53**
90) 2	**240) Cadmium**
91) Smooth SER	**241) Radon and Arsenic, Asbestoes**
92) Testis and Ovary	**242) Nucleus**
93) Smooth SER	**243) Fontana**
94) Protein synthesis and membrane production	**244) Kinesin and Dynein**
95) Autophagy	**245) Keratin**
96) Amphisome	**246) Nestin**
97) Exocytosis	**247) Dynamic instability**
98) Tonoplast	**248) Dynein**
99) Lysosome	**249) Myosine**
100) Sialic acid	**250) Kinesin**
101) Acidic	**251) Circular annuli**
102) Acid phosphatise	**252) DNA Coiling**
103) Both intracellular and extracellular digestion	**253) Microtubules and microfilaments**
104) Gamori stain	**254) Microtubules**
105) Because they remove all unwanted cellular digestion	**255) Actin**
106) Aspartylglucosaminuria	**256) Calmodulin**
107) Golgi apparatus	**257) Antonie Von Leeuwenhoek**
108) Christian de Duve	**258) Envelope**
109) 0.1 – 1.0 µm	**259) Cyclin and Cyclin dependent protein kinase**
110) Liver cells	**260) Aneupliody**
111) Peroxidase	**261) Restriction point**
112) Peroxisomes and mitochondria	**262) M- CDK**
113) Zellweger syndrome	**263) Meiosis**
114) Peroxisomes	**264) Prevost and Dumas**
115) Mitochondria	**265) Mitosis**
116) Binary fission	**266) Prometaphase**
117) Mitosome	**267) Metacentric**
118) Cellular respiration	**268) Anastral mitosis**
119) Cristae	**269) Meiosis**
120) Cristae junctions	**270) Leptotene**
121) Inner membrane	**271) Amitosis**
122) Outer membrane	**272) S-phase**

123) 15 Phospholipids	**273) Cell signalling**
124) Activation of proteins involved in electron oxidation	**274) 11, 8, 4, 1**
125) Both inner and outer membrane	**275) Phosphate**
126) 2 rRNAs	**276) Binary fission**
127) Oxidation reduction reaction	**277) Mitosis**
128) Cardiolipin	**278) Kinetochores**
129)Simple double stranded circular DNA molecule	**279) Karyokinesis, Amphiastral**
130) Inner mitochondrial membrane	**280) Nucleo- cytoplasmic**
131) Cristae	**281) Meiosis**
132) Mid piece	**282) Meiosis**
133) Cytochrome C oxidase	**283) Zygotene**
134) Endoplasmic reticulum and mitochondria	**284) Diakinesis**
135) Cardiolipin	**285) Rudolf Virchow**
136) Cytoskeleton	**286) C-Mitosis**
137) Cytoskeleton	**287) FADD**
138) 3 fibres	**288) MOMP**
139) Phagocytes	**289) Bcl2 and IAP families**
140) Tublin	**290) Leslie Foulds**
141) 8 to 12 nm	**291) Proto-oncogenes**
142) Actin	**292) Two-hit hypothesis**
143) Microtubules	**293) Hyperplasia**
144) Tublin	**294) Dysplasia**
145) Microtubules	**295) Sarcomas**
146) Keratin	**296) Leukemia and Lymphomas**
147) Microfilaments	**297) Scaffold proteins**
148) Cytochalasin-B	**298) Retinoic acid**
149) Intermediate filaments	**299) Thyroid Responsive Element(TRE)**
150) Cytoskeleton	**300) NR111**

PART- II

B) Very Short Notes.

1) What are Viroids ?

2) What are Prions ?

3) Describe the Mycoplasma of humans.

4) What is Cell theory?

5) Facilitated diffusion with examples

6) Occluding junctions

7) Significance of Plasmodesmata

8) Desmosomes

9) Adherens junctions

10) Ran Cycle

11) H^+ / K^+ ATPase

12) Coupling carriers

13) Ligand gated ion channels

14) Aquaporins

15) Ionophores

16) Need for Membrane transport

17) Micellar model of PM

18) Unit membrane model of PM

19) Differentiate between Smooth ER and Rough ER

20) Ergastroplasm

21) Role of ER during Cell division

22) Formation of Acrosome

23) Role of lysosome in development and Metamorphosis

24) Components of Endomembrane system

25) Primary function of golgi complex.

26) What are steps involved in Vesicular transport?

27) What is the chemical composition of Golgi bodies?

28) What are Residual bodies?

29) What are Autophagic vacuoles?

30) What are Oxysomes?

31) What do you mean by polymorphic nature of lysosomes ?

32) What is mitochondrial DNA?

33) Explain Conformational coupling hypothesis .

34) Chemistry of Lysosomes

35) Why mitochondria is called as "Powerhouse of the cell" ?

36) Proton motive force

37) Function of Peroxisomes

38) Function of Microtubules

39) MTOC

40) Myosin protein

41) Dynein protein

42) Kinesin protein

43) Nuclear pore complex

44) Nucleolus

45) Differentiate between Euchromatin and Heterochromatin

46) What is Protofilament component of cytoskeleton?

47) What are Endosomes?

48) What is Nuclear matrix?

49) What is Nucleoplasm?

50) G_0 state

51) What is M-CDK?

52) What is Spindle assembly checkpoint?

53) What is Hayflick limit?

54) What are the factors that control mitosis?

55) What are two different methods of Cytokinesis in animals and plants?

56) What is Synaptonemal complex?

57) What is Crossing over ?

58) What are steps involved in extracellular signalling?

59) What are the four different types of intracellular molecules involved in intracellular cascade?

60) Receptor Serine / Threonine kinase

61) RTK- dependent signalling pathways

62) Autocrine signalling

63) Paracrine signalling

64) Characteristics of Amitosis

65) Significance of Mitosis

66) Significance of Meiosis

67) Telophase II

68) Classical hypothesis

69) Pachytene

70) Kinetochore

71) DNA damage check point

72) Caspases

73) What are the characteristics of cancer cells ?

74) How genes are involved in tumourigenesis process ?

75) What are Tumour suppressor genes ?

76) Symptoms of Metastasis

77) What are Proto- oncogenes and Oncogenes?

78) Characteristics of Cancer

79) Bcl-2 family of proteins involved in apoptosis

80) IAP family involved in apoptosis

81) Differentiate between Necrosis and Apoptosis

PART -III

C) Short Notes.

1) Differentiate between Gram positive bacteria and Gram negative bacteria

2) Differentiate between Flagella and Pili

3) Differentiate between Hemidesmosomes and Desmosomes

4) Differentiate between Tight junctions and Gap junction

5) Differentiate between Hfr cells and F -prime

6) Differentiate between Prokaryotic and Eukaryotic cells

7) Differentiate between Virion and Viroid

8) Differentiate between Simple and Facilitated diffusion

9) Voltage gated ion channels

10) Active transport

11) Coupling carriers

12) Differentiate between Symport and Antiport

13) Na+/K+ ATPase

14) P-type ATPase

15) F0-F1 ATPase

16) ABC transporters

17) Occluding junctions

18) Anchoring junctions

19) Plasmodesmata

20) Gap junctions

21) Enzymes of ER membranes

22) Origin of Golgi complex

23) Lysosomal storage disorder

24) Autophagy of lysosomes

25) Mitochondria-associated ER membrane

26) Complex V

27) Role of Mitochondria in apoptosis

28) Chemical coupling hypothesis

29) Chemiosmotic hypothesis

30) Describe the modern view on the Electron Transport System and Oxidative phosphorylation in mitochondria

31) Why mitochondria are regarded as Semi autonomous cell organelles ?

32) Explain Primary and Secondary Endocytosis

33) Assembly and Disassembly of Microfilaments

34) Function of Microtubules

35) Structure and assembly of IF

36) Microtubule Organisation Centre (MTOC)

37) Structural details of Microfilaments

38) Nucleosome

39) Chromatin

40) Spindle assembly checkpoint

41) Role of pRb protein in cell cycle regulation

42) Role of p53 protein in cell cycle regulation

43) Leptotene

44) Zygotene

45) Differentiate between Nuclear -receptor -dependent signal molecules and Cell-surface -receptor dependent signal molecules

46) Replicative Senescence

47) Ultrastructure of Synaptonemal complex

48) Second Messengers

49) Explain Protein Kinases and GTP-Binding proteins are molecular switches.

50) Differentiate between Extrinsic and Intrinsic pathway of apoptosis

51) Differentiate between Mitosis and Meiosis

52) Differentiate between Mitosis and Amitosis

53) Differentiate between Phagocytosis and Pinocytosis

54) Differentiate between Exocytosis and Endocytosis

55) Differentiate between Tumor suppressor gene and Proto- Oncogenes

56) Differentiate between Oncogenes and Proto-oncogenes

57) Differentiate between Benign and Maligant tumour

58) Differentiate between Microtubules and Microfilaments

59) Differentiate between Kinesin and Dynein

60) Differentiate between Actin and Myosin

61) Differentiate between Cell division and Cell Cycle

PART- IV

D) Long questions with suitable labelled diagram.

1) Discuss the models of Plasma membrane.

2) What is Membrane transport? Discuss Active transport of Plasma membrane.

3) What is Membrane transport ? Discuss Passive transport of Plasma membrane .

4) What is Cell junction ? Discuss different types of Cell junction and Significance of Cell juntion.

5) Discuss ultrastructure of Eukaryotic cells . Differentiate between Prokaryotic and Eukaryotic cells .

6) Describe the structure ,types, and functions of Endoplasmic reticulum.

7) Discuss the structure and function of Golgi apparatus .

8) Give an account of structure and functions of Lysomes .

9) Describe the ultrastructure of Mitochondria with suitable labelled diagrams and function of mitochondria.

10) Discuss the mechanism of Chemiosmotic coupling hypothesis in favour of ATP production.

11) Discuss the structure and function of Microtubules and Microfilaments.

12) Give an account of Chromosomal DNA and its packaging .

13) Give an account of structure and functions of Nucleus.

14) Describe the process of Mitosis and its significance.

15) Describe the process of Meiosis and its significance. Differentiate between Mitosis and Meiosis.

16) What is Cell signalling ? Discuss Secondary messenger and Enzyme linked receptors.

17) What is Apoptosis? Discuss the molecular mechanism Extrinsic and Intrinsic Apoptosis pathway .

18) What is Metastasis? How do cancers metastasize and what are the symptoms of Metastasis?

DERABIS COLLEGE
QUESTIONS BANK
SUBJECT - ZOOLOGY
PAPER – CC – V
(DIVERSITY OF CHORDATES)

PART –I

A) Answer the following questions.

1) The incurrent siphon in Herdmania is called _____ and the excurrent siphon in Herdmania is called _____.
2) The cells that carry out excretion in Herdmania is called ____.
3) The protein componet of Tunic in Urochordate is ____.
4) The structure used by Tadpole larva to attach to the substratum before metamorphosis _____. a) In the development of Balanoglossus _____ is the larva developed.
5) The structure in amphioxus homologous to the adenohypophysis of vertebrates _____.
6) Photoreceptor cells in amphioxus _____.
7) The nerve cord lies ____ to the notochord.
8) _____ pairs of gill slit is present in ascidian tadpole larva.
9) The balancing organ attached to the brain of ascidian tadpole larva is called _____.
10) Who proposed Dipleurulaconcept ?
11) The fossil echinoderm that confirms Echinoderm ancestory of chordates is called ____.
12) The larvae on which auricularian hypothesis is based called ____.
13) The cup like depression present at the anterior end of Petromyzon is called _____.
14) The larval form during lifehistory of Petromyzon is _____.
15) Tail in Peteromyzon is _____.
16) Cyclostome have _____ chambered heart.
17) The rheo receptor present in lamprey is called _____.
18) Movement of large number of animals from one place to another for feeding, reproduction or to escape weather extreme ____.
19) Migrating or swimming or drifting with the water current _____.
20) Migrating or swimming or drifting against the water current is called _____.
21) Migration of fishes from fresh water to sea water and vice-versa is called _____.
22) Deposition of eggs within dead shells of fresh water mussels occur in _____.
23) Fish that broods fertilised eggs in mouth cavity ____.
24) A fish that holds fertilised in brood pouch ____.
25) Elasmobranchs fertilized eggs are laid inside protective horny egg capsules called _____.
26) H.fossilis the accessory respiratory organ is of type _____.
27) Accessory respiratory organ in Polypterus is ____.
28) In Clarias supra branchial organs and supra branchial chambers are supplied by blood vessels from _____.
29) The opercular lungs are present above the gills and contains specialized structure known as _____ which just increase the respiratory surface.

30) Jaw suspension in dipnoi is _____ and lower jaw composed of paired _____.
31) Which period is known as age of amphibians?
32) The devonian fishes known as ' Uncle of amphibians ' _____ .
33) The single point where three bones ilium, ischium, and pubis meet called ____.
34) The transitional stage at which gave rise to amphibians called _____.
35) According to Romer the propelling factor that led the ancestral tetrapod to migrate over land is _____.
36) According to _____ " Dipnoi and amphibians had same grand father".
37) Skull is _____ in amphibians.
38) Amphibian species that carry eggs around the neck of female is ____.
39) Alytesobstetricians commonly called as _____.
40) Gular pouch is modified _____.
41) In Nototrema ,Hylagoeldii, Pipaamericana the female frog takes charge of protecting eggs by carrying them on her _____.
42) _____ deposits eggs in a gelatinous bag.
43) _____ are present in the roof of the buccal cavity.
44) Euryapsids means _____.
45) Which era is known as the age of reptiles ?
46) Temperature dependent sex determination occurs in which reptile ?
47) Number of cranial nerve in reptile is ____.
48) Sphenodon is commonly called as _____.
49) Sphenodon first appeared in which period?
50) Skull of sphenodon is ____ .
51) The third eye in sphenodon is also known as _____.
52) In Sphenodon vertebrae are _____.
53) _____ bone occur in the caudal region of vertebrae.
54) The anal opening in Sphenodon is ____.
55) Poison gland in snakes are modified _____ glands.
56) The protein used to neutralize venom _____.
57) In snakes fangs are enlarged _____ teeth.
58) In snakes anterior ligament the Poison glands attached with ____ and posterior ligament is present between _____ .
59) In snakes which fangs are comparatively small, permanently erect and they are present in front of maxillae called _____.
60) Cobra, Krait, sea snakes and coral snakes are _____ type of fangs.
61) Vipers and Rattlesnakes have ___ type of fangs.
62) African tree snakes have _____ type of fangs.
63) Nonpoisonous snakes have _____ type of fangs.
64) _____ and ____ attached to the side walls of the cranium and lower jaw.
65) _____ muscle attached to squamosal of the skull and articulates with the lower jaw.
66) _____ attached to sphenoid bone anteriorly and to the pterygoid posteriorly.
67) Masster and Mandibular are _____ muscle in snakes.
68) _____ and ____ studied bitting mechanism on Bitisarietans.
69) When snakes are distributed within the striking range, digastric muscle contract, lowering the lower jaw and mouth is ____.
70) In snakes for closing of mouth which muscle contract ?

71) Cobra and Krait venom are ____ in nature.
72) Viper venom is ___ in nature.
73) Sea snakes venom is ____ in nature.
74) Antivenine of snakeis prepared in India which institute ?
75) Which type of skull is found in aves ?
76) Vertebrae are ___ type in aves.
77) Lumbars and anterior caudals fused to form ____in birds.
78) Posterior caudal vertebrae fused to form ____ in aves.
79) Clavicles and interclavicle are united to form a u- shaped structure in birds called _____.
80) _____ act as voice apparatus in birds .
81) _____ pairs of cranial nerves present in birds .
82) _____ is the connecting link between reptiles and birds.
83) ____ called birds as " Master of air".
84) Fore limbs are modified into _____ in birds.
85) The _____ shape of wings provides lift and propulsive force.
86) Birds sternum is _____ shaped , suitable for the attachment of large powerful flight muscles.
87) In birds _____ help in lowering and _____ in raises the wings.
88) ____ type of endoskeleton found in birds.
89) _____ help in flight and provide wing shape.
90) ____ used as rudder for turning and balancing in air.
91) Birds that don't migrate and remain throughout the year in a country are called ____.
92) Birds are able to detect magnetic fields by the presence of ____.
93) Migratory movements from east to west or west to east is called _____.
94) Mammalian skull is ____ type.
95) Vertebrae of mammals are _____.
96) Who developed the idea of adaptive radiation?
97) A full cycle of motion of a running or walking mammal are _____.
98) Aerial adaption in mammals is due to the development of ___.
99) Unguligrade locomotion is found in animals bearing ____.
100) Aquatic adaptation by mammals is due to development of _____.
101) Ability to climb in mammal is called _____.
102) _____ is an evolutionary pattern whereby single ancestral form diversifies into several species.
103) Darwin's finches are example of _____.
104) Idea of zoogeography was originally contributed by ___.
105) Australia and Africa are included in _____ and ____ realm.
106) The biggest zoogeographical relam is _____.
107) Arctic , Archipelago , Green land are ____ region.
108) ____ region is bound by Himalayas in North and Indian and Pacific Oceans South.
109) Sima is composed of _____.
110) The theory that postulate the movement of continental plates is ____.
111) The light material and heavy material constituting the continents are called _____ and _____.
112) Sial is composed of ____ and ____.
113) The science dealing with the distribution of living animal are called _____.

114) Who proposed the continental drift theory?
115) The single super continent according to Wegener called _____.
116) After splitting the land mass which moved southward are called ____
117) After splitting the land mass which moved northward are called _____.
118) When oceanic crust converges with continental crust the denser oceanic plate punges beneath the continental plate , process called _____.
119) The line of volacanes that grows on upper oceanic plate is an _____.
120) Arabian, Indian , African plates are forming _____.
121) In class thaliocea of sub-phylumurochordata _____ is the example.
122) Retrogressive metamorphosis is the characteristics of _____.
123) In fish migration, the movement of individuals from fresh water to sea water is called _____.
124) _____are the animals who are unable to control osmotic state of their body fluids but confirms to the osmolarity of the ambient medium.
125) _____is the survival species of the order Rhycocephalia of class-Replilia.
126) Balanoglossus is a _____ feeder.
127) Coelom of ascidian is reduced due to over development of _____.
128) Tail in Cyclostomes is _____ type.
129) Kidneys of chondrichthyes is _____ and _____ in osteichthyes.
130) Earliest amphibia evolved during _____ period.
131) Colubridae family Snakes Possess _____ type fangs.
132) In Prototheria, Milk gland derived from _____ gland.
133) In birds fusion of caudal bones into a single _____ to support the tail feathers.
134) Flight muscles are red in colour due to presence of _____.
135) All snakes possess which enzyme that ensures rapid diffusion of the venom?

ANSWERS:-

1)Branchial siphon / Atrial siphon	**69)Open**
2)Nephrocytes	**70)Temporalis and Sphenopterygoid muscles**
3)Tunicin	**71)Neurotoxic**
4)Adhesive papilla	**72)Hemotoxic**
5)Hatshek's pit	**73)Myotoxic**
6)Joseph cell	**74)Haffkin's institute, Bombay**
7)Dorsal	**75)Monocondylic skull**
8)Two	**76)Heterocoelous**
9)Statocyst	**77)Synacrum**
10)W.Sarstang	**78)Pygostyle**
11)Calcichordata	**79)Furcula**
12)Auricularia larva	**80)Syrinx**
13)Buccal funnel	**81)12 pairs**
14)Ammocoete larva	**82)Archaeopteryx**
15)Diphycercal tail	**83)Young**
16)Two chambered heart	**84)Wings**
17)Lateral line sense organ	**85)Aerodynamic**

18)Migration	**86)Keel**
19)Denatant	**87)Pectoralis major and Pectoralis minor**
20)Contranatant	**88)Pneumatic bone**
21)Amphidromous migration	**89)Remixes**
22)European bitterling	**90)Retricles**
23)Tilapia	**91)Resident birds**
24)Hippocampus	**92)Magnetoception**
25)Mermaid's purse	**93)Longitudinal migration**
26)Pneumatic sac	**94)Dicondylic skull**
27)Swim bladder	**95)Amphiplatyan type**
28)Gill arches	**96)H.F.Osborn**
29)Arborescent organs	**97)Stride**
30)Autostylic and Meckel's cartilage	**98)Patagium**
31)Devonian period	**99)Woof**
32)Dipnoans	**100)Flipper**
33)Acetabulum	**101)Scansoriality**
34)Ichthyostega	**102)Adaptive radiation**
35)Destination	**103)Adaptive radiation**
36)Newman	**104)P.L.Sclater**
37)Dicondylic	**105)Australian and Ethiopian**
38)Desmognathusfusca	**106)Palaerctic**
39)Midwife toad	**107)Nearctic region**
40)Vocal sac	**108)Oriental region**
41)Back	**109)Silica and Magnesium**
42)Salamandrellakeyserlingii	**110)Plate Tectonic theory**
43)Jacobsons organ	**111)Sial and Sima**
44)Wide arch	**112)Silica and Aluminum**
45)Mesozoic era	**113)Zoogeographical distribution**
46)Turtles / Crocodiles	**114)Alfred Wegener**
47)12	**115)Pangaea**
48)Tuatara	**116)Gondwana land**
49)Triassic period	**117)Laurasia**
50)Diapsid skull	**118)Subduction**
51)Parietal eye	**119)Island arc**
52)Amphiocoelous	**120)Great rift valley in Africa**
53)Chevron bones	**121)Salpa / Doliolum**
54)Transverse	**122)Urochordata**
55)Labia	**123)Catadromous migration**
56)Antivenin	**124)Osmoconformer**
57)Maxiallary teeth	**125)Sphenodon**
58)Maxilla & Poison gland, and Quadrate	**126)Ciliary feeder**
59)Proteroglyphous fangs	**127)Prebranchial cavity / Atrium**
60)Proteroglyphous fangs	**128)Protocercal**

61)Solenoglyphous fangs	**129)Opisthonephros Kidney and Mesonephros Kidney**
62)Opisthoglyphous fangs	**130)Devonian period**
63)Aglyphous fangs	**131)Opisthoglyphous fangs**
64)Anterior and Posterior temporalis	**132)Sebaceous gland**
65)Digastric muscle	**133)Pygostyle**
66)Sphenopterygoid	**134)Myoglobin**
67)Constrictor muscle	**135)Hyaluronidase**
68)Boltt and Ewer	

Part-II

B) Very Short Notes.

1) Why Balanoglossus is called ciliary feeder?
2) Coelom type of Balanoglossus
3) What is the function of solenocytes ?
4) Spicules of Urochordata.
5) Chordate features of ascidian tadpole.
6) Tornaria larva
7) Amphioxus larva
8) Fixation of tadpole larva
9) Endostyle of Urochordates
10) Squamata
11) Paedomorphosis
12) Homoplasy
13) What is Neotenous larva theory?
14) Differentiate between catadromous and anadromous migration.
15) Ammocoete larva
16) Specialized characters of Cyclostome
17) Write the important characters of amphibia.
18) Crossopterygii
19) Factors influencing fish migration
20) Viviparity in fish
21) Suprabranchialorgan of fish
22) Neoteny
23) Labyrinthodontia
24) Apoda
25) Urodela / Caudata
26) Anura/ Salientia
27) Midwife toad
28) Parental care in Ichthyophis
29) Chelonia
30) Synapsida
31) Anaconda
32) Diapsida

33) Cause of long survival of sphenodon
34) What is snake venom?
35) What are the disadvantages of bird migration?
36) What is dental formula?
37) Write the vertebrates present in the palaearotic region.
38) Define Dipleura concept.
39) What are lung fishes?
40) Define anadromous migration with example.
41) Write about different orders of stegocephalia.
42) Why Crossopterygians considered as ancestors of Tetrapods?
43) Write different types of Fangs.
44) What are remiges?
45) Define gynaecomastism

Part-III

C) Short Notes.

1) Describe the characters of tornaria larva of Balanoglossus.
2) Describe the affinities of Cephalochordata and annelida.
3) Give the concept of protochordates and urochordates.
4) Metamorphosis in amphioxus.
5) Difference between Anadramous and Catadromous migration
6) Difference between PotamodromousandOceanodromous migration
7) Devonian fishes
8) Write the characters of living fossils.
9) What are the advantages of the pneumatic bone in birds?
10) Describe the features linking birds and dinosaurs.
11) What is erratic migration?
12) Affinities of sphenodon with lacertilian
13) Types of Fangs of snakes
14) Antivenom of snake
15) Endoskeleton of birds
16) Flight muscle in birds
17) Threats during migration
18) Why do birds fly in “V” formation
19) Perching
20) Realm megagaea
21) Realm Neogaea
22) Realm notogaea
23) Describe the specialised characters of prototheria.
24) What is adaptive Radiation ?
25) What is Continental Drift theory"?
26) Write Echinodermm theory of origin of chordates.
27) Describe characteristics of Cephalochordates
28) Write about accessory respiratory organs in Pisces.
29) Differentiate between chondrichthyes and Osteichthyes.

30) Write affinities of Sphenodon to crocodilia.
31) What are the methods of navigation adpoted by birds during flight?
32) Write characteristics of class aves.
33) Write about Zoogeographical realms.
34) Give special features of lungs to facilitate perfect aeration in birds.
35) Plate Tectonic theory

Part-IV

D) Long Questions With Suitable Labeled Diagram.

1) Write general characteristics and give classification (outline) of Chordates.
2) Describe retrogressive metamorphosis in Urochordates?
3) Discuss the Garstang 'shypothesis of origin of chordate ?
4) Discuss the Auricularian hypothesis of origin of chordates?
5) Discussthe affinities and Phylogenetic position in Cyclostomes?
6) Discuss the general characters and classification of chondrichthyesupto order?
7) Discuss the general characters and classification of Osteichthyesupto order?
8) Discuss the different types of fish migration and its advantages?
9) Discuss parental care in fishes?
10) What are the accessory respiratory organ? Discuss the accessory respiratory organs of fish
11) Explain origin of tetrapoda.
12) Describe about poison apparatus and biting mechanism in Snakes.
13) Give an account of Sphenodon and discuss the affinities of sphenodon.
14) Justify the statement " Birds are glorified reptiles ".
15) Describe affinities and Phylogenetic position of Prototheria.
16) Discuss about distribution of vertebrates in different realms.
17) Discuss the auricularian hypothesis of origin of Chordates.
18) Enumerate the differences between perfromyzon and myxine.
19) Discuss the affinities and phylogenetic position of petromyzon.
20) Give an account of flight adaptation in birds.
21) What is migration? Discuss different kinds of migration in Migratory birds ?
22) Give an account of adaptive radiation in mammals with respect to locomotary appendages.
23) Describe the different theories pertaining to distribution of animals?
24) Discuss the concept of continental drift theory proposed by Alfred Wegener and give an account of the evidence in support?
25) General characteristics and classification upto order in mammals.
26) General characteristics and classification upto order in reptiles.
27) General characteristics and classification upto order in aves.
28) General characteristics and classification of Cyclostomes.

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QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER - CC –VI

(PHYSIOLOGY-CONTROLLING AND COORDINATING SYSTEMS)

PART- I

A) Answer In One Word.

1) _____ is a group of similar cells specialzed for a common function.
2) The tissue that from a protective covering on the outside of the body is _____.
3) _____ cells secrete mucous.
4) Epithelium lining blood vessels is known as _____.
5) Haversian canals are interconnected by transverse canals called _____.
6) Pavement epithelium is another name for _____ epithelium.
7) The fluid constituent of blood is known as _____.
8) The process of formation of erythrocyte is called _____.
9) The leucocytes with bilobed nucleus is called _____.
10) The germ layer that gives rise to muscular tissue is _____.
11) Cross triation are found in _____ tissue.
12) Irritability nature of animals is due to the presence of _____ tissue.
13) The myelin sheath is nerve tissue is produced by _____ cell.
14) _____ are non-myelinated gaps in the axons of the nerve fibres.
15) The inter-fitting, finger like processes of cell membranes of adjacent cells is called _____.
16) The alternate term for multilayered layer of epithelial tissue is _____.
17) The minute non-motile protoplasmic process that increase the surface area of the cell is _____.
18) The type of epithelium that lines the long alveoli is _____.
19) The vitamin important for normal growth and maintenance of bones is _____.
20) The _____ epithelium is present in Thyroid follicles.
21) Among vertebrates the class of animal that has the largest RBC us _____.
22) The graveyard of RBC is _____.
23) The leucocytes that give highest count in normal differential count is _____.
24) The leucocytes meant for production of antibodies is _____.
25) _____is a striated involuntary muscle tissue.
26) Neuron with a single dendrite and single axon is _____.
27) The cells that support the CNS is _____.
28) The longest efferent process of a neuron is _____.

29) The protein associated with dead cells in keratinized startifiedepithelium is _____.
30) The cavity in haversian system that contain blood vessels, nerves and lymphatic vessel is called _____.
31) The lattice like network of matrix in spongy bone is called _____.
32) The bones embedded in tendon is called _____ bone.
33) The tubular shaft that runs between the proximal and distal ends of the bone is _____.
34) The outer membranous covering of the bone is _____.
35) _____ is the cavity that lodges osteocyte.
36) _____ is the cytoplasmic processes that form the means of communication between osteocytes.
37) _____ is the structural unit of compact bone.
38) The matrix in cartilage is produced by _____.
39) Trachea is formed of _____ cartilage.
40) Epiglottis is formed of _____ cartilage.
41) A flexible connective tissue is _____.
42) Types of cartilage found in intervertebral disc is _____.
43) The formation of bone is called _____.
44) The hormone from anterior pituitary that causes growth of bones is called _____.
45) The process of laying down new bone material by bone cells is _____.
46) The hormone that regulate the activity of osteoclast is _____.
47) The hardness of the bone is due to the deposition of _____.
48) Cells responsible for bone resorption is _____.
49) The replacement of old bone tissue with new one is _____.
50) Striated muscle is differentiated from that of non-stiated muscle on the basis of presence of _____.
51) The muscle type found in the wall of alimentary canal is _____.
52) Muscle fibre is enclosed by a cell membrane is called _____.
53) Cytoplasm of the muscle cell is known as _____.
54) Muscle with branched muscle fibres _____.
55) The muscle that works in rhythmic fashion is _____.
56) The subunits of muscle fibre is called _____.
57) The light area present in the middle of A-band is called _____.
58) The segment between two adjacent Z-linein a myofibril is called _____.
59) The number of polypeptide chain that constitute myosin is _____.
60) Each Troponin molecule is composed of _____ subunits.
61) The protein filament limited to A-band is _____.
62) The protein filament limited to I-band is _____.
63) The enzyme _____separates myosin into LMM and HMM.
64) The subunit of Troponin to which calcium binds during muscle contraction is _____.

65) The line that bisects I-band is _____.
66) The inorganic ion responsible for muscle contraction is _____.
67) During muscle contraction Ca++ are released from _____.
68) The band that showno change in its length during muscle contraction is _____.
69) The band that decreases in length during muscle contraction is _____.
70) Energy from muscle contraction is obtained from _____.
71) The system in muscle cell where Ca++ are stored is _____.
72) The protein subunit to which Ca++ binds prior to muscle contraction is _____.
73) The site on F-Actin masked by Tropomyosin is _____.
74) The protein part that masks the active site on F-Actin is _____.
75) The theory that best explains muscle contraction is _____.
76) The state when the cross bridges are not broken is _____.
77) The cell that bears processes is called _____.
78) The smaller processes present in the cell body of a neuron is called _____.
79) Nissl body are only found in _____ cells.
80) The axon of a neuron arises from _____.
81) Myelin sheath is laid down by _____ cell.
82) Cell that do not undergo cell division is _____.
83) Cytoplasm of axon is _____.
84) Covering sheath of nerve is _____.
85) Chemical substance produced by terminal end of neuron is _____.
86) The static membrane potential of quiescent cells is called_____.
87) A voltage difference between the inside and outside of a nerve membrane is called _____.
88) The voltage difference across the plasma membrane of a neuron is called _____.
89) The jumping of the action potential from node to node in a myelinatednerve fibre is called _____.
90) The minimum potential value to which the membrane potential must reach before opening the ion channel is called _____.
91) The short lasting event in which the electrical membrane potential of a cell rapidly rises and falls is _____.
92) _____cells form myelin sheath across nerve fibre.
93) The resting potential value of a typical neuron is _____.
94) The functional contact between two neurons is called_____.
95) The space between pre-synaptic membrane is called_____.
96) The protein receptor on post-synaptic membrane to which neurotransmitter attaches is called _____.
97) Types of synapse between axon of the one neuron and dendrite of another is _____
98) Synapse type where chemical substance is released into the synaptic cleft is _____.
99) The enzyme that degrades neurotransmitter Acetylcholine is _____.

100) The contact between a motor neuron and a muscle fibre is called _____.
101) The post-junctional fold in a neuromuscular junction is called _____.
102) _____ neuron innervate skeletal muscle.
103) The bulb like expanded structure of terminal neuron at neuromuscular junction is _____.
104) Secretion of saliva by sight of food is _____ reflex.
105) Expansion of eye pupil in darkness is _____ reflex.
106) The information received by receptor during reflex action is processed in _____.
107) An involuntary movement by an effector organ in response to a stimulus is _____.
108) The path taken by the nerve impulse in a reflex action is _____.
109) Ear wax is secreted by _____.
110) The air filled cavity of the middle ear is called_____.
111) The stapes fits into the _____ of internal eye.
112) The other name for incus is _____.
113) Myopia is corrected by _____ lens.
114) Hypermetropia is corrected by _____ lens.
115) The white of the eye is _____.
116) The chamber between cornea and lens is _____.
117) The chamber between lens and retina is _____.
118) The light sensitive layer of the eye is _____.
119) The photosensitive pigment of rod is _____.
120) _____ tubehelps in equalization of air pressure between outside and middle ear cavity.
121) Other name of Stapes is _____.
122) Other name for Malleus is _____.
123) The transparent anterior portion of the eyeball is _____.
124) The finger like projection from the ciliary body is _____.
125) The circular area present opposite to the entrance of optic nerve is _____.
126) The fluid within the eye ball responsible for the maintenance of shape is _____.
127) The gland that secrets tear is _____.
128) The vestegeal present in the human eye is _____.
129) The mechanisn of adjustment of eye to see near and distant oblects is_____.
130) The eye defect due to refractive error of the lens is _____.
131) The opacity or cloudiness in the natural lens of the eye is _____.
132) Leydig cell secrete _____.
133) After ovulation the ruptured follicle is transformed into a body called _____.
134) Degenerating corpus luteumis called _____.
135) Death of follicle in ovary is _____.
136) Fluid filled cavity within graafianfollicle is _____.
137) Developmental process of follicle is _____.
138) Testis is situated within a pouch called _____.

139) Mitochondria is located in the _____ part of sperm.
140) The accessory gland that contribute major portion to senen is _____.
141) The canal through which testis descends is _____.
142) Coiled tubules present within testis is _____
143) The cap like structure present on the hand of sperm is _____.
144) The tube that links vas efferentia and vas deferens is _____.
145) The male sex harmone is _____.
146) The cells that provide support and nutrition to developing germ cell is _____.
147) Oocytes develop in the _____ part of ovary.
148) Primary sex organ in female are _____.
149) The most important progestin in female is _____.
150) Fertilization occurs in the _____ region of fallopian tube.
151) The movement of the egg along the fallopian tube is assisted by _____.
152) Non functionalganets produced during oogenesis is _____.
153) The condition of abnormal/non functional ovary is _____.
154) The finger like process present in the infundibulum is _____.
155) The narrow inferior portion of the uterus that projects into the vagina is _____.
156) The muscular canal that serves as the entrance to the reproductive tract in female is _____.
157) The structure in female that is homologous to glans penis of male is _____.
158) The accessory gland in female that is homologous to the bulbourethral gland of male is _____.
159) The connection between hypothalamus, pituitary and gonad is called _____ axis.
160) In female, the HPG axis is called _____.
161) The HPG axis in male is _____.
162) The hormone from hypothalamus that regulate anterior pituitary to release gonadotropins is _____.
163) The onset of puberty is associated with high level of _____ hormone.
164) The hormone responsible for most of the male pubertal changes is _____.
165) The first menstrual bleeding at puberty is _____.
166) The development of tender lump under the areola of breast at puberty in girls is _____.
167) Ovulation occur on the _____ day of the menstrual cycle.
168) The normal duration of menstrual phase is _____ days.
169) The hypithalamuchormy that regulate menstrual cycle is _____.
170) Ceasation of menstrual cycle is _____.
171) Matured ovarian follicle is _____.
172) The temporary endocrine gland formed at pregnancy is _____.
173) The intra uterine device that release copper for contraception in female is _____.
174) The most common sterilization technique in female is called_____.
175) The method used to prevent pregnancy is _____.
176) The sterilization technique employed in man is _____.

177) Relaxation of pelvic ligament at the end of gestation is brought about by _____ hormone.
178) The first hormone to be released from the developing placenta is _____.
179) The hormone that is measured in a pregnancy test is _____.
180) Thd major estrogen produced by the placenta is _____.
181) The structure that links endocrine system to nervous system is _____.
182) The hormone released by the middle region of hypothalamus is _____.
183) Other name for anterior region of hypothalamus is _____.
184) The term used for posterior region of hypothalamus is _____.
185) The structure that maintain homeostasis in the body is _____.
186) Pineral gland produce _____ hormone.
187) The major cells present in pineal gland constitute _____.
188) _____ gland effects sleeping pattern.
189) Body's internal clock is_____.
190) The upward growth of pharyngeal epithelium during development of pituitary gland is known as _____.
191) FSH and LH are released under the influence of _____ hormone.
192) The hormone released from intermediate lobe is _____.
193) Hypersecretion of growth hormone in child causes _____.
194) Deficiency of anterior pituitary secretion during childhood causes _____.
195) _____ hormone is responsible for general growth of the body.
196) _____ frompituitary that stimulates thyroid gland.
197) _____ hormoneinhibits prolactin secretion.
198) The disorder caused by hypersecretion of growth hormone in adult is _____.
199) Excess secretion of water through urine without glucose is _____.
200) The two lobes of thyroid gland is connected by _____.
201) The secretary substance that fills the thyroid follicle is _____.
202) The major constituent of colloid is a glycoprotein called _____.
203) The enzyme that oxidise iodide into iodine is _____.
204) Condition of hypothyroidism in children is called _____.
205) Hormone released by parafollicular cells is _____.
206) Hypothyroidism in adult leads to _____.
207) Butterfly shaped endocrine gland is _____.
208) Hormone secreted by parafollicular cells of thyroid gland is _____.
209) _____ is combination of iodone with tyrosine.
210) Storage form of thyroid hormone is _____.
211) Enlargement of thyroid gland is _____.
212) The hormone released from parathyroid gland is _____.
213) _____ secretion of PTH leads to hypocalcemia.
214) _____ cells secrete parathormone.
215) Surgical removal of parathyroid gland is _____.
216) _____ cells synthesize insulin.
217) _____ cells synthesize glucagon.

218) Polypeptide insulin consists of _____ numbers of amino acid.
219) PP cells in the Islet cells of Langerhans secrete _____.
220) The endocrine part of pancreas _____.
221) Metabolic disorder caused by lack of insulin is _____.
222) The hormone that elevates glucose level in blood is _____.
223) _____ diabetes caused by lack of insulin secretion.
224) _____ diabetes caused by decreased sensitivity of target tissue.
225) The hormone that regulates Na+ and K+ in the extracellular fluid is _____.
226) Hypersecretion of glucocorticoids leads to _____ syndrome.
227) The combined term for adrenalin and non-adnrenalin is _____.
228) The zone in adrenal cortex that secretemineralo corticoids is _____.
229) The hormones that stimulate flight or fright reactions is _____.
230) _____ hormone is a derivative of Ami no acid Tyrosine.
231) The hormone attached to _____in the target cell.
232) Second messenger concept is exhibited by _____ hormone.
233) Hormones that bind to regulatory site on the chromosome is _____.
234) A group of similar cells specified for a common function is called ____.
235) The process of formation of erythrocyte is called ____.
236) The segment between two adjacent Z-line in a myofibril is called ___.
237) ___enzyme separates myosin into LMM and HMM.
238) The photosentitive pigment of rod is ____.
239) After ovulation the ruptured, follicle is transformed into a body called ____.
240) FSH and LH are released under the influence of ___ hormone.

ANSWERS:-

1) Tissue	**121) Stirrup**
2) Epithelial tissue	**122) Hammer**
3) Goblet	**123) Cornea**
4) Endothelium	**124) Ciliary process**
5) Volkmann's canal	**125) Optic disc**
6) Squamous	**126) Intra-ocular fluid**
7) Plasma	**127) Lacrimal gland**
8) Erythropoiesis	**128) Plicasemilunaris**
9) Eosinophil	**129) Accommodation**
10) Mesoderm	**130) Astigmatism**
11) Skeletal/Cardiac	**131) Cateract**
12) Nervous	**132) Testosterone**
13) Schwann	**133) Corpus luteum**
14) Node of ranvier	**134) Corpus albicans**
15) Interdigitations	**135) Atresia**
16) Stratification	**136) Antrum**
17) Microvilli	**137) Folliculogenesis**
18) Squamous epithelium	**138) Scrotum**

19) Vitamin D	**139) Mid piece**
20) Cuboidal epithelium	**140) Seminal vesicle**
21) Amphibia	**141) Seminiferous tubule**
22) Spleen	**142) Acrosome**
23) Neutrophil	**143) Epididymis**
24) Lymphocytes	**144) Testosterone**
25) Cardiac muscle	**145) Sertoli cell**
26) Bipolar	**146) Cortical**
27) Neuroglia	**147) Ovary**
28) Axon	**148) Progesterone**
29) Keratin	**149) Ampulla**
30) Haversian canal	**150) Cilia**
31) Trabeculae	**151) Polar body**
32) Sesamoid	**152) Hypogonadism**
33) Diaphysis	**153) Fimibriae**
34) Periosteum	**154) Cervix**
35) Lacuna	**155) Vagina**
36) Canaliculi	**156) Clitoris**
37) Osteon/Haversian system	**157) Bartholin's gland**
38) Chondroblasts	**158) HPG**
39) Hyaline	**159) Hypothalamus-pituitary -ovarian axis**
40) Elastic	**160) Hypothalamus-Pituitary-Testicular axis**
41) Cartilage	**161) GnRH(Gonadotropin releasing hormone)**
42) Fibro cartilage	**162) GnRH**
43) Ossification	**163) Testosterone**
44) Growth hormone	**164) Menarche**
45) Ossification	**165) Thelarche**
46) Parathormone	**166) 14**
47) Mineral salts	**167) 4 to 5**
48) Osteoclasts	**168) GnRH**
49) Re-modelling	**169) Menopause**
50) Cross-striations	**170) Graanfian follicle**
51) Smooth muscle	**171) Corpus luteum**
52) Sarcolemma	**172) Copper T**
53) Sarcoplasm	**173) Tubal ligation**
54) Cardiac muscle	**174) Contraception**
55) Cardiac muscle/myocardium	**175) Vasectomy**
56) Myofibril	**176) Relaxin**
57) H-Zone	**177) Human Chorionic gonadotropin**
58) Sarcomere	**178) Human Chorionic gonadotropin**
59) six	**179) Estriole**
60) three	**180) Hypothalamus**
61) Myosin	**181) GHRH(Growth Hormone releasing hormone)**

62) actin	**182) Supra optic region**
63) trypsin	**183) Mammilary region**
64) Tn-C	**184) Hypothalamus**
65) Z-line	**185) Melatonin**
66) Ca++	**186) Pinealocytes**
67) L-tubules	**187) Pineal gland**
68) A-band	**188) Pineal gland**
69) I-band	**189) Rathke pouch**
70) ATP	**190) Gonadotropin**
71)L-tubule	**191) MSH**
72) Troponin-C	**192) Gigantism**
73) active site	**193) Dwarfism**
74) Tropomyosin	**194) Growth Hormone**
75) sliding mechanism Theory/Rachey theory	**195) TSH**
76) Rigor mortis	**196) Prolactin Inhibitory Hormone**
77) neuron	**197) Acromegaly**
78) dendrite	**198) Diabetes insipidus**
79) nerve	**199) Isthmus**
80) axon-hillock	**200) Colloid**
81) Scheann	**201) Thyroglobulin**
82) neuron	**202) Peroxidase**
83) axoplasm	**203) Cretinism**
84) epineurium	**204) Calcitonin**
85) neurotransmitter	**205) Myxedema**
86) resting membrane potential	**206) Thyroid gland**
87) membrane potential	**207) Calcitonin**
88) membrane potential	**208) Iodination**
89) saltatory conduction	**209) Colloid**
90) threshold potential	**210) Goitre**
91) action potential	**211) Parathormone**
92) Schwann cell	**212) Hypo**
93) -70 mV	**213) Chief cells**
94) synapse	**214) Parathyroidectomy**
95) synaptic cleft	**215) Beta**
96) receptor protein	**216) Alpha**
97) axodendritic synapse	**217) 51**
98) chemical synapse	**218) Pancreatic polypeptide**
99) acetylcholinesterase	**219) Islets cells of Langerhans**
100) Neuromuscular junction	**220) Diabetes mellitus**
101) Motor end plate	**221) Glucagon**
102) Motor neuron	**222) Type I Diabetes(IDDM)**
103) Motor end plate	**223) Type II Diabetes (NIDDM)**
104) Acquired/conditioned	**224) Aldosterone**
105) Inborn/unconditioned	**225) Cushing's**

106) CNS	**226) Catecholamines**
107) Reflex action	**227) Zonaglomerulosa**
108) Reflex arc	**228) Zonafasciculata**
109) Ceruminous gland	**229) Catecholamines**
110) Tympanic cavity	**230) Thyroxine**
111) Oval window/Fenestra Ovalis	**231) Receptors**
112) Anvil	**232) Protein**
113) Biconcave	**233) Steroid hormone**
114) Biconvex	**234) Tissue**
115) Sclera	**235) Erythropoiesis**
116) Anterior chamber	**236) Sacromere**
117) Posterior chamber	**237) Trypsin**
118) Retina	**238) Rhodopsin**
119) Rhodopsin	**239) Corpus luteum**
120) Eustachian tube	**240) Anterior pituitary**

Part-II

B) **Very Short Notes .**

1) Where is the location and function of Germinal epithelium?
2) What are macrophages?
3) What do you mean by resting membrane potential?
4) What is function of tympanic membrane?
5) What is ovarian cycle?
6) What is spermeogenesis?
7) What is the function of testosterone?
8) What is intrauterine Device (IUD)?
9) What is the function of Relaxin?
10) What is the function of ACTH?
11) Osteocyte
12) Chondrocyte
13) Matrix
14) Cilia
15) Squamous epithelium

16) Fibroblast
17) Adipocytes
18) Macrophages
19) Mast cells
20) Reticular connective tissue
21) Transitional epithelium
22) Ligament
23) Tendon
24) Diaphysis
25) Periosteum
26) Bone marrow
27) Osteoblast
28) Osteoclasts
29) Osteogsnic cells
30) Flat bone
31) Chonfrification
32) Chondroblasts
33) Elastic cartilage
34) Intramembrane ossification
35) Enfochondral ossification
36) Bone deposition
37) Initiating factors for bone resorption
38) Factors regulating bone resorption
39) Single unit smooth muscle
40) Multi unit smooth muscle
41) Intercalated disc
42) A-band
43) I-band

44) Z-line
45) Troponin
46) Tropomyosin
47) G-Actin
48) F-Actin
49) LMM
50) HMM
51) L-tubule
52) Cross bridge
53) Rigor mortis
54) Acto-myosin complex
55) Neuron
56) Axon-hillock
57) Bi polar neuron
58) Nissl bodies
59) Node of Ranvier
60) Sensory neuron
61) Motor neuron
62) Inter neuron
63) Depolarization
64) Refeactory period
65) Hyperpolarization
66) ' All Or nothing' rule
67) Threshold potential
68) Excitatory synapse
69) Inhibitory synapse
70) Synaptic vesicles
71) Syaptic cleft

72) Cholinergic synapse
73) Acetylcholine
74) Motor end plate
75) Sub- neuron cleft
76) Synaptic trough
77) Acquired reflex
78) Inborn reflex
79) Monosynaptic reflex
80) Polysynaptic reflex
81) One way conduction
82) Autonomic reflex
83) Ear ossicles
84) Tympanic membrane
85) Vestibule
86) Cochlea
87) Membranous labyrinth
88) Endolymph
89) Perilymph
90) Scalavestibuli
91) Scala tympani
92) Scala media
93) Aqueous humor
94) Veteroishumor
95) Sertoli cell
96) Leydig cell
97) Granulosa cells
98) Zonapellucida
99) Cremaster muscle

100) Primary spermatocyte
101) Spermatid
102) Hypogonadism
103) Rete testis
104) Vas efference
105) Fallopian tube
106) Labia majora
107) Labia minora
108) Primordial germ cells
109) GnRH
110) ICSH
111) Corpus luteum
112) Antral follicle
113) Menstrual symptoms
114) Oral pill
115) Contraceptive implant
116) Contraceptive injection
117) Relaxin
118) Placental lactogen
119) Kiss petin
120) TRH
121) Corticotropin releasing hormone
122) Pineal gland and ageing
123) Melatonin
124) Gonadotropin
125) GHIH
126) Prolactin
127) Thyroglobulin

128) MIT

129) DIT

130) Tyrosine

131) Anti-Thyroid agent

132) Colloida

133) Hypocalcemia

134) Hypercalcemia

135) Nor-epinephrine

136) Proinsulin

137) Pancreatic polypeptide

138) Polyuria

139) Polydipsia

140) Epinephrine

141) Neurohormone

142) Local hormone

143) Peptide hormone

144) Hormone receptor

145) β cell

Part-III

C) **Short Notes.**

1) What is a cartilage? Give its function.

2) Describe the role of calcium in muscle contraction.

3) What is function of neurons?

4) What is membrane potential?

5) What is neurotransmitter? Describe the role of Acctylcholine of it.

6) Describe the Role of Graffian follicle?

7) What is the function of Epididymis of testis?

8) Why pancreas is called a heteocrine gland?

9) Give the histology of ovary.

10) Describe the structure and function of adrenal gland.

11) Stratified epithelial tissue

12) Areolar tissue

13) Fibres of connective tissue

14) Haversian system

15) Hyaline cartilage

16) Fibro cartilage

17) Adipose tissue

18) Lymph

19) Neuroglial cells

20) Cartilage growth

21) Structure of cartilage

22) Bone growth

23) Bone resorption

24) Bone remodeling

25) Cardiac muscle

26) Fasciculi

27) Smooth muscle

28) Sarcotubular system

29) Sarcoplasmic reticulum

30) Myosin

31) Actin

32) Sarcimere

33) Energy for muscle contraction

34) Role of calcium in muscle contraction

35) Power stroke

36) Change in Sarcomere during muscle contraction
37) Sliding mechanism
38) Myelinated nerve fibre
39) Schwann cell
40) Non-Mtelinated nerve fibre
41) Ion channels
42) Na+ - K+ ATPase Pump
43) Action potential
44) Resting membrane potential
45) Local circuit theory
46) Saltatory conduction
47) Neurotransmitter
48) Structure of synapse
49) Types of synapse
50) Neuromuscular junction
51) Neuromuscular blocker
52) Reflex action
53) Reflex act
54) Patellar reflex
55) Semicircular canal
56) Organ of Corti
57) Ciliary body
58) Rod cells and cone cells
59) Accommodation
60) Astigmatism
61) Glaucoma
62) Cataract
63) Seminiferous tubule

64) Ovarian follicle
65) Spermiogenesis
66) Structure of sperm
67) Testosterone
68) Epididymis
69) Prostate gland
70) Seminal vesicle
71) Cowper's gland
72) Semen
73) Estrogen
74) Progesterone
75) Hypogonadism
76) FSH
77) LH
78) Puberty
79) Age of onset of puberty
80) Voice change in puberty
81) Ovarian cycle
82) Graafian follicle
83) Luteal phase
84) Male condom
85) Immuno-contraceptive for male
86) Female condom
87) Hormonal method of contraception in female
88) Intra-uterine device
89) Vasectomy
90) Tubal ligation
91) Progesterone

92) Chorionic gonadotropin
93) Diabetes insipidus
94) Hypothalamic hormone
95) Circadian rhythm
96) Pineal gland disfunction
97) Growth hormone
98) FSH
99) ADH
100) Oxytocin
101) Gigantism
102) Dwarfism
103) Acromegaly
104) Thyroxine
105) Grave's disease
106) Goitre
107) Myxedema
108) Cretinism
109) Calcitonin
110) Parathormone
111) Role of PTH on calcium level
112) Diabetes mellitus
113) Insulin
114) Glucagon
115) Somatostatin
116) Aldosterone
117) Cortisol
118) Adrenal androgen
119) Addison's disease

120) Cushing's syndrome

121) Steroids

122) Second messenger concept

123) Feed back control

124) Properties of hormone

125) G-Protein

Part-IV

D) Long answer questions.

1) Describe the structure and function of simple epithelium.

2) Describe the structure and function of Leukocytes.

3) What is muscle contraction? Explain the chemical basis of muscle contraction.

4) Describe the structure and function of neuron.

5) Describe the physiology of human male reproductive system.

6) Describe the methods of contraception in male and female.

7) Describe the structure and function of thyroid hormones.

8) Give an account of different hormones and their function, synthesized by Islets cells of Langerhans.

9) Give an account of fluid connective tissue.

10) Describe the structure of neuron.

11) Give an account of different types of muscular tissue.

12) Give an account of different types of bones found in human body.

13) Give an account of different types of cartilages found in human body.

14) What is ossification? Describe the steps involved during the process of ossification.

15) What is bone reabsorption? Enumerate the steps involved in bone reabsorption.

16) Describe the molecular mechanism of muscle contraction.

17) What is muscle contraction? Explain the chemical basis of muscle contraction along with the energetics.

18) What is action potential? Explain the steps for generation of action potential in neuronal membrane.

19) What is saltatory conduction? Explain the mechanism along a myelinated nerve fibre and add a note on it's energy efficiency.

20) What is reflex action? Describe the phenomenon taking a suitable example.

21) What is reflex arc? Describe the types of reflex arc along with its mode of action.

22) Describe the structure of human ear. Add a note on the physiology of hearing.

23) Describe the structure of human eye. Add a note on the physiology of vision.

24) Describe the physiology of human male reproductive system.

25) Describe the stages of spermatogenesis. Add a note on the structure of human sperm.

26) Describe the human female reproductive system.

27) Describe the stages of Oogenesis.

28) Describe the hypothalamic-pituitary-ovarian axis and it's role in regulation of ovarian activity.

29) Describe the hypothalamic-pituitary-testicular axis and it's role in regulation of testicular activity.

30) Describe the mechanism of non-steroid hormone action.

31) Give an account of placental hormones and their function.

32) Describe the structure and function of hypothalamhs.

33) Describe the structure and function of anterior pituitary gland.

34) Describe the structure and function of Parathyroid gland.

35) Discuss the endocrine aspects of pancreas.

36) Give an account of the cortical hormone and their function.

37) Give an account of the medullary hormone and their function.

38) What is hormone? Give an account of different types of hormones secreted by endocrine glands.

39) Describe the mechanism of action of steroid hormone on it's target cell.

40) Give an account of neurohypophyseal hormones and their function.

DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER - CC – VII

(Fundamentals Of Biochemistry And Microbiology)

PART -I

A) Answer in One Word.

1) Who coined the term carbohydrate?
2) Define glycome.
3) Define carbohydrates.
4) Name the organisms where storage polysaccharide is dextran.
5) Which type of carbohydrates on RBC surface act as blood group substan (antigens)
6) What are the two major biological functions of polysaccharides?
7) Which sugar serves as a source of energy for sperm?
8) Which carbohydrate is used as plasma substitute (or plasma expander)?
9) Based on function group (carbonyl group) they possess carbohydrates can be _____and _____.
10) The carbohydrates with 3-10 sugar units are called _____.
11) Break down of carbohydrates in physiological conditions yield_____ energy.
12) Glycogen stored in _____ is not available for regulating blood sugar.
13) _____ is the most abundant carbohydrate in nature after cellulose.
14) The study of carbohydrates in health and disease is called _____.
15) Glycerosehave _____ chiral carbon atoms.
16) D- ribose and D- deoxyribose form _____ ring like structure.
17) _____ is the coenzyme of NAD, NADP, FAD, FMN, ATP, Coenzyme A .
18) _____ constituent of lyxoflavin of heart muscles.
19) ____ is the stored food found in brown algae.
20) When the compounds have same structural formulae but different spatial arrangement called _____.
21) _____ are a pair of molecules that exist in two forms that are mirror images of one another but cannot be superimposed one upon the other.
22) Which is the reference carbon atom in sugar?

23) _____are defined as compounds which have the same molecular formula and sequence of bonded elements but which are nonsuperimposable, non-mirror images .

24) When two monosaccharides differ from each other in their configuration of the -OH and -H with regard to a single carbon atom are called _____.

25) Glucose and Mannose are epimers due to difference in their configuration at _____ position.

26) Glucose and Galactose are epimers due to their difference in their configuration at _ _____ position.

27) The interconversion of glucose to mannose or vice-versa is called _____ and in our body the enzyme which are involved called _____.

28) Two isomeres which differ only in the configuration at C1 and C2 are known as _____.

29) The interconversion of alpha and beta cyclic forms of D Glucose in aqueous solution is called _____.

30) Cyclic sugar structure are more accurately represented in _____.

31) The alpha and beta cyclic forms of D- Glucose are termed as _____.

32) The non-carbohydrates moiety found in glycoside is called _____.

33) The ribose and deoxyribose differ in structure around a single carbon namely _____.

34) Which sugars cyclize into ring forms in a solution ?

35) How can we represent an open chain structure of monosaccharide ?

36) What is the basis of mutarotation?

37) Which monosaccharide doesn' t have any asymmetric carbon atoms ?

38) A carbon atom when attached to four different atoms or groups is called _____.

39) All monosaccharides are reducing sugars due to presence of a free ____ group.

40) The glucose in aqueous solution is called dextrose because of its _____ nature.

41) _____ a sugar alcohol commercially obtained from reduction of glucose and fructose is used in diets of Diabetic patients.

42) According to _____ and _____ of 'n' the number of possible isomers depends on the number of asymmetric carbon atoms (n) and equals to 2n.

43) When equal concentration of both dexrorotary and levorotatory isomers are present in a solution it shows no optical activity, this mixture is called as _____.

44) With strong alkalies the sugar produces a series of decomposition products , the process is called _____.

45) Glucose reacts with three molecules of _____ to yield osazone , aniline and ammonia.

46) Reducing sugars are differentiated from non reducing sugars by _____.

47) Chains of monosaccharides are joined by _____ to form oligosaccharides and polysaccharides.

48) Maltose is formed of ____ and _____ linked by Alpha 1, 4 glycosidic bond.

49) When a α D glucose and β D Glucose dissolved in water it shows a fixed rotation of _____.

50) The final specific rotation of α and β forms of maltose in water is ____ .

51) _____ can reduce Benedict's , Fehling's , and Tollen's reagent.

52) _____ is a reducing disaccharide consists of Beta - D-Galactose and Alpha-D-Galactose by a Beta 1,4glycosidic linkage.

53) Lactose is synthesised in lactating mammary glands from D galactose and D glucose by _____ which catalyze the transfer of galactose from _____ to glucose forming lactose.

54) Sucrose is disaccharide consists of _____ and _____ joined by alpha -1,2glycosidic bond.

55) Sucrose is nonreducing sugar because it lacks any free _____ or ____ groups.

56) _____ is also called as invert sugar.

57) What is the major sugar of yeast , fungi , honey, lobsters , seaweeds ?

58) Chitin is a linear polymer of _____ residues in Beta -1,4 linkage.

59) The mucopolysaccharides that serve as a lubricant and shock absorber in bone, joints is _____.

60) The polysaccharide employed for the assessment of kidney function is _____.

61) The glycosidic bond forming branch points at the branching points of glycogenand starch are _____.

62) In ground substances of various mammalian connective tissue, _____ bind collagen fibers and hold them in tight and strong network.

63) _____ contributes to the pliability of skin and is also present in blood vessels and heart valves.

64) The GAG that present in blood and acts as an anticoagulant is _____.

65) In Hyaluronic acid, D- glucuronic acid and N-acetylglucosamine joined by _____ linkage.

66) _____ consists of repeating units of D - glucuronate - 2- sulfate and N-sulfo-D-glucosamine-6-sulfate joined by Alpha-1,4 linkages.

67) Chondroitin -4-sulfate consists of repeating disaccharide units consist of _____ and _____ joined by Beta-1,3glycosidic linkage.

68) Keratosulfate is a linear polymer consisting of repeating disaccharide unit _____ and _____ joined by Beta-1,4 linkage.

69) In joint _____ act as a cushion to absorb mechanical shock.

70) _____ is found in blood vessels , tendons , heart valves and lungs.

71) _____ consist of repeating disaccharide unit consists of L-iduronicacid and N-acetyl-D-galactoseamine -4-sulfate joined by Beta -1,3 linkages.

72) _____ is a biologically active molecule formed by covalentely linking the informational carbohydrate to a protein or lipid .

73) The major glycoprotein present in the cell membrane of human RBC is _____.

74) Several pathogens have special types of glycoproteins on their surface called _____ that mediate their adhesion to target cells.

75) The escaping of WBC through capillary walls to the sote of infection is mediated by _____.

76) The noncarbohydrate residue of a glycoside is called _____.

77) Name the repeating tripeptide of antifreeze proteins of antarctic fishes.

78) ____ are membrane glycoproteins that protect the epithelium from chemical, physical, and Microbial disturbances by forming a highly viscous slippery gel.

79) _____ a lipid storage disease the increase in concentration of gangliosides increase in brain and nervous tissue.

80) Who coined the term lipid ?

81) Name the precursor molecule of Prostaglandins.

82) How many double bonds are there in arachidonic acid?

83) Which fatty acid is employed in the treatment of leprosy?

84) Name the cyclic ring of steroids.

85) Name the most abundant glycerophospholipids of the cell membrane.

86) Which glycerophospholipid produces second messengers in hormone action.

87) Which type of steroid is exclusively found in animals?

88) How many double bonds are there in oils , is calculated by _____ value.

89) The major fat in adipose tissue that function as fuel reserve is _____.

90) The nitrogen base present in Lecithin is _____.

91) Hydrolysis of fat by alkali is called _____.

92) The unsaturated fattyacid exhibit ____ isomerism depending on the orientation of the groups around the double bond axis.

93) In sn-glycerol the prefixsen stands for _____ which represents C1 and C3 carbon of glycerol are different which can be distinguished by the enzymes.

94) Fast foods and ready to eat packaged foods have a high content of ____ that increase the shelf life of the fried foods which are adversely affect the human health.

95) The phospholipid _____ is a major constituent of lung Surfactant that prevent the adherence of inner surface of lungs.

96) The fluidity of the membrane is maintained by _____.

97) The only phospholipid that has antigenic properties is _____.

98) _____ gives idea about the molecular weight or chain length of the fatty acids of a fat.

99) Oils containing ____ fatty acids can be hydrogenated in presence of high temperature , pressure , and finely divided nickel.

100) The process by which large sized fat globules breakdown into smaller fat droplets are called _____.

101) _____ is a naturally occurring emulsion.

102) _____ are amphipathic molecules because their carboyxylic group are hydrophilic and R groups are hydrophobic.

103) The deterioration of fats and oils resulting unpleasant taste and smell is called _____.

104) Gallic acid , Hydroquinone, BHA, BHT can prevent _____.

105) Sphingosine is attached to a fatty acid by an amide linkage to form _____.

106) In Gaucher's disease glucose cerebrosides accumulate in _____ .

107) ____ are found in large amounts in gray matter of brain.

108) ____ serve as precursor of bile acids , bile salts , steroid hormones and vitamin D.

109) _____ is a plant sterol.

110) Normal serum of adult contain _____ cholesterol.

111) First aminoacid isolated from asparagus is _____.

112) Aromatic aminoacids are ____ and _____.

113) Lysine , Arginine, Histidine are _____ amino acids .

114) Asparaticacid , Glutamic acid , Aminocitric acid are _____ amino acid.

115) Tryptophan, Tyrosine ,Histidine, Phenylalanine absorb ____ light.

116) Which amino acids are not optically active ?

117) Glycine ,Alanine, valine are _____ in taste and Arginine, Isoleucine are ____ taste.

118) The first amino acid of any polypeptide chain in eukaryotes is _____.

119) A solution of L-alanine (4.0g/50 ml of 6 N HCl) has a rotation of +1.61° in a 2dm polarimeter tube. Calculate the specific rotation of L-alanine in 6 N HCl.

120) In which amino acid Imidazole group, an aromatic ring found?
121) What is the maximum wavelength that Tryptophan and tyrosine absorb?
122) How is the secondary structure of a protein stabilized?
123) When amino acid reacts with benzaldehye it gives _____.
124) 1- flouro-2,4 -dinitrobenzene is ____ reagent.
125) ____ forms bands or kinks in polypeptide chain.
126) _____ rings of Phenylalanine, Tyrosine, and Tryptophan help in electron transport.
127) Which amino acid produces the hormones Thyroxine, Adrenaline , Melanin and which amino acid form Heme ?
128) Which amino acid produces Vitamin Nicotinamide?
129) Theimino acid found in protein is _____
130) The most abundant protein in human body is _____ which is rich in _____.
131) _____ amino acid is a precursor of neurotransmitter dopamine.
132) Which amino acid in blood serves to transport ammonia from extrahepatic tissues to liver and kidney?
133) Which amino acids are not constitute of protein but participate in urea cycle?
134) Name the two sulfur containing amino acids.
135) Who coined the term protein?
136) The conformation adopted by polypeptide to perform the biological activity is called as _____ conformation.
137) The primary structure of protein is stabilized by _____.
138) What is the average molecular weight of an amino acid residue in a protein?
139) Which proteins was first sequenced by Frederick Sanger?
140) Which techniques is used to determine the protein structures by Linus Pauling and Robert Corey?
141) The 3-D structure of proteins can be determined by_____ and _____.
142) Peptide bond is a _____ bond.
143) Disulfide bond stabilizes which structure of protein ?
144) Which bond involved in stabilizing secondary, tertiary and quaternary structure of protein ?
145) The distance at which attractive forces is maximal and repulsive force is minimal is termed as _____.
146) Peptide conformation is defined by three dihedral angles called _____ , _____ , _____ reflecting rotation about each of the three repeating bonds in the peptide back bone .

147) In an alpha helix _____ amino acid residues present per turn covering a distance of 0.54 nm.

148) _____ and _____ aminoacidsare helix breaker

149) In keratin and silk fibroin which type of beta plated sheet present ?

150) _____ protein is rich in Proline ,hydroxyproline , lysine , hydroxylysine.

151) Two or more secondary structures often aggregate to form a complex structural unit called _____ .

152) The phenomenon of a loss of three dimensional structure is called _____.

153) Which plasma proteins maintain electrolyte and water balance in body ?

154) Which proteins are responsible for nuclear DNA packaging in eukaryotic cells

155) Histone protein is rich in _____ and _____.

156) In protein digestion, _____ bonds are hydrolysed.

157) The process of protein precipitation at isoelectric pH is called _____.

158) _____ constituent the antioxidant defence system that protects the cell from oxidative damage.

159) _____ and _____ are the most abundant protein in animals and plants respectively in the whole biosphere .

160) The basic structure of antibodies are_____.

161) Name the heavy chain of immunoglobulin G.

162) What is the name of the hypervariable region of immunoglobin, which is responsible for its diversity?

163) Who discovered the structure of immunoglobulin by treating it with beta-mercaptoethanol?

164) Which amino acid is found in the hinge region?

165) Which immunoglobulin can pass through placenta?

166) Name the class of immunoglobulin which has a pentameric structure?

167) Which of these immunoglobulins is present in external secretion?

168) Name the class of immunoglobulin which takes part in hypersensitivity reaction?

169) Which of the immunoglobulins makes the largest percentage in breast milk ?

170) Antibodies are ____.

171) Which antibodies is predominantly present in tears, saliva and mucous ?

172) Antigen binding sites are present in _____.

173) Which of the immunoglobulin isotype have the longest half-life?

174) Which of the immunoglobulin isotype have the shortest half-life?

175) Which subclass of IgG does not readily cross the placental barriers?

176) Which of the following subclass of IgG molecule is the most potent activator of the complement pathway?

177) Which class of immunoglobulin is dimeric structure?

178) The IgA and IgMs consist of which of the following chain can allow its polymerization?

179) The monomeric immunoglobulin consists of heterodimers of heavy (H) and light (L) chains bound together by non-covalent interaction and disulphide bonds. Which of the following is the antigen-binding site?

180) _____ cleaves the antibody molecule at the hinge region, which is a flexible segment that connects the Fab (antigen-binding fragment) and Fc (crystallisable fragment) regions .

181) _____ digestion of an antibody produces F(ab')2 fragment.

182) Which antibody have four constant regions (CH1, CH2, CH3, CH4)?

183) Which subclass of IgG molecule is the most potent activator of the complement pathway?

184) _____ can covalently bind to the surface of pathogens or immune complexes that are bound by IgGantibodies .

185) B-cell receptors consist of membrane-bound immunoglobulin and a small heterodimer protein required for signalling. Which of the following is the heterodimer protein ?

186) _____ is responsible for the transfer of maternal IgG antibodies across the placenta to provide passive immunity to the developing foetus.

187) The specific region of antigen that can bind to antibody is called _____.

188) Epitopes bind to _____ of antibody molecule.

189) _____ can elicit immune response when covalently coupled to a suitable carrier.

190) T cell dependent antigens are chemically _____.

191) BSA has about ____ number of B cell epitopes.

192) _____ are good MHC binders.

193) _____ are organic catalysts , biocatalysts, ferments , bioregulators and catalysts of life or agents of life.

194) The term enzyme literally means _____.

195) The first enzyme isolated and crystallized was _____.

196) All enzymes are protein in nature except _____.

197) When antibodies act as enzymes they are called ____.

198) Thenonprotein component of holoenzyme is called _____.

199) The nucleic acids with catalytic power are called _____.

200) When a nonprotein organic compound is covalently bound to apoenzyme it is called ____.

201) The region at which substrate binds with the enzyme is called _____.

202) What is the E.C number for alcohol dehydrogenase?

203) What is the E.C number for hexokinase ?

204) Digestive enzymes are classified under which class of enzyme.

205) Name the prosthetic group that present in the active site of peroxidase and catalase .

206) Name the essential chemical components of enzymes NAD and NADP.

207) What is the first enzyme to elevate in the circulation within 6-18 hours after the myocardial infraction?

208) Which enzyme is elevated in serum in diagnosis of brain trauma ?

209) Which metal is required for the activity of kinases ?

210) _____ enzymes predominantly present in liver and skeletal muscles .

211) _____ catalyses the phosphorylation of creatine forming creatine phosphate in presence of ATP.

212) The study of rates of chemical reactions that are catalyzed by enzymes is referred to as _____.

213) Lock and key model was proposed by _____.

214) _____ proposed induced fit model in 1958.

215) The target substrate molecules bind to active site of the enzyme transforming into products through a series of steps known as the _____.

216) When the free energy occurs at standard conditions, it is termed as _____.

217) The removal and addition of protons [H+] is referred to as _____ and protonation respectively and _____ refers to disruption of interactions between substrate and interaction.

218) If the catalysis involves participation of small organic molecules, cofactors, and amino-acid side chains from the enzyme is termed as _____.

219) _____ involves substrates forming transient covalent bond with the residues present in the active site .

220) The covalent catalysis is aided by which method ?

221) Which is the first step involved in chymotrypsin mediated peptide bond hydrolysis?

222) The minimum amount of free energy required to overcome the energy barrier, so that the substrate molecule transformed into transition state is called _____ .

223) If free energy of the system is plotted against the progress of the reaction the curve obtained is called _____.

224) The amount by which the activation energy is lowered by the enzyme is called _____.

225) The difference in energy level between the substrate and product is called _____.

226) Enzyme attracts the specific substrate from the medium into active site by a phenomenon is called _____.

227) _____ possesses high entropy due to its translational and rotational movements.

228) The enzyme optimizes the reaction rate by proper orientation of reactive groups in active site which is known as _____.

229) _____ catalysing the formation of acetic anhydride from acetic acid.

230) _____ type of catalysis both proton donation and proton abstraction occur simultaneously.

231) When a graph is plotted with V_0 Vs S , it form _____ curve.

232) Chymotrypsin , Transaminase, Glutamate dehydrogenase, Flavoenzymes operate through _____ mechanism.

233) _____ discovered lysozyme from nasal mucus and tears.

234) The rate of an enzyme catalysed reaction or velocity of the reaction is _____ proportional to the concentration of the enzyme when sufficient substrate present.

235) High K_m value indicates _____ binding and Low $K_m$value indicates _____ binding.

236) If a plot is drawn between reaction velocity and pH _____ shaped curve is obtained.

237) Which type of curve is obtained for allosteric enzymes when V is plotted against S?

238) In feedback regulation the end product binds at the _____ of the first enzyme of a metabolic pathway.

239) The affinity of enzyme for its substrate is measured by _____.

240) The fastest enzyme known as _____.

241) The activator for salivary amylase is _____.

242) The activity of lipase enzyme increases in presence of activator _____.

243) The optimum pH for lysosomal enzymes is _____.

244) Radiations inhibit enzyme activity due to the formation of _____.

245) _____equation is $1/V_0=K_m/$ Vmax[S]+1/Vmax.

246) _____ equation is V_0=Vmax[S] / K_m+[S].

247) The molecule which acts directly on an enzyme to lower its catalytic rate is _____.

248) The rate determining step of Michaelis-Menten kinetics is _____.

249) DIPF, Penicillin and Iodoacetamide are _____ inhibitors of enzymes.

250) Disulfiram, Oseltamivir and protease inhibitors are _____inhibitors.

251) In _____ reaction the rate of reaction is independent to the concentration of the reacting substances.

252) In first order reaction the rate of reaction is _____ to the concentration of the reacting substrate.

253) The substrate concentration at which the enzyme is half saturated is called _____.

254) Substrate velocity curve is usually _____.

255) A low K_m value indicates _____.

256) The inhibitors are substrate analogs which are processed by enzymes to produce toxic intermediate that bind the functional groups of active site by irreversible covalent bonds called _____.

257) _____ is a substrate analog of DHAP irreversibly inactivates the glycolytic enzyme triose -phosphate-isomerase .

258) Irreversible inhibitors are used as _____ agents by which catalytic functional groups of active site can be determined .

259) _____ irreversibly inhibits cyclooxygenase.

260) Penicillin is an _____ inhibitor of trans peptidases enzyme which prevents the crosslinking of peptidoglycan chains.

261) Competitive inhibitors also known as _____ which bind reversibly to the active site.

262) Presence of ____ inhibitor increases the Km without any change in Vmax of the enzymatic reaction.

263) Malonate and Oxaloacetate are the competitive inhibitors which compete with _____ and inhibit the activity of _____.

264) _____ is competitive inhibitor of DHFR.

265) _____ is noncompetitively inhibits the enzyme renin.

266) _____ inhibits intestinal alkaline phosphatase uncompetitively.

267) _____ is an intermediate or end product of a metabolic pathway that binds with allosteric site other than active site and inhibits the activity of the first enzyme of that pathway.

268) Which enzyme is inactivated by Penicillin ?

269) Which component of nerve gas irreversibly binds to the active site of AChE ?

270) Name the competitive inhibitors of Succinate dehydrogenase .

271) Which agents are used for mapping of active site catalytic functional groups ?

272) The numbers of cysteine residues required for enzyme activity can be determined by using _____.

273) Xanthine oxidase is irreversibly inhibited by ___.

274) An anti-inflammatory agent like aspirin inhibits _____.

275) Thymidylatesynthatase involved in DNA synthesis can be inhibited by _____.

276) Heavy metals inhibit enzyme action by binding to _____ of the enzyme.

277) Inhibition of human DHFR by _____ interferes with DNA synthesis, repair and its replication.

278) Hexokinase activity is inhibited by the excess accumulation of _____.

279) _____ act as allosteric inhibitor of isoleucine.

280) The monosaccharide is called a ketose when ithas a _____group at carbon-2.

281) The empirical formula of carbohydrate is _____.

282) The -COOH groups of amino acids react withalcohol to form _____.

283) Theproblein part of a holoenzyme is called _____.

284) The only prokaryotes that perform oxygenic photosynthesis are _____.

285) A plasmid when temporarily integrate or detach from the main chromosome is called _____.

286) The enzyme _____helps the release of new flu virus particles from the infected cells.

287) _____ amino acid usually found in the active sites of enzymes.

288) _____is called secondary amino acid.

289) _____ antibodies are most abundant in total serum immunoglobulins.

290) _____ is the competitive inhibitors of Succinate dehydrogenase.

291) Transfer of donor DNA to recipient bacterium by bacteriophage is called _____.

292) The process of using microorganisms to degrade the environmental pollutants is called _____.

293) What are the two states of allosteric enzymes?

294) Whichenzymes do not obey Michaelis-Menten kinetics?

295) Which step of metabolic pathway is catalysed by allosteric enzyme ?

296) Write the shape of the curve for allosteric enzyme in LB plot.

297) Which allosteric enzyme most widely studied?

298) Name the substrate and modulator molecule for threonine deaminase.

299) Name the allosteric inhibitors for FBPase.

300) Modulators or effectors bind to ____ of enzymes.

301) The substrate-velocity curve for allosteric enzyme is _____.

302) Anti-diabetic drugs target an allosteric enzyme named _____.

303) The localization of a particular enzyme or a set of enzymes in a tissue , cellular , subcellular organelles is called _____.

304) Reversible covalent attachment or detachment of functional group to one or more amino acids residues in the enzyme is called _____.

305) In E.coli _____ gene codes for Beta - galactosidase.

306) In E.coli regulator gene 'i' and ' CAP' encode _____ and ____ respectively.

307) Lac operon model proposed by _____.

308) _____ hormone induces the synthesis of glycogen synthetase ,glucokinase, Phosphofructokinase and pyruvate kinase.

309) _____ hormone induces the synthesis of Pyruvate carboxylase, Tryptophaneoxygenase , Tyrosine aminotransferase.

310) Enzymes are regulated by covalent modification are called _____.

311) Name the enzymes located in peroxisome compartment.

312) Which enzymes are responsible for inactivation of the phosphorylated enzymes ?

313) Which organelles are known to carry transferases ?

314) Enzymes for detoxification are located in _____.

315) Pyruvate carboxylase undergoes repression by _____.

316) Phosphorylation of enzyme is regulated by _____.

317) Zymogen activation involves _____.

318) Based on phylogeny which domain is the sister group of archaea?

319) On which basis Carl Woese splits the kingdom Monera?

320) List the members of domain Archaea.

321) List the members of domain bacteria.

322) What are chlamydias?

323) Give two examples of proteobacteria.

324) Name the species that becoming a common cause of blindness in the world .

325) Lyme disease causing bacteria belong to which group?

326) Name two gamma proteobacteria causing food poisoning.

327) Prokaryotic organisms are classified into domains _____ and ____.

328) Bacteria having waxy mycolic acids take _____ stain.

329) A mixture of basic fuchsine and phenol together constitute _____.

330) Acid-fast bacteria appear _____ in colour.

331) The study of genetic material recovered directly from environmental samples is called _____.

332) The only prokaryotes that perform oxygenic photosynthesis are _____.

333) Bacteria have been classified into _____ groups in 9th edition of Bergey's Manual of Determinative Bacteriology in 1994.

334) Name the surface appendages of bacteria that do not play a role in motility.

335) What are the four basic shapes of bacteria ?

336) Name the specialized cells of cyanobacteria meant for nitrogen fixation?

337) What is polysome?

338) Give some examples of inclusion bodies found in a bacterial cell.

339) Which inclusion bodies are commercially used for manufacturing biodegrade plastics?

340) Which bacteria remain unaffected by penicillin ?

341) Which bacteria makes Ganga water pure ?

342) Bacterialcocci arranged in grape-like clusters are called _____.

343) Thecocci of bacteria that remain in pairs after dividing are called _____.

344) Bacterial cells with many shapes are called ____.

345) A loose sheath of glycocalyx attached to the cell wall is called _____.

346) Thick and tough glycocalyx firmly attached to the cell wall is called _____.

347) Long filamentous appendages which propel bacteria are called _____.

348) Non-motile tubular appendages meant for conjugation are called ____.

349) A plasmid when temporarily integrate or detach from the main chromosome called an _____.

350) The average number of plasmids per bacterial cell is called _____.

351) Sites of adhesions between the outer and inner membrane in gram-negative bacteria are called _____.

352) The time required for the formation of two cells from one by binary fission is called _____.

353) Which type of reproduction increases bacterial population in exponential or log phase?

354) How can bacteria reproduce in stationary phase?

355) In which type of reproduction in bacteria vertical gene transfer occurs?

356) Which bacterial species exhibit transformasome-mediated DNA transfer ?

357) Name the sequence that is responsible for controlling the copy number.

358) Which proteins are responsible for septum formation in bacterial fission?

359) Which bacterial protein is similar to tubulins of eukaryotes ?

360) What is Hfr cell?

361) Which was the first discovered horizontal gene transfer method in bacteria ?

362) Which exconjugant strain is obtained from a mating between F(+) and F 363) Plasmid with a transfer system that enables it to transfer DNA between Unrelated species is called _____.

364) The duration of binary fission is known as _____.

365) Septum formation during bacterial cell division is mediated by _____.

366) Transfer of donor DNA to recipient bacterium by an abnormal bacteriophage is called _____.

367) The competence of bacterial cells is the first stage of _____.

368) The donor strains with integrated F-plasmid are called _____.

369) Which viral classification system is widely used now ?

370) "A virus is a piece of bad news wrapped in protein " stated by _____.

371) Mention the prion disease of human.

372) Name the infectious agent causing PST.

373) Which sub viral pathogen infects plants only ?

374) Literally meaning of virus is _____.

375) Viruses could be crystallized and crystals contain largely of proteins . This was demonstrated by _____.

376) A nucleoprotein particle is called _____.

377) Infectious free RNA is called _____.

378) The infectious agents of TSEs are _____.

379) Incubation periods of prion is _____.

380) Triangular spikes of influenza virus are called _____.

381) Lysogen is a bacterium containing _____.

382) Name the bacterium that is first used for biodegradation of xenobiotics.

383) Name the bacterium that is first used as a bio-pesticide.

384) Name the sources of biofertilizers.

385) Name the cyanobacteria used as food.

386) Name any two free living nitrogen fixing bacteria.

387) Name the first organic acid produced by microbial fermentation.

388) Name the enzymes which causes leavening.

389) Suggest a name of such a biocontrol agent which is species specific and has no negative impact on non-target organisms.

390) Which alcoholic beverages are produced without distillation?

391) What percentage of alcohol can kill yeasts in fermenter?

392) Name the microbes from which Cyclosporin A (an immunosuppressive and statins (blood cholesterol lowering agents) are produced.

393) Which vector is employed for synthesizing genetically engineered insulin ?

394) Name the common vector, and the source bacterium, that is used to insert genes into crop plants.

395) Inoculum of curd contains millions of _____.

396) Large holes in Swiss cheese are due to the production of a large amount of CO2 by a bacterium named _____.

397) _____ are pathogens that attack insects and arthropods.

398) _____ are the organisms that enrich the nutrient quality of the soil.

399) Microbes can be used to kill harmful pests, a process called as _____.

400) _____ produce biogas (methane) while degrading plant wastes.

401) Many members of the genus _____ form mycorrhiza .

402) ____ is used as a clot buster.

403) The process of using microorganisms to degrade the environmental pollutants is called _____.

404) Yeast is used for commercial production of _____

405) Name two bacterial diseases that can be transmitted by contaminated water wate or food.

406) Give the scientific name of the pathogen causing enteric fever.

407) How would the doctor conform that the patient is suffering from typhoid?

408) What is the conformatory test for TB?409) Name the vector responsible for Zika fever.

410) Name two influenza A strains causing swine flu.

411) Which cells are infected by HIV?

412) Which organizations are educating people about AIDS in our country?

413) When World TB day is observed?

414) A key virulence factorof Mycobacterium is _____.

415) The enzyme _____helps the release new flu virus particles from the infected cells.

416) _____acts like a HIV factory.

417) Genome of zika virus is a non-segmented _____.

418) The core is surrounded by host derived envelope with spikes containing _____ complementary to CD4 antigen receptor present on the surface of helper T cells , monocytes , macrophages, dendritic cells and some nerve cells.

419) _____ infection trigger of GBS , Neuropathy and myelitis .

420) Study of the cause of the disease is called _____.

ANSWERS:-

1) Karl Schmidt	**211) Creatine phosphokinase**
2) Entire complements of sugars	**212) Enzyme Kinetics**
3) Polyhydroxy aldehydes or Polyhydroxy ketone	**213) Emil Fischer**
4) Yeast and bacteria	**214) Daniel Koshland**
5) Glycoproteins and Glycolipids	**215) Enzymatic mechanism**
6) Storage and Structural element	**216) Standard free energy change**
7) D- Fructose	**217) Deprotonation and Desolvation**
8) Dextrans	**218) General acid base catalysis**
9) Aldoses and Ketoses	**219) Covalent catalysis**
10) Oligosaccharides	**220) Nucleophilic catalysis**
11) 4 Kcal / gm	**221) Deacylation**
12) Muscles	**222) Activation energy**
13) Chitin	**223) Transition state diagram**
14) Gycobiology	**224) Catalytic efficiency**
15) 1chiral carbon	**225) Change in Gibbs free energy (Δ G)**
16) Furanose	**226) Circe effect**
17) D- ribose	**227) Free substrate**
18) D-lyxose	**228) Orbital steering**
19) Mannitol	**229) Acetic anhydride synthase**
20) Sterioisomers	**230) Concerted acid base catalysis**
21) Enantiomers	**231) Hyperbolic curve**
22) Penultimate carbon atom	**232) Ping-Pong mechanism**
23) Diasterioisomers	**233) Alexander Fleming**
24) Epimers	**234) Directly proportional**
25) Carbon 2	**235) Weak substrate binding and Strong substrate binding**
26) Carbon 4	**236) Bell shaped curve**
27) Epimerization and Epimerases	**237) Sigmoid curve**
28) Anomeres	**238) Allosteric site**
29) Mutarotation	**239) K_m value**
30) Haworth formulas	**240) Carbonic anhydrase (CA)**

31) Anomers	**241) Chloride ion**
32) Aglycon	**242) Calcium ion**
33) C2	**243) 5.0**
34) Pentose and Hexose	**244) Peroxidase**
35) Fischer's projection and Fitting Baeyer formula	**245) Line weaver-Burk equation**
36) Anomeric carbon atom	**246) Michaelis-Menten equation**
37) Dihydroxy-acetone	**247) Inhibitor**
38) Asymmetrical/ Chiral	**248) Complex disscoiation step to produce products**
39) Carbonyl group	**249) Irreversible inhibitors**
40) Dextrorotary nature	**250) Reversible inhibitors**
41) Sorbitol	**251) Zero order**
42) Le Bel and VantHoff's rule	**252) Directly proportional**
43) Racemic mixture	**253) K_m value**
44) Caramelization	**254) Hyperbolic curve**
45) Phenylhydrazine	**255) Higher substrate binding**
46) Benedict's test	**256) Suicide inhibition**
47) Glycosidic bond	**257) 3 bromoacetol**
48) Alpha - D - Glucose and Alpha -D-Galactose	**258) Active site mapping agents**
49) +52.7°	**259) Aspirin**
50) $+130^0$	**260) Irreversible inhibitors**
51) Maltose	**261) Substrate analogs**
52) Lactose	**262) Competitive inhibitors**
53) Lactose Synthase and UDP-galactose	**263) Succinate and Succinate dehydrogenase**
54) α-D-Galactose& β-D-Fructose	**264) Methotrexate**
55) Aldehyde or Ketone groups	**265) Pepstatin**
56) Sucrose	**266) L- Phenylalanine**
57)Trehalose	**267) Feedback inhibitors/ Modulators**
58) N-acetylglucosamine (NAM)	**268) Glycopeptidetranspeptidase**
59)Hyaluronic acid.	**269) Diisoproyl - phosphofluride (DIPF)**
60) Inulin	**270) Malanote and Oxaloacetate**

61) Alpha-1,6 linkage	**271) Irreversible inhibitors**
62) Chondroitin sulfate	**272) Iodoacetamide**
63) DermatanSulfate	**273) Allopurinol**
64) Heparin	**274) Cyclooxygenase**
65) Beta-1,3 linkage	**275) 5-flurouracil**
66) Heparin	**276) Thiol group**
67) D-glucuronic acid and N-acetyl- D-glucosamine-4-sulfate	**277) Methotrexate**
68) D-galactose and N-acetyl-D-glucosamine-6-sulfate	**278) Glucose -6 phosphate**
69) Keratosulfate	**279) Threonine deaminase**
70) DermatanSulfate	**280) Ketone group**
71) DermatanSulfate	**281)(CH_2O)n**
72) Glycoconjugate	**282) Hydrochloride Salt**
73) Glycophorin	**283)Apoenzyme**
74) Lectins	**284) Cyanobacteria Episome**
75) Selectins	**285) Episome**
76) Aglycon	**286) Viral neuraminidase**
77) Aglycon	**287) Arginine**
78) Mucin	**288) Proline**
79) Tay-sachs disease	**289) IgG**
80) Bloor	**290) Malonate**
81) Arachidonic acid.	**291) Conjugation**
82) 4 double bond	**292) Bioremediation.**
83) Chaulmoogric acid	**293) Relaxed and Tensed state**
84)Cyclopentanoperhydrophenantherene (CPPP)	**294) Allosteric enzymes**
85) Lecithins	**295) Committed step**
86) Phosphatidylinositol	**296) Convex and Concave plot**
87) Cholesterol	**297) Asparatetranscarbomylade (ATcase)**
88) Iodine value	**298) Substrate = Threonine , Modulator = Isoleucine**
89) Triglycerol	**299) AMP and Fructose-2,6 bisphosphate**

90) Choline	**300) Allosteric site**
91) Saponification	**301) Sigmoid curve**
92) Geometric	**302) Fructose 1,6 bisphosphate**
93) Steriospecific numbering	**303) Compartmentalization**
94) TFA	**304) Covalent modification**
95) Dipalmitoyl lecithin	**305) Lac Z**
96) Cephalin	**306) Repressor protein and Catabolic activator protein**
97) Cardiolipin	**307) Jacob and Monad**
98) Saponification	**308) Insulin**
99) Unsaturated fattyacid	**309) Cortisol**
100) Emulsification	**310) Interconvertible enzymes**
101) Milk	**311) Oxidases , Catalases, and Fatty acid oxidation enzymes**
102) Fatty acids	**312) Phosphoprotein phosphatases**
103) Rancidity	**313) Golgi vesicles**
104) Rancidity	**314) Endoplasmic reticulum**
105) Ceramide	**315) Glucose**
106) Liver	**316) Protein kinase**
107) Gangliosides	**317) Proteolytic cleavage**
108) Cholesterol	**318) Eukarya**
109) Ergosterol	**319) Nucleotide sequence of 16s rRNA**
110) 150-200 mg / 100 ml	**320) Methanobacteria , Halobacteria , Theremoacidophiles**
111) Asparagine	**321) Proteobacteria, Chlomydias, Spirolhetes , Cyanobacteria, Gram +ve bacteria**
112) Phenylalanine and Tyrosine	**322) STI bacteria**
113) Basic amino acids	**323) Escherichia , Salmonella, Vibrio, Helicobacter**
114) Acidic amino acids	**324) *Chalamydiatrachomastis***
115) UV light	**325) *Borreliaburgdorferi, Borreliamayonii***
116) Glycine	**326) Gastroenteritis**

117) Sweet and Bitter	**327) Bacteria, Archaea**
118) Methionine	**328) Acid - fast stain**
119) +10.1	**329) Carbolfuchsin , Castellani's paint**
120) Histidine	**330) Red**
121) 280 nm	**331) Metagenomics**
122) Hydrogen bonding	**332) Cyanobacteria**
123) Schiff's base	**333) 35 groups**
124) Sanger's reagent	**334) Pili& Fimbriae**
125) Proline	**335) Bacillus (rod like), Coccus (Spherical) , Vibrio (comma) , Spirillum (Spiral)**
126) Thearomatic rings	**336)Heterocysts**
127) Tyrosine and Glycine	**337)Many ribosomes**
128) Tryptophan	**338) Phosphate (Volutin) granules , Glycogen granules , Cyanophycean granules**
129) Proline	**339) PHB granules**
130) Collagen and Proline	**340)Mycoplasma**
131) Tyrosine	**341) Bdellovibriobacteriovorus**
132) Glutamine	**342)Staphylococci**
133) Orinithine and Citrulline	**343) Diplococci, Histidine**
134) Cysteine and Methionine	**344) Pleomorphic**
135) Berzelius	**345) Slime layer**
136) Native conformation	**346) Capsule**
137) Peptide bond	**347) Flagella**
138) 110	**348) Pili**
139) Insulin	**349) Episome**
140) X-ray crystallography	**350)Copy number**
141) X-ray crystallography and Nuclear magnetic resonance	**351) Beyer's junctions**
142) Covalent bond	**352) Generation time**
143) Tertiary structure	**353)Binary fission**
144) Hydrogen bonds	**354) Sporulation & genetic recombination**
145) Vanderwaal's contact distance	**355) Binary fission**
146) φ,ψ,ω	**356) Haemophilus influenza**

147) 3.6 amino acids	**357) Origin of replication (ori)**
148) Proline and Glycine	**358) FtsZ proteins.**
149) Parallel Beta plated sheet and Antiparallel Beta plated sheet	**359) FtsZ proteins**
150) Collagen	**360) High frequency recombination cell**
151) Supersecondary structure or Motif	**361) Transformation**
152) Denaturation	**362)ALL F+**
153) Albumin	**363)Promiscuous plasmid**
154) Histones and Nonhistones	**364)Generation time**
155) Lysine and Arginine	**365) FtsZ**
156) Peptide bond	**366) Transduction**
157) Flocculation	**367) Transformation**
158) Metallonzymes	**368) Hfr cells**
159) Collagen and RUBISCO	**369)Baltimore Classification**
160) Y shaped	**370) Medawar**
161) Gamma	**371)Kuru&Creutzfeldt-Jacob. disease (CJD)**
162) CDR	**372) Viroids**
163) Edelman	**373)Viroids**
164) Proline and Cysteine	**374) Venom**
165) IgG	**375) W.M.Stanley**
166) IgM	**376) Virion**
167) IgA	**377) Viroid**
168) IgE	**378) Prions**
169) IgA	**379) 10 years**
170) Glycoproteins	**380) Hemagglutinins**
171) IgA	**381) Prophage**
172) Fab region of an antibody	***382) Pseudomonas putida***
173) IgG	***383) Bacillus thuringiensis***
174) IgE	**384) Cyanobacteria, Fungi**
175) IgG2	**385) Spirulina**
176) IgG3	**386) Azospirillum, Azotobacter, Beijernickia**
177) IgA	**387) Lactic acid**

178) J chain	**388) Zymase , Maltose, Amylase**
179) Fab	**389) Nucleopolyhedrovirus**
180) Papin	**390) Wine (7-18% Alcohol), Beer(3-8% alcohol)**
181) Pepsin	**391) About 13%**
182) IgM	**392) Cyclosporin A- Fungus Trichodermapolysporum , yeast - Monascuspurpureus**
183) IgG3	**393) Plasmid of E.coli**
184) C3b	**394) Ti (Tumor inducing) plasmid of Agrobacterium tumefaciens**
185) Ig alpha and Ig beta	**395) LAB**
186) FcRn	**396)*Propionibacteriumshermanii***
187) Antigenic determinants	**397) Baculoviruses**
188) Paratope	**398) Biofertilizers**
189) Hapten	**399) Biocontrol**
190) Proteins	**400) Methanogens**
191) 25	**401) Glomus**
192) T cells	**402) Sterptokinase**
193) Enzymes	**403) Bioremediation**
194) Yeast	**404) Ethanol**
195) Urease	**405) Typhoid and Cholera**
196) Ribozymes	**406) *Salmonella typhi***
197) Abzymes	**407) Widal test**
198) Cofactor	**408) Montoux test**
199) Ribozyme	**409) Aedes mosquito**
200) Prosthetic group	**410) H1N1 , H3N2V and H3N2**
201) Active site	**411) Macrophages and T helper cells**
202) E.C.1.1.1.1	**412) NACO and NGOs**
203) E.C.2.7.1.1	**413) 24th March**
204) Hydrolases	**414) Mycolic acid**
205) Haem	**415) Neurotransmitter**
206) Vitamin Niacin	**416) Macrophages**

207) CPK2(=CPK-MB)	**417) Single stranded RNA**
208) CPK1(=CPK-BB)	**418) gp 120**
209) Magnesium	**419) Zika virus**
210) LDH5(M4 isoenzymes)	**420) Etiology**

PART – II

B) Very short notes.

1) Glycomics
2) Glycans
3) Sterioisomers
4) Enantiomers
5) Diasterioisomers
6) Epimers
7) Anomeres
8) Mutarotation
9) Racemic mixture
10) Biological importance of Glucose
11) Biological importance of Fructose
12) Biological importance of Lactose
13) Dextran
14) Inulin
15) Glycogen
16) Pectin
17) Dermatan Sulfate
18) Function of Lactose
19) Function of Sucrose
20) Function of Heparin
21) Function of cellulose
22) Function of Chitin
23) What are Syndecans and Glypicans
24) Antifreeze glycoproteins
25) Write the glycosides used in the treatment of heart failure.
26) Ceramide
27) Sphingomyelin

28) Lecithin
29) PUFA
30) UFA
31) Cis and trans configuration of Unsaturated fattyacid
32) Linoleic acid
33) Deficiency of Essential fatty acids
34) Cyclic fatty acids
35) Saponification
36) Rancidity
37) Amphipathic nature of phospholipids
38) Cephalin
39) Importance of Cardiolipin
40) Ceramide
41) What are micro an macromolecules ?
42) What is the biological importance of triases?
43) What is the composition of Glycolipids?
44) What is esterification?
45) Write at least two Biological function of IgA.
46) What is wobble base pairing? Give one exampleof it.
47) What is melting temperature of DNA?
48) What is the function of COA?
49) What is F-prime plasmid ? How is it formed?
50) Differentiate between virus and viroid.
51) What is Triglycerides?
52) What is Steroids?
53) Define Basic amino acid.
54) Define Acidic amino acid
55) Define polar amino acids and examples.
56) How protein denaturation occurs?
57) What is Allotype?
58) Define isozyme with example?
59) What is essential amino acid?
60) Define Prion.
61) What is Prophage ?

62) Why Zika fevers occurs?
63) pK Values of amino acids
64) Amphoteric nature of amino acids
65) Schiff's base
66) Esterification
67) Emulsification
68) Derivatives of amino acids
69) Desmosine bridge
70) London dispersion forces
71) Importance of primary structure of protein
72) Biological significance of Secondary structure of protein
73) Agents of denaturation of protein
74) Collagen
75) Why protein act as buffer?
76) Heavy chains of immunoglobulin
77) Epitope and Paratope difference
78) Role of Papin and Pepsin
79) Transcytosis of IgA dimers
80) Hypervariable regions of Immunoglobulin
81) What is valency of antigen?
82) Autoantigen
83) Alloantigen
84) Nomenclature of Enzymes
85) Holoenzymes
86) Sailent features of active site of enzymes
87) Why metal ions function as good cofactors ?
88) Lock and key model of enzymes
89) What is enzyme kinetics ? Give its importance.
90) Write the MM reaction . Derive the Km from it.
91) What is Trojan horse substrate ? Write its working principles ?
92) How sulfa drugs inhibit folic acid synyhesis in bacteria ?
93) What determines wheather the enzyme inhibition is reversible or irreversible ?
94) Write some application of irreversible inhibitors.
95) Explain the structure of ATCase?

96) How binding of regulator molecules affect the activity of allosteric enzymes ?

97) How isoenzymes are helpful in enzyme regulations?

98) Zymogen activation

99) Covalent modification

100) Differentiate between archae and bacteria

101) Give the classification of bacteria based on flagellation .

102) Differentiate between Capsule and Slime layer

103) Differentiate between Pili and flagella

104) Explain the peculiarities of bacterial chromosome?

105) What is Plasmid ? Explain significance of Plasmid?

106) Differentiate between Pi Plasmid and Ti Plasmid

107) What are Hfr and F prime stains

108) Labelled diagram of ultrastructure of bacteria

109) Labelled diagram of Endospore of bacteria

110) Sexduction

111) Differentiate between Virus and Virion

112) Bioremediation of Xenobiotics

113) Single cell protein

114) Transgenic yeast

115) Which microbe can be used to remove oil spills ?

116) What is typhoid Mary?

117) How do macrophages act like ' HIV factory ' ?

118) What is Latent TB ?

119) What is microencephy ? Which virus is responsible for disease ?

120) Why Swine flu is called H1N1 flu ?

PART -III

C) **Short notes.**

1) Reaction of glycosidic OH group

2) Formation of Osazone

3) Glycosidic bond Formation

4) Give the distinguish features of Dextrans and Dextrins

5) Structure of Glycogen and importance

6) Structure of Cellulose and importance

7) Structure of Lactose and importance
8) Structure of Sucrose and importance
9) Structure of Maltose and importance
10) Differentiate between Homoglycans and Heteroglycans
11) Glycolipids
12) Peptidoglycans
13) Triglycerides
14) PUFA
15) Waxes
16) Zwitter ions
17) Differentiate between essential and nonessential amino acids
18) Isoelectric pH
19) Reaction of amino acids with Sanger's reagent
20) Ninhydrin reaction with amino acids
21) Physical properties of amino acids
22) Chemical properties of amino acids
23) Peptide bonds
24) Peptide bond
25) Noncovalent bonds stabilizing protein Structure
26) Ramachandran plot
27) Primary structure of protein
28) Alpha helix of protein
29) Beta sheet of protein
30) Ramachandran plot
31) Disulfide bond
32) Protein denaturation
33) IgG
34) IgA
35) IgD
36) IgM
37) IgE
38) Differentiate between Antigen and Immunogen
39) Differentiate between T- cell and B- cell epitopes
40) Antigenic determinants

41) Hapten
42) Cofactors
43) Coenzyme A
44) NAD
45) FAD
46) Prosthetic grops
47) Specificty of enzyme action
48) Isoenzymes of LDH
49) Isoenzymes of CPK
50) Catalytic site
51) Allosteric site
52) Chemical nature of enzymes
53) Differentiate between Domain and Motif
54) Differentiate between Apoenzyme and Coenzyme
55) Differentiate between Lock and key theory and Induced fit model
56) Lactate dehydrgenase
57) Rack mechanism
58) Covalent catalysis
59) Effect of Substrate concentration on enzymes
60) Effect of pH on enzyme action
61) Effect of temperature on enzyme action
62) Activation of energy
63) Acid base Catalysis
64) What is Km and significance of Km
65) Lineweaver - Burk plot
66) EADIE-HOFSTEE Plot
67) MM plot
68) Suicide inhibition
69) Competitive inhibition
70) Allosteric modulation
71) Significance of enzyme inhibitors
72) Differentiate between Sucide inhibition and Group specific inhibition
73) Properties of allosteric enzymes
74) Differentiate between homotropic and heterotropic enzymes

75) ATCase
76) FBPase
77) Zymogen activation
78) Enzyme induction
79) Differentiate between Gram positive and Gram negative bacteria
80) Gram staining
81) Acid fast staining
82) TACK
83) Glycocalyx
84) Structure of Flagella
85) Differentiate between Bacterial and Eukaryotic flagella
86) Budding
87) FtsZ
88) Binary fission
89) Budding
90) Role of Baculoviruse as biocontrol agent
91) Role of Mycorrhiza in agriculture
92) Draw the molecular structure of Chitin and cellulose
93) Antigenic determinants
94) Properties of allosteric enzymes
95) Explain the process of bacterial transformation
96) How Plus(+) strand RNA is different from Minus (-) strand RNA
97) Enumerate the steps taken by WHO to control AIDS
98) Typhoid
99) Swine flu
100) Differentiate between IgG and IgM
101) Differentiate between IgA and IgG
102) Differentiate between Zero order and First order enzyme kinetics
103) Differentiate between Prosthetic group and Coenzymes
104) Differentiate between Apoenzyme and Holoenzyme
105) Differentiate between Coenzyme and Cofactor
106) Differentiate between Enzyme and Catalysts
107) Differentiate between allosteric and Noncompetitive inhibition
108) Differentiate between Enzyme activator and Enzyme inhibitor

109) Differentiate between Irreversible Enzyme inhibitors and Reversible Enzyme inhibitors
110) Differentiate between Plasmid and Episome
111) Explain the process of Hfr- F-conjugation
112) Differentiate between Lytic and Lysogenic cycle
113) Structure of bacteriophage
114) What are the significance of HA and NA as surface proteins of influenza virus
115) How Prusiner's prions develop TSE?
116) Differentiate between Gram positive and Gram Negative bacteria

PART -IV

D) Long questions with suitable labelled diagrams.

1) What is the mechanism by which AIDS virus causes deficiency of immune system of infected patients?
2) Explain the viral reproduction cycle.
3) Explain in detail about the structure of bacteriophage.
4) Discuss about various types of enzyme inhibition and their kinetics.
5) What is enzyme kinetics ? Derive MichaelisMenton equation.
6) Explain the Baltimore system of viral classification.
7) Describe the phage replication cycles with suitable labelled diagrams.
8) What is Conjugation ? Discuss the process of conjugation in bacteria.
9) Describe the ultrastructure of bacterial cell with suitable labelled diagram.
10) Explain the generalised structure of a bacterial cell with labelled diagram. Distinguish between Generalised and Specialized transduction.
11) Explain the domain Archaea and Bacteria and its constitutent groups.
12) What is enzyme regulation? Explain the allosteric regulation of ATCase and FBPase.
13) What is enzyme inhibition? Describe the various types of inhibition of enzyme action.
14) What is MM equation? How will you derive it from an enzyme catalysed monosubstrate reaction?
15) What is double reciprocal plot ? How it can be obtained?
16) What are enzymes ? Describe their nomenclature and classification.
17) Define enzyme. How are enzymes classified ? Discuss the factors affecting enzyme activity.
18) What is antigen? Describe the structure, chemical nature and types of antigens.

19) What is immunoglobulin? Describe the structure of different classes of immunoglobulin with suitable diagrams. Add a note on their functions.

20) Discuss the different levels of of organisation in proteins. Add a note on the determination of primary structure of protein.

21) Discuss the different levels of organisation in proteins . Add a note on the second structure of protein.

22) What is Protein Denaturation ? Discuss the characteristics of protein Denaturation, agents and types of denaturation . What is protein renaturation?

23) What are amino acids? Describe the classification of aminoacids along with their structures.

24) Describe the various bonds that stabilize the protein structure.

25) Discuss the structure and biological importance of Monosaccharides.

26) Give the structure and significance of physiological important saturated and unsaturated fattyacid.

27) Define polysaccharides and describe the structure and biological importance of three polysaccharides.

28) Define Phospholipids. Classify them with suitable examples and state their function.

29) Describe the lipids present in plasma membrane.

30) Discuss the structure and function of four biologically important disaccharide.

DERABIS COLLEGE

QUESTION BANK

SUBJECT- ZOOLOGY

PAPER-CORE –VIII (COMPARATIVE ANATOMY)

Part- I

A. **Answer in one word**.

1) Ceruminousgland are modified _____ glands.
2) Vitamin D is synthesized from _____ during ultraviolet light in mammalian skin.
3) Based on the shape of centrum birds are _____ type of vertebra.
4) Pancreas is _____in origin from embryonic archenteron.
5) The Peculiarity of respiratory system of birds is occurrence of _____ besides lungs.
6) _____pours blood into the right atriumfrom the wall of the heart.
7) With the disappearance of pronephoros the old pronephric duct becomes _____.
8) A nutritive fan like organ in the lumen of birds eye is called _____.
9) Sweat gland is modified _____ gland.
10) Sebaceous gland is modified _____ gland.
11) In Dipnoans the oxygenated blood coming from _____ enters the left auricle of heart.
12) Thyroid cartilage is a modification of _____ and visceral _____ arches.
13) Poison glands of Heloderma, the only poisonous lizard having fangs in the lower jaw, are modified _____ gland.
14) On the ventral side of air bladder there occurs a highly vascularised area called _____.
15) In monotremes both the sexes may secrete milk and the condition is called _____.
16) _____ of avian brain in trilobed highly enlarged to provide good control over muscles and tendons for bipedal locomotion and flying.
17) The receptors which respond to pain associated with tissue damage are called _____.
18) A metanepheric duct buds off at the base of pre-existing mesonephric duct as a _____ that stimulates the growth of metanephric tubules.
19) _____ is the term for the superclass of vertebrates that are characterized by having jaws
20) _____ tissue is the class of tissue that has the ability to send and receive information.

21) ---------- structure is a vascularized stratified squamous epithelium and oxygen diffuse from capillaries in the dermis.
22) Which layer of dermis consists of collagen and elastic fibres?
23) Skeletalmusclebundlesareheldtogetherbyacommonconnectivetissuelayerknownas---------- .
24) Themembranethat surroundstheboneisknownas_____.
25) Haversian canals occur in _____.
26) Therows ofhaircells together with the supportingcellsandsurroundingdendritesfrom----------.
27) Monotremes possess_____type of jaw suspension.
28) Uropygial glands are present in ----------and used for___.
29) Horns are produced from__.
30) ---------- the vascular outgrowth of branchial chamber for accessory respiratory *Heteropneuste , Clarias , Anabas.*
31) Turtle respires through _____.
32) _____are respiratory organs in spiracles of elasmobranch.
33) In lizards right and left Systemic aorta are inter connected by an aperture called___.
34) In urodel amphibians conus arteriosus is replaced by_____.
35) Amphioxus has ---------- pairs of aortic arches .
36) In mammalian adult ductus arteriosus remains rudimentary connective tissues called ----------
37) TheKidneyandtheirductsdevelopfromintermediatemesodermcalled_____----------.
38) Wolffian duct present in ---------- and Mullerian duct in____.
39) In Pronephric , mesonephric, metanephric uriniferous tubules,glomeruli are enclosed in bowman's capsule are called ----------.
40) Archi nephric, Protonephric tubules , glomeruli projecting to coelom with no bowman capsule are called ---------- .
41) ____Is present inside the mesonephric kidneys of frog.
42) Rodents, Elephants,Batshas___uterus.
43) Two uteri are fused at the lower end with a partition wall forming two uteri and one cervix is called ----------.
44) Bipartite uterus found in_and_____.
45) Two uteri are fused completely without partition forming as in glecavity called.
46) Bicornuate uterus found in_.
47) In primates two uteri are fused completely forming a single body with one cavity called----------.
48) Two uteri don't fuse and open separately intravaginal, this type of uterus is called----------.
49) _____is the primitive type of kidney.
50) _____ is the largest gland of the body.
51) The liver arises as a single or double ventral diverticulum from the floor of embryonic.
52) Liver cells secrete bile which is stored in ---------- and released into ----------.
53) Swimbladder act as respiratory organ in ----------.
54) _____are formed within the extra branchial chambers in closed between gills and operculum.

55) In mammals intercostal muscles, ribs, diaphragm, sternum,and abdominal muscles help in _____.
56) Electrophorus, Monopterus, Periopthalmus mucus membrane of serve as a respiratory organ.
57) Longest trachea is present in ----------.
58) A single row of lamellae on one side of the branchial septum form half the gill called _____ and a septum with two _____.
59) Brunner's glands in submucosa secrets and _____ for stimulating the pancreas and gall bladder to release their juices.
60) _____ is a blind pouch of lymphatic tissue arising from dorsal wall of proctodaeum in young birds but _____ inadult.
61) In embryo, pharyngeal cavity is connected to outside by a series of lateral openings known as _____.
62) Gill arches are supported by skeletal structures of__.
63) Gills and Lungs are derivatives of embryonic _____.
64) In many vertebraes, fishes, present at the junction of pylorus with duodenum.
65) Food bolus passes down oesophagus into stomach by a muscular wave called____.
66) Cropmilk contains ----------.
67) Adenohypophysis develops from dorsal diverticulum of stomodaeum is called___.
68) Elasmobranchs, Polyodon, and Teleosts intenstine have lumen contains for ---------- short absorption.
69) Sound producing organ in birds are ----------.
70) Swim bladder and Weberian ossicles plays important role in_____.
71) Nociceptors are found in____region.
72) _____ is modified articular bone of lower jaw articulates with quadrate and symplectic bone of hyoid arch to the skull.
73) Columella is present in ----------.
74) In which type of jaw suspension and Meckel's cartilage changes to malleus?
75) Femoral gland found in _____ and ____ help in _____.
76) Modified Sebaceous gland present in eyelids is ----------.
77) In Crossopterygians scales are found ----------.
78) In turtles dorsally arched structure called and ventally flattened structure_____.
79) Claw is made of hard, pointed, horny dorsal plate called ----------and less hard ventral plate called ----------.
80) Nail is made of _____.
81) Nail matrix is also known as _____.
82) The moon-like structure present in Nailis called _____ and visible in_____.
83) The hard plate of the Nail is called ----------.
84) ___is the epithelium located beneath the Nail plate at the junction between free edge and skin of the fingertip.
85) ---------- the thickened layer of skin at the base of fingernails and toenails.
86) Horns begin to develop shortly after birth and develops through out the life except---------.
87) The rings in Horns help to calculate ----------.
88) Prolong Horns are formed from_____bone.

89) Hairs covering the body of mammals are called____.
90) In Chamaeleons chromatophores are present in_____.
91) Body coloration of birds is observed due to---------- from feathers.
92) Palm and soles have maximum friction and wear and tear containing keratin in___region.
93) Horns, scales, bristles, claws, nails, hoofs are the modification of.
94) Vertebral column develop from__somatic mesoderm.
95) Prechordal centrum found in___.
96) The vertebrae bone having concave centrum at both ends called ----------.
97) Vertebral formula of human is ----------.
98) How many axial and appendicular bones present in humans?
99) How many facial bones present in human skull?
100)Hyoid bone is--------.
101)The central hollow portion of each vertebrae is known as _____ .
102)The _____ muscle is responsible for drawing the lower jaw, head and tongue backwards.
103)The _____ secrets a fluid that cushions sand lubricates the joints.
104)In mammals' tongue is attached to buccal floor by a ligament called _____.
105)_____mammal haves in us venous.
106)From the left ventricle blood is pumped into different parts of the body through__.
107)From right ventricles the blood pump into lungs called _____.
108)Even toe ungulates have two main hooves on each foot together called _____.
109)_____is found in hoof.
110)_____ in hoofs is the primary growth and nutritional source for the hoof wall.
111)In hoof _____covers the soft area just below the coronary band and helps protect the hoof wall.

ANSWERS:-

1) Apocrine sweat gland	**57) Camel**
2)7-dehydrocholestrol	**58) Demibranch and Holobranch**
3)Heterocoelous	**59)Secretin, Cholecystokinin**
4)Endodermal	**60) Bursa Fabricus and Atrophies**
5)Synsacrum	**61)Pharyngeal cavity**
6)Superior and Inferior venacava	**62)Splanchnocranium**
7)Mesonephros	**63)Pharynx**
8) Pectin	**64) Pyloric caeca**
9) Apocrine gland	**65) Peristalsis**
10)Meibomian gland	**66) Prolactin**
11)Pulmonary veins	**67) Rathke's pouch**
12)4thand5thVisceralarches	**68)Typhlosole**
13)Salivary gland	**69) Syrinx**
14)Swim bladder	**70) Hearing**
15) Ornithorhynchus	**71)Joints, nerve endings in skin, muscles**
16)Cerebellum	**72)Meckel's cartilage**
17)Nociceptors	**73) Columella**
18)Uretericbud	**74) Autostylic**

19)Gnatho stomata	**75)Uromastix and Copulation**
20)Nervous tissue	**76) Meibomian glands**
21)Tunica intima	**77) Cosmoid scales**
22)Reticulardermis	**78) Carapace and Plastron**
23)Fascia	**79) Unguis**
24)Periosteum	**80) Alpha Keratin**
25)Mammals	**81) Matrix Unguis**
26)OrganofCorti	**82) Lunula and Thumb**
27) Autostylic jaw suspension	**83) Nail plate (Corpus unguis)**
28)Uropygium of birds and preening the feathers and attracting the opposite sex	**84)Hyponychium**
29) Stratum corneum	**85) Eponychium**
30)Branchial diverticulum	**86) Prong Horns**
31) Clocal respiration	**87) Ag**
32)Pseudo branch	**88) Frontal bone**
33)Foramen Panizza	**89) Pelage**
34)Bulbus arteriosus	**90) Dermis**
35)60pairs	**91) Reflection and Refraction of light**
36) Ligamentus Botalic	**92)Stratum Corneum**
37) Nephrotome	**93)Stratum corneum**
38)Male and Female	**94)Somatic mesoderm**
39)Internal glomeruli	**95)Higher vertebrates**
40) External glomeruli	**96) Amphiplatyan**
41)Bidder's canal	**97) C7 T12 L5 S5 C4**
42) Duplex uterus	**98) 80 axial and 126 appendicular bones**
43) Bipartite uterus	**99) 14 bones**
44)Carnivora , Ruminants	**100) U shaped**
45) Bicornuate uterus	**101) Neural canal**
46)Ungulates, Whales	**102) Retractor muscle**
47)Simplex uterus	**103) Synovial membrane**
48)Duplex uterus	**104) Frenulum**
49) Archinephros kidney	**105) Platypus**
50)Liver	**106) Systemic Circulation**
51) Duodenum	**107) Pulmonary Circulation**
52) Gall bladder and Duodenum	**108) Cloven hoof**
53)Lung fish	**109) Navicular bone**
54) Labyrinthiform organs	**110) Coronary band**
55) Breathing	**111)Periople**
56)Buccopharyngeal epithelium	

Part- II

B. Write very short notes.

1) Give important functions of vertebrate integument.
2) Describe dermal derivatives of vertebrates.
3) Describe the significance of the brachial basket.
4) What are the payer's patches?
5) Which animals have external as well as internal gills and why?
6) Differentiate between internal and external respiration.
7) What do you understand by archinephros?
8) How does the heart of dipnoi differs from that of teleost?
9) Explain functions of crurecerebri?
10) Briefly describe the type of teeths in vertebrates.
11) Give a short note on sebaceous gland.
12) Classify the receptors in vertebrates.
13) Give a short note on external gills.
14) Write about the important functions of liver.
15) Name the nerve plexus of the spinal cord.
16) Digital cornification in mammals.
17) Preen gland
18) Cycloid scale
19) Ctenoid scale
20) Placoid Scale
21) Hoofs
22) Spiracles
23) Gillslit
24) Labyrinthiform organs
25) Rennet cells
26) Pharyngeal-diverticulum
27) Ductus arteriosus
28) Ductus caroticus
29) Conus arteriosus
30) Foramen Panizza
31) Stomodaeum
32) Proctodaeum
33) Ligamentum Botali
34) Nephrostome
35) Bulbus arteriosus
36) Gizzard
37) Vesiclesofsavi
38) Ampulla of Lorenzini
39) Corpora Striate
40) Corpora allata
41) Bidder’scanal
42) Foramen magnum

43) Iter
44) Scrollvalve
45) Cutaneous respiration
46) Duplex uterus
47) Bicornuate uterus
48) Bipartite uterus
49) Simplex uterus
50) Foramen of Monro

Part-Ill

C. Short Notes.

1) Keratinization
2) Swim bladder
3) Archinephros
4) Renal Corpuscles
5) Air bladder
6) Appendicular jaw
7) Truncus arteriosus
8) Cranial nerves in mammals
9) Auditory receptors
10) Ruminart stomach
11) BulbusArteriosus
12) Hoofs
13) Scales
14) Function of integument
15) Hypodermis
16) Embryonicarteriesinvertebrates
17) Pineal gland
18) Mesonephros Kidney
19) Opisthonephros Kidney
20) Metanepheric Kidney
21) Difference between Protonephros and Opisthonephros Kidney
22) Difference between Mesonephros and Metanephros Kidney
23) Pineal gland
24) Single Circulation of heart
25) Double Circulation of heart
26) Difference between Single and Double Circulation
27) Pelvic girdleofmammal
28) Gills
29) Embryonic arteries invertebrates
30) Spinal cord of mammal

31) Wolffian duct
32) Mullerian duct
33) Uropygial glands
34) Femoral gland
35) Statocyst
36) CNS
37) ANS
38) Organ of Corti
39) Reissner'smembrane
40) Chemoreceptor
41) Mechanoreceptor
42) Liver
43) Pancreas
44) Pelvic girdle of mammal
45) Sweat gland
46) Mammary gland
47) Nail
48) Hair

Part-IV

D.**Long questions**.

1) Give an account of the derivatives of the Integument of vertebrates.
2) Discuss the Axial Skeletal system of mammals.
3) Discuss the Appendicular skeletal system of mammals.
4) Compare the digestive system of Aves with mammals and give reasons of their difference.
5) Discuss in brief the accessory respiratory organs in vertebrates.
6) Give a comparative account of the stomach in vertebrates.
7) Describe the evolution of aortic arches in vertebrates.
8) Discuss the evolution of urinogenital ducts in vertebrates.
9) Explain the evolution of the kidney in vertebrates.
10) Give a comparative account of the brain in mammals.
11) Discuss in brief visual and auditory receptors in man.
12) Give a detailed account of the autonomic nervous system and its mechanism.
13) What is a suspension? Give an account of jaw-suspension invertebrates.
14) Give a comparative account of alimentary canal invertebrates.
15) Give a comparative account of respiratory organs invertebrates.
16) Discuss the comparative anatomy of aortic arches invertebrates.
17) Discuss the evolution of heart invertebrates.
18) Discuss the Nervous system of man. Write about the types of nerves in humans.

DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

Paper – CC – IX

(PHYSIOLOGY-LIFE SUSTAINING SYSTEMS)

Part-I

A) Answer in one words.

1) The structure that hangs from the free border of soft plate is called _____.
2) Digestive enzyme in stomach is secreted by _____ cells.
3) Lymph nodules located in the walls of Ileum is _____.
4) Viral infection of parotid gland cause _____.
5) The green colour bile pigment is called _____.
6) Secretion of bile is under the control of _____ hormone.
7) Spiral internal fold of small intestine is _____.
8) Largest salivary gland in human is _____.
9) Hard palate havetransverse ridges called _____.
10) Shape of the small intestine is ____ shaped.
11) The opening of the anal canal to the exterior is guarded by an _____ by involuntary smooth muscle and _____ of voluntary skeletal muscle.
12) Lingual glands contain _____ converts simpler fatty acids and diglycerides.
13) _____ arises from parotid gland and _____ arises from submandibular gland.
14) _____ stimulate secretion of saliva.
15) In human pancreatic duct joins bile duct from liver and gall bladder enters duodenum as a dilated common duct is called ____.
16) _____ is the muscular valve surrounding the exist of bile duct and pancreatic duct into the duodenum.
17) Common hepatic duct joins ____.
18) _____ are small ducts that collect bile produced by the hepatocytes.
19) Bilirubin is secreted into bile and broken down in the intestine to ____ that gives faecestheir normal brown colour.
20) Skin, liver, kidneys participate in synthesizing active form of ____.
21) Sodium taurocholate and glycocholatecauses ____.
22) Mechanical digestion in the mouth is aided through ___.
23) The peristalic wave moves gastric contents from the body of the stomach down into the antrum, process is known as _____.
24) _____ is a type of peristalsis that begins in the lower portion of stomach and pushes chyme forward along a short strech of small intestine.
25) Which enzyme splits lactase into galactose and glucose?

26) Which enzyme digested protein into proteoses, peptones, and amino acids?
27) Which enzyme converts inactive trypsinogento active trypsin?
28) Enzyme that digest lipid in small intestine is ____.
29) Which enzyme activates chymotrypsinogen ?
30) The movement of food from stomach through Pyloric sphincter is called ____.
31) The easily swallowablesoft food mass in the mouth is called ___.
32) Vitamin B12 is essential for formation of ____ and its deficiencies result in ____.
33) The monosaccharide that is not coupled with sodium transport during absorption is ____.
34) The finger like extension of the small intestinal wall that increases the absorptive surface is _____.
35) _____ deliver absorbed triglycerides to the body's cells.
36) Absorption of ____ and____ ions creates an osmotic gradient across the large intestinal mucosa which in turn causes absorption of water.
37) Sodium ions are actively transported out of absorptive cells by basolateral_____ .
38) Calcium ions are actively absorbed by a process stimulated by _____.
39) The interaction between secretin and CCK causes ____.
40) CCK slows gastric emptying by promoting contraction of the ____ produces satiety.
41) _____ stimulates the flow of pancreatic juices is rich in _____ ions to buffer the acidic chyme that enters the duodenum from the stomach.
42) _____ of trachea consists of areolar connective tissue that joins trachea to surrounding tissues.
43) The mucosa contains a cluster of neuroendocrine cells are known as _____.
44) Primary inspiratory muscles are the diaphragm which is supplied by _____ and external intercostal muscles supplied by _____.
45) Sternocleidomastoid , Scalene , anterior serrati, elevators of scapulae and pectorals are _____.
46) _____ elevates the sternum and ____ elevates the lower ribs.
47) Primary expiratory muscles are the internal intercostal muscles which are innervated by ____.
48) ____ are attached to the movable part of rib infront with the immovable part of rib behindand ____ are attached to the movable part of the rib behind with the immovable part of rib infront.
49) The substances that reduces surface tension in alveoli is ____.
50) The semi rigid support to the trachea is provided by ____.
51) The cartilaginous tube that connects larynx to bronchi is called _____.
52) The pores of communication between adjacent alveoli is called ____.
53) The cells lining the alveoli that phagocyte and remove unwanted materials _____
54) Pressure within the pleuralcavity is called _____.
55) _____ stimulate the production of gastric juice in the stomach.
56) Enterokinase helps in the conversion of _____.
57) In _____ part of the respiratory system, gaseous exchange takes place.
58) _____is located in between pleural sacs and is central compartment of the thoracic cavity.
59) The structural and funcional unit of kidney is called _____.
60) Blood is poured into left atrium through _____.

61) Bicuspid and tricuspid values are closed during _____.
62) Blood group _____ is called universal doner.
63) _____ refers to how much effort is required to strech the lungs and chest wall.
64) Pulmonary ventilation is also called as _____.
65) As the volume of air moving in and out of respiratory tract in a given unit of time during quiet breathing is called ____.
66) Normal value of Pulmonary ventilation is _____.
67) Normal value of alveolar ventilation is _____.
68) PCO2 of alveolar air is ____.
69) When the arterial blood reaches the peripheral tissues its PO2 in capillaries is ____.
70) The pressure difference that causes oxygen to diffuse into Pulmonary capillary is _____.
71) ____ refer to the volume of air in the lungs at different phases of respiratory cycle.
72) ____ is the extra volume of air that can be inspired over and above normal tidal volume when the person inspires with full force.
73) _____ is the extra volume of air that can be expired by forceful expiration after the end of a normal tidal expiration.
74) ____ is the maximum volume of air that is inspired after normal expiration.
75) ____is IRV plus TV plus ERV.
76) Vital capacity is _____.
77) ____ is the volume of air that remains in the lungs after normal expiration
78) Functional residual capacity is ___.
79) _____ is ERV plus RV.
80) ____ is the maximum volume of air the lungs can accommodate of all volume of air in lungs after maximum inspiration.
81) _____ is calculated by summation of TV , IRV , ERV, RV.
82) _____ is the method to measure lung volumes and capacities.
83) The diffusing capacity of CO2 is ___ times more than O2.
84) The part of respiratory tract where gaseous exchange don’ttakes place is called ___.
85) PO2 of alveolar air is _____.
86) ____ is the exchange of a chloride ion for a bicarbonate ion across RBC membrane.
87) Chloride shift was discovered by _____.
88) ____ is the process by which chloride ions are moved back into plasma from RBC.
89) Molecular weight of Hb is ____.
90) Hb has an oxygen binding capacity of _____ .
91) Annelids, polychaetes has green color respiratory pigment is called _____.
92) The metalloprotein of chlorocruorin is similar to Hemoglobin except vinyl group is replaced by _____.
93) ____ are the respiratory pigment present inmolluscs, crustaceans, some arachnids and limulus.
94) Which haemoglobin found in human foetus ?
95) Which respiratory pigment found in Holothurian Molpadia and Sea urchin?
96) Which curve demonstrates the relationship between partial pressure and % saturation of haemoglobin with oxygen?
97) When pH decreases the entire oxygen haemoglobindisscoiation curve shifts to ____.
98) Shifting of oxygen hb dissociation curve to right is called _____.

99) When temperature increases_____ is released from haemoglobin.
100) ____ found in RBC decreases the affinity of haemoglobin for oxygen.
101) Thyroxine, GH, Epinephrine, Norepinephrine, testosterone increases the formation of _____.
102) Kidneys in the human body which vertebrae to which vertebrae?
103) The total number of orifices for outgoing and incoming of urine through the bladder is ____.
104) Capillary hydrostatic pressure during filtration is built in the glomerulus as _____.
105) The structure that connects a kidney to the urinary bladder is the _____.
106) What portion of the nephron extends into the medulla?
107) The micturition reflex center is located in the ____.
108) Fibrous connective tissue that surrounds each kidney is the _____.
109) The apex of the renal pyramid is called _____.
110) The tuft of capillaries in the renal corpuscle is called the _____.
111) The triangular area of the urinary bladder between the two ureters posteriorly and the urethra anteriorly is the _____.
112) PCT lined by which type of tissue ?
113) The terminal portion of thick ascending segment runs between afferent and efferent arterioles forms _____.
114) Which hormones secreted principal cells?
115) The thick cuff of cell in juxtraglomerular cells called _____ .
116) When renin is released into blood it forms a plasma protein called _____ which is converted into Angiotensin I.
117) Angiotensin I is converted into Angiotensin II by the activity of _____ secreted from lungs.
118) Angiotensin II inhibits _____ is responsible for decreasing the blood pressure.
119) _____ have adrenocortical stimulating and vasopressureactivities.
120) _____ secretsthromboxane A_2.
121) Glomerular capillary membrane have many pores called _____.
122) In normal human what is GFR.
123) Hormone renin is secreted from _____ cells.
124) The peritubularcapillariesthatlies parallel to loop of henle is called _____.
125) Facultative water absorption at DCT is under the influence of _____ hormone.
126) Parathyroid hormone activates absorption of ____ in DCT and inhibits reabsorption of ____ in PCT.
127) ADH stimulates insertion of ____ containing vesicles into apical membrane via exocytosis.
128) Release of excess nitrogen in urine causes _____ and incresaseurine output is ____.
129) _____ enhances reabsorption of sodiumion ,chlorine ion and water in PCT by stimulating the activity of Sodium-hydrogen antiport.
130) What is the osmolarity of the urine in the cortex ?
131) Which part returns NaCl into the interstitium ?
132) Which structure make the countercurrent mechanism?
133) ADH is vasoconstrictor True or False.
134) Which is responsible for the secretion of ANF?
135) What is the significance of the proximity of Henle's loop and vasa recta?

136) Which layer comes first when we see from the glomerular side?
137) Which layer comes first when one goes from outside to the inside of Bowman ‘s capsule?
138) GFR is regulated by _____.
139) JG cells get activated by ____.
140) The process of reabsorption is carried by _____.
141) The process of reabsorption occurs by _____.
142) ____ not reabsorbed by PCT.
143) Bicarbonate is reabsorbed by _____.
144) The maintenance of high osmolarity of medullary interstial fluid is due to ____.
145) Which is completely permeable to water but not to electrolytes ?
146) Which is imperable to water but permeable to electrolytes ?
147) Which segment allows the passage of small amounts of urea into the medullary interstitium to keep up the osmolarity?
148) _____ will enter from thin segment of ascending limb to loop of henle.
149) How many times can human urine be concentrated in counter current mechanism ?
150) Which of the following blood cells play an important role in blood clotting ?
151) WBCs which release heparin and histamine is _____.
152) Tissue plasmin activator _____.
153) Clumping of cells is known as _____.
154) Which of the following plasma protein is involved in coagulation of blood?
155) Fibrins are formed by conversion of _____ in _____ by the enzyme ____.
156) _____ is administered intravenously causes lead poisoning
157) Who discovered Blood group?
158) The surface of RBC contain antigen composed of ____ and ____.
159) _____ is produced by liver and kidneys, triggers the development of megakaryocytes into platelets.
160) _____ are glycoproteins that trigger the differentiation of myeloblasts into granular leukocytes.
161) _____ cytokine signaling molecules important in hemopoiesis.
162) Globin molecule contain alpha chains containing _____ aas and beta chains containing _____ aas.
163) Hypoxia stimulates kidney to secrete ____ hormone which in turn stimulates red bone marrow to produce more RBC.
164) When iron is removed from heme ,heme is converted into ____.
165) Absence of ___ factor causes Haemophilia B and ____ factor causes HaemophiliaA.
166) ____ factor works with prekallikrein and kininogento activate Factor XI.
167) Several phenotypes in MNSs antigen result from deletion of _____ and ____ genes.
168) Haemopoiesis occurs in ____.
169) Whitish yellow fluid formed in the infected tissue at the site of infection is called _____.
170) Heart of heart” is _____.
171) _____ has the thickest wall in the human heart.
172) Pacemaker is _____, located in upper lateral wall of right atrium
173) _____ is made up of muscular tissue supplied to ventricles.
174) The membrane surrounds and protects the heart is _____.

175) What is play important role in contraction of cardiac muscle as a single unit.
176) Venous blood from the right atrium enters right ventricles through _____.
177) Blood from left atrium enters left ventricle through _____
178) During embryonic stage at the place of septum there is present a gap called _____.
179) When foramen ovalis towards right atrium is called _____ and towards left called _____.
180) The non closureof Foramen ovaliscalled _____ giving blue baby.
181) _____ valve help in opening and closing of superior venacava.
182) _____ valve present over the opening of Coronary sinus in right atrium in mammals.
183) A Node initiates action potential at every ____ .
184) A period of maintaining depolarization is called ____.
185) The tissue that generates rhythmical impulse for cardiac contraction is _____.
186) The node that links SA node with AV bundle is ____.
187) The fibres that conduct the impulse from sinus node to AV node is _____.
188) The condensation of cardiac impulse with maximum velocity occurs in_____.
189) The node that delay the transmission of impulses to the ventricles _____.
190) The specialised muscle fibre that passed through the ventricular muscles to conduct cardiac impulses is called ____.
191) The sequence of events that occur during a heart beat is _____.
192) The time period for atrial diastole is ___.
193) The quantity of blood pumped into the aorta each minute by the heart is called _____.
194) Cardiac output is _____ proportional to heart rate.
195) Cardiac output is _____ proportional to peripheral resistance.
196) Cardiac output equals to ____
197) Stroke Volume X Heart rate - _____.
198) Cardiac output per min is _____.
199) Atrial systole lasts for ____ and atrial diastole ____.
200) As the atria contract blood pressure in each atrium increases forcing additional blood into ventricles is called _____.
201) At start of ventricular 1st sound _____ occurs due to sudden closure of ____.
202) At the time when both AVV & SLV remain closed is called _____.
203) Ventricular isometric contraction period is ____.
204) Ventricular ejection period is _____.
205) The short interval between the start of Ventricular diastole and closure of SLV is called _____.
206) Protodiastolic period is _____.
207) Which valve open in isometric relaxation period and what is its time ?
208) Rapid filling is ____ sec and slow filling is ____ sec.
209) Alternative name of slow filling stage is ___.
210) Last rapid filling is ___ sec.
211) Cardiac vascular centre is present in ____.
212) ____ input is major stimulus for quick rise in heart rate onset of physical activity.
213) _____ nerve impulses reach heart via right and left vagus nerves.
214) _____ monitor streching of major arteries and veins caused by the pressure of the blood flowing through them.

215) Heart rate is inversely proportional to blood pressure is ____ law.
216) Exception of Marye's law is _____ and _____.
217) _____ is a recording of electrical signals generated during propagation of action potential.
218) Father of ECG is _____
219) ____ wave corresponds to current flows during atrial depolarization.
220) ___ wave corresponds to ventricular depolarisation.
221) ____ wave corresponds to atrial repolarisation.
222) Sounds heard using stethoscope is known as ____.
223) ____ sounds are produced due to turbulence created by flow of blood through the partially obstructed blood vessels.
224) Normal BP in adult is ___.
225) Systolic blood pressure is ____ and diastolic blood pressure is ____.
226) During anxiety blood pressure is increased due to release of _____.
227) ____ is situated in the Medulla oblangata and lower part of Pons.
228) Vasoconstrictor otherwise known as ___ and vasodialator otherwise known as _____.
229) Parasympathetic vasodialatorFibre causes dilation of blood vessels by releasing _____ .
230) ___ is an endothelium derived relaxing factor , a vasodilator.
231) Local vasoconstrictor is _____.
232) Adrenaline ,Noradrenaline, Thyroxine, Aldosterone, Vasopressin, Angiotensins, Serotonin ____ blood pressure by vasoconstrictor.
233) VIP ,Bradykinin, Prostaglandins, Histamine, Acetylcholine, ANP, CNP _____ blood pressure by vasodilation.
234) From the spinal cord , _____ nerve extend out to the SA node.
235) When a person stands for a long period, gravity causes pooling in the legs which is called _____ , resulting heart beat decreases.

ANSWER:-

1) Uvla	**119) Angiotensin IV**
2) Peptic / Chief cells	**120) Macula densa**
3) Peyer's patches	**121) Fenestra**
4) Biliverdin	**122) 125 ml / min or 180 l / day**
5) Mumps	**123) Juxtraglomerular cells**
6) Cholecystokinin	**124) Vasarecta**
7) Fold of Kerckring	**125) ADH**
8) Partoid gland	**126) Calcium ion and Potassium ion**
9) Palatine rugae	**127) Aquaporin 2**
10) C shaped	**128) Natriuresis and Diuresis**
11) Internal anal sphincter and External anal sphincter	**129) Angiotensin II**
12) Lingual lipase	**130) 300mOsmol / l**
13) Stetson 's duct and Wharton 's duct	**131) Ascending portion of vasa recta**
14) Parasympathetic stimulation	**132) Henle's loop and Vasa recta**

15) Ampulla of Vater	**133) True**
16) Sphincter of Oddi	**134) Heart**
17) Cystic duct	**135) Maintains Osmolarity**
18) Bile Canaliculi	**136) Endothelium**
19) Sterocobilin	**137) Epithelium to Bowman's capsule**
20) Vitamin D	**138) JGA**
21) Fat emulsification	**139) Fall in GF**
22) Mastication	**140) Tubular epithelial cells**
23) Propulsion	**141) Active and Passive mechanism**
24) Migrating motility complex	**142) Electrolytes**
25) Lactate	**143) PCT & DCT**
26) Pepsin	**144) Henle's loop**
27) Enterokinase	**145) Descending limb of loop of Henle**
28) Pancreatic lipase	**146) Ascending limb of loop of Henle**
29) Trypsin	**147) Collecting duct**
30) Gastric emptying	**148) Urea**
31) Bolus	**149) 4 times**
32) Erythrocytes and Pernicious anemia	**150) Thrombocytes**
33) Fructose	**151) Basophils**
34) Villi	**152) Dissolves clot in blood vessels**
35) Chylomicrons	**153) Agglutination**
36) Sodium and Chloride ions	**154) Fibrinogen**
37) Sodium Potassium Pumps	**155) Fibrinogen, Plasma, Thrombin**
38) Calcitriol	**156) EDTA**
39) Potentiation	**157) Karl Landsteiner**
40) Pyloric sphincter	**158) Glycoproteins and Glycolipid**
41) Secretin and Bicarbonate	**159) Thrombopoietin**
42) Adventitia	**160) Colony stimulating Factor (CSF)**
43) Kulchitsky cells	**161) Interleukins**
44) Phrenic nerve (C3 to C5) and Intercostal nerves (T1 to T11)	**162) 141 amino acids and 146 amino acids**
45) Accessory inspiratory muscles	**163) Erythropoietin**
46) Sternocleidomastoid and Latissimusdorsi	**164) Biliverdin**
47) Intercostal nerves	**165) Christmas factor and Antihemophilic factor**
48) EICM and IICM	**166) Factor XII / Hageman Factor**
49) Surfactant	**167) GYPA & GYPB**
50) Hyaline cartilage	**168) Bone marrow**
51) Trachea	**169) Pus**
52) Pore of Kohn	**170) SA NODE**
53) Dust cells	**171) Left Ventricle**
54) Intrapleural pressure	**172) SA NODE**
55) Gastrin	**173) Bundle of His**
56) Trypsinogen to Trypsin	**174) Pericardium**

57) Alveoli	**175) Intercalated disc**
58) Mediastinum	**176) Tricuspid Valve**
59) Nephron	**177) Bicuspid/ Mitral valve**
60) Pulmonary veins	**178) Foramen ovalis**
61) Beginning of the ventricular systole	**179) Fossa ovalis and Fossa lunata**
62) O negative	**180) Septal defect / ASD**
63) Compliance	**181) Haversian valve**
64) Respiratory minute volume	**182) Thebasian valve**
65) Pulmonary ventilation	**183) 0.6 seconds**
66) 6l / min	**184) Plateau**
67) 4.2 l/ min	**185) SA NODE**
68) 40mm Hg	**186) AV NODE**
69) 95mm Hg	**187) Internodal nodes**
70) 60mm Hg	**188) Purkinjiefibres**
71) Lung capacities	**189) AV NODE**
72) IRV	**190) Purkinjiefibres**
73) ERV	**191) Cardiac cycle**
74) IC	**192) 0.7 seconds**
75) Vital capacity	**193) Cardiac output**
76) 4800 mL	**194) Directly**
77) FRC	**195) Inversely**
78) 2200 ML	**196) Stroke volume**
79) FRC	**197) Cardiac output**
80) TLC	**198) 5.25l/ min**
81) TLC	**199) 0.1 second and 0.7 seconds**
82) Spirometry	**200) Atrial kick**
83) 20	**201) LUBB, AVV**
84) Dead space	**202) Isometric contraction period**
85) 104mmHg	**203) 0.05 seconds**
86) Chloride Shift	**204) 0.25 seconds**
87) HartogJakob Hamburger	**205) Protodiastolic period**
88) Reverse Chloride shift	**206) 0.04 seconds**
89) 64,500 daltons	**207) AVV & 0.08 Seconds**
90) 1.34 ml O2 / gm	**208) 0.113 seconds and 0.167 seconds**
91) Chlorocruorin	**209) Diastasis**
92) Formyl group	**210) 0.10 seconds**
93) Haemoglobin	**211) Medulla oblangata**
94) HbF	**212) Proprioceptors**
95) Molpadin and Echinochrome	**213) Parasympathetic nerves**
96) Oxygen haemoglobin dissociation curve	**214) Baroreceptor**
97) Right	**215) Marye's law**
98) Bohr effect	**216) Muscular exercise, Anxiety**
99) Oxygen	**217) ECG**
100) BPG	**218) Einthoven Willema**
101) BPG	**219) P wave**

102) 12 thoracic vertebrae to 3rd lumbar vertebrae	**220) QRS Complex**
103) 3	**221) T wave**
104) An efferent arteriole is narrow compared to an afferent arteriole	**222) Korotkoff sounds**
105) Urethra	**223) Korotkoff sounds**
106) Nephron loop	**224) 120/ 80mmHg**
107) Sacral segment of the spinal cord	**225)120mmHg and 80mmHg**
108) Medulla	**226) Adrenaline**
109) Minor calyx	**227) Vasoconstrictor**
110) Podocytes	**228) Pressure area and Depressure area**
111) External urinary sphincter	**229) Acetylcholine**
112) Simple cuboidal epithelium with brush border	**230) Nitric oxide**
113) Macula densa	**231) EDCF**
114)ADH and Aldosterone	**232) Increases**
115) Polarcushion / Polkissen	**233) Decreases**
116) Angiotensinogen	**234) Sympathetic Cardiac accelerator nerves**
117) Angiotensin converting enzyme	**235) Venous pooling**
118) Baroreceptor complex	

PART-II

B) Very Short Notes.

1) Histology of Small intestine
2)Function of pepsin and trypsin in the alimentary canal.
3) What is the function of cholecystokinin?
4) Peyer's patches
5) Gastric glands
6) Brunner's glands
7) Structure of teeth
8) Hepatic sinusoids
9) What is the path of inspired air in the human respiratory tract ?
10) What are the respiratory pigments?
11) Differentiate between inspiration and exspiration.
12) Migratory motility complex
13) Chyme
14) Bolus
15) Mastication
16) Differentiate between Propulsion and Retropulsion
17) Gastric running
18) Enterokinase

19) Sodium-Glucose transport protein
20) Chylomicrons
21) Villi and Michelles
22)GIP
23) Secretin
24) Histology of Trachea
25) Histology of Lungs
26) Hyaline cartilage
27) Conducting zone of respiration
28) Tidal volume (TV)
29) Inspiratory Reserve volume (IRV)
30) Expiratory Reserve Volume (ERV)
31) Inspiratory capacity
32) Functional residual capacity
33) Chlorocruorin
34) Function of Haemoglobin
35) Function of Haemocyanin
36) Composition of Pancreatic juice
37) Function of Pancreatic juices
38) Salivation
39) Hypoxia
40) Pulmonary oedema
41) Significance of Oxygen haemoglobindisscoiation curve
42) Symptoms of Carbon monoxide poisoning
43) Strech receptors
44) Hearing- Breuer reflex
45) Effect of BPG in oxyhaemoglobin dissociation curve
46) Pontine respiratory group
47) Structure of Nephron
48) Transcellular route
49) Paracellular route
50)Capsular hydrostatic pressure
51) Glomerular Blood hydrostatic pressure
52) Blood Colloid osmotic pressure
53) Basement membrane of Bowman capsule
54) Visceral layer of Bowman capsule
55) Macula densa cells
56) Descending limb
57) Ascending limb
58) Net filtration pressure
59) Role of ADH
60)Vasarecta
61) Peritubular capillaries
62) What is the role of Glomerulus during urine formation ?

63) Draw the structure of oxyhaemoglobin.
64) What is Rh factor
65) Function of haemoglobin
66) Anticoagulants of blood
67) Serum
68) Rouleaux formation
69) Platelet plug formation
70) Mast cells
71) Porphyrin
72) Megakaryocytes
73) Differentiate between S.A. node and A.V. node.
74) What is Blood pressure?
75) Valves of Heart
76) Cardiac output
77) Isometric relaxation period
78) Isometric contraction period
79) Venous pooling
80) Protodiastolic period
81)Brainbridge reflex
82) Spirometry
83) Sphygmomanometer
84) Role of Thyroxineon blood pressure
85) P-Q interval
86) S-T interval
87) Q-T interval
88) Local vasoconstrictors and vasodilators
89) Atrial Systole
90) Atrial diastole
91) Erythroblastosisfoetalis

PART-III

C.Write short notes on followings.

1. Liver
2. Pancreas
3. Chemical digestion of food in stomach
4. Emulsification
5. Villi
6. Hormonal regulation during gastric phase of secretion
7. Chloride shift
8. Bohr effect

9. Haemoglobin
10. Haemocyanin
11. Carbaminohaemoglobin
12. Effects of pH and pCO2 on oxygen disscoiation curve
13. Mechanical digestion
14. Baroreceptor
15. CO2 disscoiation curve
16. Tissue Respiration
17. Carbon monoxide poisoning
18. Chemoreceptor
19. Haldane effect
20. Vital capacity
21. Inspiratory capacity
22. Factors affecting lung volume
23. Alveolar ventilation
24. Dead space
25. Total lung capacity
26. Function of ADH
27. Glomerular filtration
28. ABO blood groups
29. Regulation of Glomerular filtration rate
30. Sodium-Glucose symporter
31. Sodium-Hydrogen antiport
32. Juxtraglomerular cells
33. Respiratory centre
34. Counter current multiplication
35. Counter current mechanism
36. Protein buffer system
37. Instrinsic pathway of blood clotting
38. Extrinsic pathway of blood clotting
39. Role of Calcium ion in the intrinsic and extrinsic pathway
40. Coronary circulation
41. Cardiac output
42. Regulation of Cardiac output
43. Electrocardiogram
44. Frank Starling law
45. Autonomic regulation of Heart rate
46. Maryes law
47. Hormonal regulation of blood pressure
48. Septa of heart

49. Layers of wall of heart
50. Clinical significance of MNS antibodies
51. Landsweiner law
52. Colony stimulating Factor
53. Synthesis of haemoglobin
54. Thrombocytes
55. Function of blood
56. Function of platelets

Part-IV

D) Long Questions with suitable labeled diagram.

1) Describe the chemical digestion in the alimentary canal of man and add a note on absorption of carbohydrate.
2) Give an account on structural organisation and function of associated glands in digestive tract.
3) What is digestion? Describe the chemical mechanism of food digestion of Protein in GI tract?
4) Give an account of absorption of water, mineraland vitamin in GI tract.
5) Discuss the hormonal control of enzyme secretion in GI tract.
6) Describe the mechanism of Pulmonary ventilation?
7) What is Respiratory pigment? Describe the various forms of respiratory pigments in mammals and add a note on their significance?
8) Describe the mechanism of transport of oxygen and carbon dioxide in Blood of pulmunary respiration.
9) Give an account on mechanism of urine formation and add a note on regulation of water balance.
10) Define haemopoiesis and Discuss the mechanism of blood coagulation system ?
11) Describe the structure of mammalian heart
12) Describe the structure and working of conducting myocardial fibres?
13) What is Cardiac Cycle? Describe the different events that occur during heart beat.
14) Define Cardiac output? Discuss the regulation of Cardiac output?
15) Give an account on chemical regulation of heart rate and give a note on Blood pressure.
16) Describe Frank- Starling law of the heart ?

DERABIS COLLEGE

QUESTION BANK

SUBJECT- ZOOLOGY

PAPER - CORE- X (BIOCHEMISTRY OF METABOLIC PROCESSES)

PART -I

A) Answer in one word.

1) The shuttle system indirectly conveys cytosolic NADH into _____ for oxidation.
2) For every cytosolic NADH, the Malate-aspartate shuttle yields _____ ATPs whereas the Glycerophosphate shuttle yields _____ ATPs.
3) _____ is a more universal NADH Shuttle system.
4) Which Shuttle doesn't involve any membrane transport system?
5)Which shuttle consumes no energy when transferring reducing equivalents from NADH to the respiratory chain?
6) Which enzyme Catalyses the reversible transfer of Phosphoryl group from Creatine Phosphate to ADP to form ATP?
7) In Malate-Asparate Shuttle _____ Malate passes to NAD+ and becomes _____.
8) What is the location Malate- Aspartate Shuttle?
9) What is the location of the Glycerophosphate Shuttle?
10) Which Shuttle System is irreversible and involves no membrane transporter systems?
11) Which enzyme Catalyses the transfer of Cytosolic NADH to Cytosolic Oxaloacetate to form Malate?
12) What is the product formed due to the transfer of election pair from Cytosolic NADH to dihydroxy acetone
13) Which system transports the Malate across the inner mitochondrial membrane?
14) Malate-aspartate shuttle delivers the reducing equivalents of Cytosolic NADH to _____ , whereas the glycerophosphate Shuttle delivers to _____ respiratory chain.
15) Which transporters catalyze the rapid flip-flop diffusion of phospholipids in a membrane
16) Give an example of an ABC transporter that acts as an ion channel but not a pump ?
17) Which type of transport system is used for accumulation of sugars and amino acids needed by cell ?
18) Which types of ATPase transporters are ATP-driven proton pumps?
19) Which vesicular transport mechanism allows a cell to take in cholesterol from the extracellular fluid?
20) The two conformational states of carrier proteins are _____ and _____.
21) Hydrophilic transmembrane protein channels responsible for rapid diffusion of water into and out of cells are called _____.
22) Membrane shuttles that increase the permeability of specific ions are called ____.

23) The Potassium carrying ionophore is called _____ ,while the sodium carrying ionophore is called _____.
24) _____ are the largest of the voltage-gated ion channels .
25) _____ provide the energy for secondary active transport.
26) The transport process by which substances move into one side of the cell across ,then undergo exocytosis on the opposite side of the cells are called _____.
27) Which type of aquaporin is regulated by ADH?
28) Name the aquaglyceroporins that are found in the cell membrane of adipocytes.
29) Which model explains the mechanism of facilitated diffusion?
30) Coatomer-mediated vesicle trafficking between _____ and _____.
31) What is the standard free energy of hydrolysis for ATP?
32) Which type of kinase catalyzes the interconversion of adenine nucleotides?
33) Cyclic AMP is a common secondary messenger formed from ATP in a reaction catalyzed by _____.
34) The coupling of ADP entry into the mitochondrial matrix to the ATP exit is mediated by _____, which constitutes_____ % of IMM Protein.
35) Which reaction is commonly called metabolic bottleneck?
36) Name the covalent modifications frequently employed to regulate the catalytic activity of mammalian cells.
37) Which enzymes catalyze covalent-phosphorylation?
38) The inactive precursors of enzymes are called _____.
39) Many human enzymes are regulated by phosphorylation-dephosphorylation reactions Catalysed by _____ and _____ respectively.
40) _____ is the most sensitive index of a cell's energy status.
41) Glycolysis harvests chemical energy by oxidizing _____ to _____.
42) Glycogen stored in _____ is not available for regulating blood sugar.
43) In RBCs, glycolysis leads to the production of _____ as the end products.
44)The special glycolytic pathway in RBCs is called _____.
45) Increased aerobic glycolysis in cancer cells is called _____.
46)The final electron acceptor in lactic acid fermentation is ____.
47) In alcohol fermentation, NADH donates its electrons to _____.
48) Which enzyme is called the primary control site in glycolysis?
49) What are the allosteric inhibitors of PFK – 1?
50) Which metalloid inhibits pyruvate dehydrogenase resulting in Lactic acidosis?
51) Which hormones inhibit glycolysis by cAMP-dependent covalent modification of Pyruvate kinase?
52) Hexokinase is allosterically inhibited by increased concentration of _____.
53) How many ATP molecules are formed in glycolysis?
54) What are the glucose transporters of hepatocytes, erythrocytes, and brain neurons are always present in insulin-dependent plasma membranes?
55) What is the chemical formula of the Citric acid cycle?
56) Which enzyme Catalyses the link reaction between Glycolysis and the Krebs cycle?

57) The entry of pyruvate into the TCA cycle is inhibited by the presence of a high cellular concentration of _____.
58) Which enzyme catalyzes substrate-level phosphorylation i.e. conversion of GDP to GTP?
59) Citrate synthase is the enzyme that catalyzes the condensation of acetyl CoA and oxaloacetate to citrate. Which of the following is an activator of this enzyme?
60) What is the substrate-level phosphorylation step of the TCA Cycle?
61) What are the main products of the PP pathway?
62) For each glucose-6-phosphate molecule completely oxidized through the PP pathway, how much NADPH can be generated?
63) Which is the first product of the pentose phosphate pathway?
64) Name the allosteric regulatory enzyme of the HMP shunt.
65) The pentose phosphate pathway generates _____ and _____.
66) Reactions of the PP pathway occur in the _____
67) The reactions of the oxidative phase of the pentose phosphate pathway generate while the nonoxidative reactions of the pathway generate.
68) The pentose phosphate pathway and glycolysis are linked by enzymes _____and _____.
69) The major rate-determining step in the PP pathway is _____.
70) Which hormones stimulate the activity of G6PD in HMP shunt?
71) In the pentose phosphate pathway, the major products are _____.
72) Conversion of xylulose 5-phosphate to ribulose 5-phosphate is catalyzed by _____.
73) Which coenzymes necessary for conversion of Xylulose -5- phosphate to ribose -5-phosphate.
74) What are the positive and negative allosteric modulators of pyruvate carboxylase?
75) Synthesis of new glucose or glycogen from non-carbohydrates is called _____.
76) _____ out of 10 enzymatic reactions of gluconeogenesis are the reverse of glycolytic reactions.
77) In the first bypass reaction in gluconeogenesis, _____ is converted to _____.
78) _____ is the first regulatory enzyme in the gluconeogenic pathway.
79) All amino acids are glucogenic except _____ and _____.
80) _____produced by active skeletal muscle is a dead end in glycolysis and is a major precursor for gluconeogenesis.
81) _____ is a major glucogenic precursor in ruminates.
82)A high ratio of glucagon/insulin activates _____.
83) Name the mitochondrial enzyme that converts pyruvate to oxaloacetate.
84) Which hormones regulate gluconeogenesis?
85) Which pathway removes lactate and glycerol from blood circulation?
86) Glycogen synthase requires _____ as a substrate and a Glycogen primer to extend the chains to synthesize Glycogen.
87) In glycogenesis conversion of G6phosphate to glucose -1-phosphats requires which enzyme and ion?

88) Which enzyme is necessary for conversion of glucose to glucose-6-phosphate in muscle?
89) In glycogenolysis partially hydrolyzed glycogen with branch points is called _____.
90) Glycogen phosphorylase contains _____ as an essential factor for cleavage.
91) Which of the enzymes is responsible for the hydrolysis of α (1-6) glycosidic bond present at a branching point of glycogen molecules?
92) Which of the following metabolites allosterically activate glycogen phosphorylase?
93) Which of the following enzyme is responsible for the addition of UDP-Glucose to the existing chain?
94) Which of the following protein is required for de novo synthesis of glycogen?
95) In liver free glucose acts as an allosteric inhibitor of _____.
96) When there is high concentration of ATP and G6P it allosterically activates _____.
97) _____ accelerates the activity of glycogen synthase responsible for glycogenesis.
98) _____ and ____ stimulate liver glycogen phosphorylase and speed up glycogenolysis.
99) In which organelles long chain chain-saturated fatty acids are synthesized from palmitic acid?
100) Name the allosteric activator and allosteric inhibitor of acetyl-CoA carboxylase.
101) Fatty acids are transported in blood by the carrier _____.
102) _____ is the building block of fatty acids.
103) The key enzyme in fatty acid synthesis is _____.
104) The coenzymes required by the acetyl-CoA carboxylase are ____ and ____.
105) The fatty acid synthase (FAS) complex consists of _____ subunits and each subunit contains ____ enzymes organized into _____ domains.
106) _____ is the principal product of FAS complex in animal cells.
107) Of the 16 carbons present in palmitic acid, only 2 carbons come from _____ directly the remaining 14 are from _____.
108) The main source of NADPH for fatty acid biosynthesis is _____.
109) Which ketone body does not have a keto group?
110) Which is the basic unit of ketone body formation?
111)Which is the starting material for ketogenesis?
112) What is the rate-limiting step in ketone body formation?
113) Name the conditions responsible for the overproduction of ketone bodies in the liver?
114) Name the predominant ketone body found in blood and urine in ketosis.
115) Which compounds become the important fuel for extrahepatic tissues when the fatty acids are the principal fuel in whole-body metabolism?
116)Which ketone body is produced in smaller quantities and is not used as fuel?
117)Ketone bodies are mainly produced in _____ and are exported ____ as fuel.
118) ____ and _____ serve as fuel molecules in extrahepatic tissues.
119) Increased ketone body production in hepatic mitochondria is called ____.
120) Ketosis is characterized by _____ and __ ___.
121) Ketosis is caused by____.

122) Ketone bodies in urine are identified by ____.
123) _____ accepts amino group from amino acids to become _____
124) _____ is the prosthetic group that found in the active site of transaminase.
125) In the transamination reaction _____ serve as amino group donor
126) In transamination reactions, amino groups of amino acids are collected in _____.
127) _____ is the nontoxic transport form of ammonia.
128) Ammonia transports from skeletal muscles to blood in a non-toxic form called _____.
129)Transamination followed by oxidative deamination is called ____.
130)Dehydratases act on ____, while de sulfhydratase acts on ____.
131) After the loss of amino group, the remaining 'carbon skeletons' of amino acids are called _____.
132) All aminotransferase contain ____ as prosthetic group.
133) Which enzyme catalyzes the conversion of toxic L- glutamate to nontoxic L-glutamine for its transportation in blood stream?
134) L- amino acid oxidase use which coenzyme and catalyze the oxidation of all amino acid.
135) Alanine can be synthesised by transamination of ____ , aspartic acid from _____ and glutamic acid from _____.
136) Increase ____ diagnosis myocardial infraction and increase ____ viral hepatitis.
137) External aldiminetautomerizes into ketamine by shifting of ____.
138) PPL derived from which vitamin?
139) How many ATPs are actually consumed per each urea cycle?
140) Which molecule links between urea cycle and the TCA cycle?
141) Which is the major regulatory enzyme of urea cycle?
142) Name the allosteric activator of CPS-I.
143) During urea cycle two nitrogen atoms are derived from ____ and ____.
144) Hydrolysis of arginase to urea and ornithine is catalyzed by ___ .
145) Which amino acid are purely ketogenic amino acids?
146) The carbon skeleton of ____ and _____ are degraded to oxaloacetate.
147) Liver lacks the enzyme ____ for which branched chain amino acids are not degraded in liver.
148) Which is the well accepted mechanism of ATP synthesis?
149) Which subunit of ATP synthase has ATP / ADP binding sites?
150) Oxidation and phosphorylation are coupled by ____.
151) Name the inhibitors of oxidative phosphorylation.
152) Name two mobile electron carriers of mitochondrial respiratory chain.
153) Name the reducing equivalent carried by each NADH.
154) Which is the most accepted theory for oxidative phosphorylation?
155) Which enzyme couples proton flow to ATP synthesis ?
156) The electron transport and ATP synthesis are coupled by _____.
157) Who discovered mitochondria is the site of oxidative phosphorylation in eukaryotes?

158) In prokaryotes what is the site of oxidative phosphorylation in prokaryotes?
159) Which subunit of ATP / ADP binding sites?
160) Oxidation and Phosphorylation are coupled by a _____.
161) Coupling of proton flow to phosphorylation of ADP is catalyzed by _____.
162) The ratio of ATP synthesised per 1/2 oxygen reduced to water is called _____.
163) _____ and _____ are two factors that regulate oxidative phosphorylation.
164) Which is the world's smallest molecular motor?
165) Whichmitochodrial enzyme complex is associated with ATP Synthesis?
166) What are the P/ O ratios for oxidizing 1NADH and 1FADH2?
167) Which enzyme of krebs cycle is a component of respiratory complex III ?
168) The two half-reactions of an oxidation-reduction reaction are linked by _____.
169) Each molecule of NADH carries ____, which bears ___ electrons and ____ protons.
170) _____ is the collection point for electrons between NADH and FADH2.
171) The two functional domains of ATP synthase are _____ and _____.
172) F0F1 complex catalyzes _____ , while isolated F0 unit catalyzes ___.
173) _____ and ___ maintain the structural integrity of respirasomes.
174) Which antibiotics block transfer of electrons from FeS of NADH dehydrogenase to coenzyme Q resulting Inhibiting complex I.
175) What are the inhibitors of complex I ?
176) _____ is inhibited by Antimycin A and Dimercaprol , inhibiting electron transport between cytochrome b and c1 of complex III .
177) Amyl nitrate , Sodium nitrate , and hydroxycobalamin are common antidotes for _____.
178) Carboxin and TTFA block electron transfer from _____ .
179) ____ is a competitive inhibitor of succinic dehydrogenase.
180) _____ blocks F1 and ___ F0.
181) ____ in high dose act as physiological uncouplers.
182)The action of _____ enzyme nzyme removes the glycogen fragment containing 3 or 4 residues in a branch and moves them to a nearby chain.
183) In the glycolytic pathway _____ enzyme cleaves Fructose-1, 6-diphosphate in between 3rd and 4th carbon atoms into two trios phosphate, such as DHAP and PGAL.
184) In vertebrates, the enzymes for omega -oxidation are located in the _____ of liver and kidney cells.
185)Non-oxidative deamination occurs mainly on _____ amino acids like serine and threonine catalysed by the enzyme dehydrase.
186) The ____ proteins produced in brown fat of hibernating mammals allow protons to pass from theinter-membrance space to the matrix allowing the energy of the gradient to be dissipated as heat.
187) Amytal, a barbiturate, blocks the electron transfer in the ETC between NADH dehydrogenase (Complex I) and _____.
188)The glycerol phosphate shuttle functions in _____.
189) What is the net gain of ATP during the conversion of glucose to pyruvate ?
190) Glycogen synthesis increases in presence of _____ hormone.

191) The first product of Glycogenolysis is _____.
192) Fatty acids are activated to acyl COA by _____.
193) Acetyle COA converted into Malonyl COA in presence of enzyme _____ in fatty acid synthesis.
194) Coenzyme Q is involved in Electron transport as a _____.
195) Complete oxidation of glucose yields usable energy in the form of _____.

ANSWER :-

1)Mitochondria	**99) SER and Mitochondria**
2) 2.5 ATPs and 1.5 ATPs	**100) Citrate and Palmitoyl – CoA**
3) Malate-asparate shuttle	**101)Albumin**
4) Glycerophosphate shuttle	**102) Acetyl- CoA**
5)Malate-asparate shuttle	**103) Acetyl-CoA carboxylase**
6) Creatine kinase	**104) Biotin and ATP**
7) Mitochondrial matrix and Oxaloacetate	**105)2,7,3**
8) Liver, Kidney, and Heart Mitochondria	**106) Palmitic acid**
9) Brain, skeletal muscle	**107) Acetyl CoA, Malonyl COA**
10)Glycerophosphate Shuttle	**108) HMP shunt**
11) Cytosolic Malate dehydrogenase	**109) Beta hydroxybutyrate**
12) Glycerol-3-phosphate	**110) Acetyl CoA**
13) Malate - alpha-ketoglutarate system	**111) Acetyl CoA**
14) Complex I ,Complex II	**112) Mitochondrial HMG- COA synthase**
15) Flippase, Floppase and scrambles	**113) Starvation and Untreated Diabetes mellitus**
16) CFTR acts as a chloride channel	**114) Beta hydroxybutyrate**
17) Sodium cotransport system	**115) Ketone bodies**
18) V - type and F-type ATPase	**116) Ketone**
19) Receptor mediated endocytosis	**117) Liver Mitochondria and Extrahepatic tissues**
20) Ping and Pong	**118)Acetoacetate and Beta hydroxybutyrate**
21) Aquaporins	**119) Ketosis**
22) Ionophores	**120) Ketonemia and Ketonuria**
23) Valinomycin , Monensin	**121) Fatty acid oxidation**
24) Potassium channels	**122) Rothera's test**
25) Ion gradients	**123) Alpha ketoglutarate , L –glutamate**
26) Transcytosis	**124) Pyridoxal phosphate**
27) AQP2 in epithelial cells of renal collecting duct	**125)Alpha ketoglutarate**
28) AQP7	**126) L- glutamate**

29) Ping and Pong	**127) Glutamate**
30) ER and Golgi Bodies	**128)L-alanine**
31) - 30.5kj/ mol or -7.3kcal / mol	**129) Transdeamination**
32) Adenylate kinase/ Myokinase	**130)Hydroxyl amino acid and Cysteine**
33) Adenylatecyclase	**131) Alpha ketoacid**
34) ATP- ADP translocase , 14%	**132) PLP**
35) Rate limiting reaction	**133) Glutamine synthase**
36) Phosphorylation and partial proteolysis	**134) FMN**
37) Protein kinase	**135) Pyruvate, OAA ,OAA**
38) Zymogens	**136) SGOT and SGPT**
39) Protein kinase, Protein phosphatases	**137) Schiff's base double bond**
40) ATP / AMP ratio	**138) Vitamin B6 / Pyridoxamine**
41) Glucose, Pyruvate	**139) 4ATPs**
42) Muscles	**140) Ariginosuccinate**
43) Lactate	**141) CPS-I**
44) Rapaport - Leubering cycle	**142) N- acetylglutamate**
45) Warburg effect	**143) Ammonia and Asparatic acid**
46) Pyruvate	**144) Acetyl CoA**
47) Acetaldehyde	**145) Leucine, Lysine**
48) Phospho-fructokinase 1	**146) Asparagine , Asparate**
49) High concentration of ATP, Citrate, H+ ions	**147) Branched chain amino transferase**
50) Arsenic	**148) Boyer's rotational catalysis mechanism**
51) Glucagon and Epinephrine	**149) Beta subunit**
52)Glucose 6-phosphate	**150) Proton gradient**
53) TATPs	**151) Oligomycin , Carbon dioxide, Cyanide**
54) GluT-1, GluT-2, and GluT-1 , GluT-3	**152) Coenzyme Q and Cytochrome C**
55) C6H8O7	**153) Hydride ion**
56) Pyruvate dehydrogenase	**154) Mitchell 's Chemiosmotic coupling theory**
57) NADH	**155) ATP synthase**
58)Succinyl CoA thiokinase	**156) PMF**
59) ADP	**157) Eugene Kennedy and Albert Lehinger**
60) Succinyl CoA synthetase / Succinate thiokinase	**158) Plasma membrane**
61) NADPH and Pentose phosphate	**159) Beta subunit**
62) 12 NADH	**160) Proton gradient**
63) 6-Phosphoglucolantone	**161) Increasing redox potential**
64) G6PD	**162) P / O ratios**
65) NADPH , Ribose phosphate	**163) Intracellular (ADP) and Mass action ratio ATP- ADP System**

66) Cytosol	**164) ATP synthase**
67) NADPH, Pentose phosphate	**165) Complex V**
68) Transketolase , Transaldose	**166) 2.5 NADH and 1.5 FADH2**
69) G6PD	**167) Succinate dehydrogenase**
70) Insulin , Thyroid hormones	**168)Electron transfers**
71) Ribulose and NADPH	**169) A Hydride ion, 2 electrons and 1proton**
72) Phosphopentoseepimerase	**170) Coenzyme Q**
73) TPP	**171) F0F1**
74)Acetyl CoA-Positive allosteric modulator,ADP- Negative allosteric modulator	**172) ATP synthesis and ATP hydrolysis**
75) Gluconeogenesis	**173) Cardiolipin , Auxiliary proteins**
76) 7	**174) Piercidin A**
77) Pyruvate, Phosphoenolpyruvate	**175) Barbiturate, Piercidin A , Rotenone**
78) Pyruvate carboxylase	**176) Complex III**
79) Leucine, Lysine	**177) Cyanide poisoning**
80) Lactate	**178) Complex II to CoQ**
81) Propinate	**179) Malonate**
82) Gluconeogenesis	**180) Aurovertin , DCCD**
83) Pyruvate carboxylase	**181) Thyroxine**
84) Glucagon, Glucocortcoids , Insulin	**182) 4- Alpha - D glucanotransferase**
85) Gluconeogenic pathway	**183) Aldolase**
86) UDP- Glucose	**184) Smooth endoplasmic reticulum**
87) Phosphoglucomutase	**185) Hydroxyl amino acid**
88) Hexokinase	**186) Uncoupling proteins**
89) Limit dextrin	**187) Fe-s**
90) Pyridoxal phosphate	**188)delivering cytosolic reducing equivalents into mitochondrial oxidative phosphorylation 189) 2 molecules**
91) Alpha Glucosidase	**190) Insulin, Glucagon**
92) AMP	**191) Glucose 1-phosphate and Glucose**
93) Glycogen synthase	**192) CoA**
94) Glycogenin	**193) Acetyl CoA carboxylase**
95)Glycogen phosphorylase	**194) Electron acceptor**
96) Glycogen synthase	**195) 38 ATP molecules**
97) Insulin	
98) Epinephrine and Glucagon	

PART – II

B) VERY SHORT NOTES .

1) What is the significance of compartmentalization of metabolic pathways?

2) Outline the stages of catabolism.
3) Define coupled reaction, Give one example.
4) What are reducing equivalents?
5) Write the sequence of reactions in glycogenolysis.
6) What are Ketogenic amino acids ? Give examples.
7) How is urea cycle regulated?
8) What is oxidative deamination? Give example.
9) How does cytosolic NADH enter into mitochondria ?
10) Define uncouplers of the ETS. Give examples.
11) What is Anabolism?
12) Why ATP is called energy currency of a cell?
13) What is phosphorylation?
14) Write the significance of PPP pathway.
15) What is KKetogenesis?
16) What is the role of Acetyl CO-A ccarboxylase ?
17)What is oxydative deamination?.
18) Describe the regulation of urea cycle ?
19) What is the osmotic hypothesis?
20)What is the role of complex-l of the respiratory chain ?
21) What is Proton gradient theory ?
22) Anaplerosis
23) Substrate level phosphorylation
24) Fundamental distinction between NADH and NADPH
25) What is rotational catalysis?
26) Why oxidation – reduction reaction is a coupled process ?
27) Components of ETS
28) Flavoproteins
29) Cytochrome
30) Ubiquinone
31) How PMF is essential for oxidative phosphorylation ?
32) RieskeFe-S
33) F type ATPase
34) Rotational catalysis
35) How conformational coupling hypothesis differs from chemiosmotic hypothesis?
36) Energetic of glycolysis
37) Energetics of Krebs cycle
38) Energetics of HMP Shunt
39) Energetics of Oxidative phosphorylation

Part-III

C) **SHORT NOTES** .

1)Differentiate between anabolism and catabolism

2) ATP as "Energy Currency of cell
3)Glycerol-3 phosphate shuttle
4) Regulation of glycolysis
5) Gluconeogenesis
6) Transamination
7) Ketogensis
8) Sequence of reactions in urea cycle
9) ATP synthase
10) Chemiosmotic hypothesis.
11) Energy yielding phase of Glycolysis
12) Regulation of TCA cycle
13) Cori cycle
14) Glycogenesis
15)Reactions of urea cycle
16)Glucogenicaaminoacid
17) Omega oxidations
18) Proton gradient theory
19)P -type transport
20) ABC transport
21) V type transport
22) Facilated diffusion
23) Sodium-Glucose transporters
24)Difference between Symport and Antiport
25) Vesicular transport
26)Nicotinamide coenzymes
27) Flavincoenzymes
28) Redox reactions
29)Energy status index of cell
30) RAPORT – LEUBERING Pathway
31) Fate of Pyruvic acid
32) Fermentation
33) Warburg effect
34)Amphibolic role of TCA cycle
35) Inhibitors of TCA cycle
36)Glycogenesis
37) Debranching enzyme
38) UDP Glucose
39) Hormonal regulation of Glycogenolysis
40)Carnitine shuttle
41)Beta oxidation proper
42) Metabolism of Propionyl -coA
43) Regulation of Palmitic acid biosynthesis
44)Regulation of ketogenesis

45) Schiff base
46) Trans deamination
47) P/O Ratio
48) Q Cycle
49)Thermogenesis
50) Ionophores
51) Uncouplers
52) Cyanide poisoning
53) Physiological significance of Uncouplers
54) Inhibitors of respiration
55) Respirasomes

Part-IV

D) **LONG QUESTIONS**.

1. What are shuttles? Give an account of various shuttle systems.
2. Briefly explain the regulation of the mechanism of intermediary metabolism.
3. Give an account of the sequence of reactions and regulation of the Citric acid cycle.
4. Describe the Phosphate pentose pathway and add a note on its functions.
5. Explain the Beta-oxidation pathway of saturated fatty acids of an even number of carbon atoms.
6. Give an account of the biosynthesis of palmitic acid.
7. Give a brief description of the mitochondrial respiratory chain.
8. Give an account of inhibitors and uncouplers of the Electron Transport System.
9. ATP as "energy currency of cell"-Justify
10. Describe the sequence reaction and regulation of glycolysis.
11. Give an account of the citric acid cycle.
12. Give an account on the urea cycle.
13. Explain the Electron Transport system and it's significance.
14. What are the major redox players in the electron transport chain
15. What are Vesicular transport? Explain its various types with examples.
16. Explain the different types of Transport ATPASE with examples.
17. Give an account of the regulatory mechanism of intermediary metabolism.
18. What is glycogenolysis? Discuss the reaction and regulation of the pathway.
19. Define glycogenesis. Explain the reaction and regulation of this pathway.
20. Explain B-oxidation of odd-chain fatty acids.
21. Explain the trans-deamination pathway in the liver.
22. Explain the chemical reactions involved in PLP enzyme-catalyzed transamination.

DERABIS COLLEGE

QUESTION BANK

SUBJECT- ZOOLOGY

PAPER – CORE– XI (MOLECULAR BIOLOGY)

Part-I

A. **Answer the following by filling the blanks or in single sentence**.

1) The scientific name of fruit fly is _____ _____.
2) Nucleic acid was discovered by _____ which he called _____.
3) The transforming principle was identified as _____.
4) The double helical structure of DNA s proposed by Watson and Crick was published in the journal _____.
5) The crystals of yeast RNA^{PHE} was produced by _____.
6) Two categories of macromolecules that are the focus of molecular biologists are _____.
7) O. T. Avery et al., to know the transforming principle, experimented on _____.
8) The genetic code was deciphered by _____.
9) The clover leaf model of tRNA was proposed by _____.
10) The main elements present in proteins are _____.
11) One gene one enzyme hypothesis was put forth by _____ and _____.
12) The name of the organism whose complete sentence of genome was mapped in 1995 is _____.
13) The segment of DNA that specifies a particular cellular function is known as _____.
14) Hershey and Chase worked on the organism _____.
15) Fraenkel-Conrat worked on the virus _____.
16) The first genetic linkage map of the fruit fly was produced by _____.
17) The complete sequence of the human genome was published in _____.
18) The transforming factor or principle is _____.
19) The in virto experiment on Pneumococcus was conducted by _____.
20) Fraenkel- Conrat experimented on a hybrid or reconstituted virus produced from _____.
21) The number of hydrogen bonds between guanine and cytosine is _____.
22) The orientation of adjacent nucleotides is _____ in Z-DNA.
23) R L Mode of DNA was proposed by _____.
24) Wound tumor virus has _____ stranded RNA.
25) The linking number of DNA determines the degree of _____.
26) The plasmid in bacteria is a circular _____.
27) In phl(ϕ) x 174 phage, the DNA is _____.
28) In eukaryotes the genes are split due to the presence of _____ and _____.
29) Cytoplasmic male sterility is controlled by _____DNA.

30) A micro RNA molecule contains about _____ nucleotides.
31) In human beings ,the length of DNA is about _____.
32) The sequence of sense strand of DNA is same as that of _____.
33) The number of base pair/turn is 12 in _____.
34) Reverse transcriptase enzyme in viruses is _____.
35) The DNA topology equation is _____.
36) Topoisomerases are associated with the topological features of _____.
37) Prokaryotic DNA has _____.
38) During splicing _____.
39) A solenoid model contains _____.
40) Meselson and Stahl took heavy isotopes of _____ in their experiment.
41) Semi-conservative replication of DNA in the broad bean was reported by _____.
42) John F. Cairns used the technique of _____ to demonstrate semi conservation replication of bacterial DNA.
43) The generation time of E. Coli is _____.
44) The eureka enzyme DNA polymerase was discovered by _____.
45) The rate of prokaryotic DNA polymerase was discovered by _____.
46) Theta mode of DNA replication was discovered by _____.
47) Okazaki fragments are joined by the enzyme _____.
48) DNA replication is _____.
49) J. Cairns prepared autoradiographs by using _____.
50) The new strand of DNA is replicated in _____.
51) According to R. Okazaki DNA replication is _____.
52) RNA primers are synthesized with the help of _____.
53) In prokaryotes, during DNA replication, the new successive nucleotides are joined by _____.
54) In eukaryotes, after DNA replication, the RNA primers are removed by _____.
55) The number of nucleotides present in an Okazaki fragment in prokaryotes is about _____.
56) A licensing factor allows _____.
57) The D-loop model of DNA replication s observed in _____.
58) One cistron-one polypeptide hypothesis was proposed by some using on the work of _____.
59) The central dogma of molecular biology was proposed by _____.
60) Reverse transcriptase is _____ directed _____ polymerase.
61) Brenner, Jacob and Meselson took heavy isotopes of _____ and _____ for their experiment.
62) The triplet nature of genetic code was first revealed by _____.
63) Poly-uracil RNA codes for only the amino acid _____.
64) Apart from AUG, the start codon may be _____ in prokaryotes.
65) UAG, normally a stop codon , encodes for _____ in mitrochondria of Drosophila.
66) The genetic code is always read in the _____ direction of the mRNA.
67) _____ first explained wobble hypothesis.
68) Arginine is synthesized from _____.
69) Reverse transcription in same viruses was discovered by _____.

70) If the sequence of bases in a DNA codon is TGA, then its sequence in the corresponding anticodon would be _____.
71) Poly-cytosine RNA sequence codes for only _____.
72) For deciphening the genetic code, the 1968 Nobel prize in physiology or medicine was awarded to _____.
73) Three amino acids are encoded by six different codons. These are _____.
74) In archaea and eubacteria, a separate amino acid, pyrrolysine, sometimes may be present encoded by a stop codon _____.
75) More than one codon may specify the same amino acid. It is called _____.
76) For the molecular basis of eukaryotic transcription, _____ obtained the Nobel prize in chemistry in 2006.
77) RNA polymerase is more correctly _____ dependent _____ polymerase.
78) In prokaryotes RNA polymerase has a _____ factor for recognizing the start signal of transcription.
79) The promoter region of DNA for transcription is rich in _____.
80) During the elongation of the RNA chain, RNA polymerase moves along the DNA template with the help of a protein factor called _____.
81) A cap of _____ is added as the 5' end of mRNA.
82) _____ is an inhibitor of transcription.
83) In prokaryotes, the termination region for transcription consists of a symmetrical inverted repeat of a _____ sequence.
84) In eukaryotes, mRNA is synthesized by the enzyme _____.
85) TATA box was discovered by _____.
86) In eukaryotes, the recognition and initiation factor/factors for transcription is/are _____.
87) The transcription bubble consists of _____.
88) The antisense strand of DNA is read by RNA polymerase during transcription from the _____.
89) RNA transcript is separated from the DNA template by _____.
90) The primary 45 S rRNA is cleaved by the enzyme _____.
91) The holoenzyme molecule of RNA polymerase in prokaryotes has a total of _____.
92) In prokaryotes, the open promoter complex for transcription is produced by unwinding of DNA by _____.
93) The Pribnow box in prokaryotes is located approximately by _____ base pairs upstream of the transcription site.
94) The name of the enzyme present in nucleolus that synthesizes rRNAs except 5S RNA is _____.
95) The number of transcription factors in archaea are _____.
96) Split gene was discovered by _____ and _____.
97) The hemoglobin of blood consists of 2 _____ and 2 _____ subunits.
98) Each spliceosome is composed of _____ number of snRNA.
99) The tRNA splicing occurs in the _____ in eukaryotes.
100) Group I introns are large _____ ribozymes.
101) Alternative splicing results in a single gene coding for _____ proteins.

102)In most mammalian pre-mRNAs, an exon may be spliced out of the primary transcript which is known as _____.

103)_____ protects mRNA from degradation by exonucleases.

104)Sidney Altman et al. in 1983, isolated an enzyme called _____ which is responsible for converting a precursor tRNA into the active tRNA.

105)Exon shuffling is a molecular mechanism for the formation of _____.

106)Poly A tail is attached at the _____.

107)Split genes consist of _____.

108)Beta-thalassemia is caused by/due to _____.

109)During RNA splicing the introns is released as a covalently-bonded circular structure with a short tail, known as _____.

110) Self–splicing occurs for rare introns that form a _____.

111) In yeast, tRNA splicing endonuclease hetero-tetramer cleaves pre-tRNA to form _____.

112) In yeast, the joining of both tRNA half molecules is known as _____.

113) The process by which a given gene is spliced into more than one type of mRNA molecule is called _____.

114) The spliceosome is assembled from _____.

115) _____ discovered that the existence of introns could play a major role in the evolution of proteins.

116) There are _____ different kinds of protein molecules present in all the living organisms today.

117) There are as many as _____ ribosomes in an ordinary plant cell.

118) Prokaryotic ribosomes are composed of _____ percent of rRNA and _____ present of ribosomal proteins.

119) The sedimentation constant of large and small subunits of eukaryotic ribosome are _____ and _____ respectively making the whole ribosome of _____.

120) Association of eukaryotic ribosomal subunits is dependent on _____ ion concentration to produce the dimer.

121) A complete ribosome has two sites i.e., A site meant for _____ and P site for _____.

122) The mRNA stored in lotus seeds can even survive for _____ years.

123) The charged tRNA is formed during translation by the action of the enzyme _____.

124) The rate of tryptophan synthesis in E. coli is _____ amino acids/second.

125) The number of energy-rich molecules required for one peptide bond formation is _____.

126) The site of protein synthesis is _____.

127) The 50 S subunit of prokaryotic ribosome is composed of _____.

128) In prokaryotic cells, ribosomes are _____.

129) If the sequence of bases in the mRNA codon is CAU, then its sequence in the corresponding anticodon will be _____.

130) The mRNA was discovered by _____.

131) The Shine-Dalgarno sequence in bacterial mRNA is _____.

132) The initiation complex I of translation is formed by the hydrolysis of _____.

133) During elongation of peptide chain in translation the peptide bonds are formed by the enzyme _____.
134) To achieve the biologically active form, the primary structure of a polypeptide must undergo folding into its proper three-dimensional structure with the help of a special protein called _____.
135) The release factors involved in termination of the polypeptide in prokaryotes are _____.
136) DNA is typically methylated by _____ enzyme.
137) 3'- UTR of mRNA often certain both binding sites for miRNA as well as for _____.
138) _____ operon is an example of repressible operon system.
139) The male house-keeping genes are present in _____ chromosomes.
140) The protein ubiquitin has features of a _____ protein.
141) Androgen is a _____ hormone.
142) The Met box having the sequence AGACGTCT is a _____ which allows the same sequence to be recognized on either strand of the DNA.
143) Insulators block activation by _____.
144) RNA interference was discovered by _____ and _____.
145) Silencing RNA is a class of _____ stranded RNA molecules, _____ base pairs in length.
146) The lac operon in E. coli was discovered by _____.
147) When the trp operon is off, the regulator gene produces _____.
148) In trp operon, tryptophan is an _____.
149) The gene-battery model for unit of transcription was proposed by _____.
150) _____ is not a function of heat shock of protein.
151) The posterior pituitary gland secretes _____.
152) An antisense RNA is complementary to _____.
153) A micro RNA is _____.
154) Small interfering RNA was first discovered in plants by _____.
155) Ribozymes are _____.
156) Which pyrimidine base contains an amino group at carbon 4?
157) Two strands in a DNA double is joined by _____.
158) A nucleotide consists of _____.
159) Semi-conservative DNA replication was first demonstrated in _____.
160) Which enzyme separates the two standards of DNA during replication?
161) Transcription is the transfer of genetic information from _____.
162) One end of tRNA matches genetic code in three- nucleotide sequences known as _____.
163) RISC stands for _____.
164) The miRNAs are transcribed from non-protein encoding genes and are typically _____ nucleotides long.
165) Stem loop precursors are generally seen in _____.

ANSWERS:-

1)Drosophila melanogaster	**2) Friedrich Miescher**

3) DNA	**4) Nature**
5) Kim et al.	**6) Nucleic acids and proteins**
7) Pneumococcus	**8) Har Gobind Khorana et al.**
9) Holley et al.	**10) C H N O S**
11)Beadle and tatum	**12) Haemophilus influenza**
13)Cistron	**14)T2 phage**
15)TMV	**16) Sturtevant and Morga**
17)2003	**18) DNA**
19)Avery, MacLeod and McCarty	**20) TMV and HRV**
21)3	**22) Opposite**
23) V. Sasisekharan et al.	**24)Double**
25)Super coiling	**26) dsDNA**
27) Single stranded	**28)Introns, exons**
29) Mitochondrial	**30)22**
31)2.2m	**32) mRNA**
33) Z- DNA	**34) RNA-directed DNA polymerase**
35) Lk = Tw + Wr	**36) dsDNA**
37) Low G-C content	**38) Introns are removed and exons are joined together**
39) Six nucleosomes per turn	**40) Nitrogen**
41) Taylor et al	**42) Autoradiography**
43) 30 minutes	**44) Arthur Kornberg**
45) 2000	**46) John Cairns**
47) DNA ligase	**48) semi conservative**
49) tritiated thymidine	**50) 5' ⟶ 3' direction**
51) continuous on one strand and discontinuous on the other strand	**52) primase**
53) DNA polymerase III	**54) polymerase δ**
55) 1000-2000	**56) an origin of replication**
57) mitochondrial DNA	**58) Benzer**
59) F. H. C . Crick	**60) RNA , DNA**
61) carbon and nitrogen	**62) Nirenberg and leder**
63) phenylalanine	**64) GUG**
65) tryptophan	**66) 5'⟶ 3'**
67) F. H. C. Crick	**68) ornithine**
69) Temin and Baltimore	**70) ACU**
71) proline	**72) Khorana, Holley and Nirenberg**
73) serine, leucine and arginine	**74) UGA**
75) degeneracy of the code	**76) R. D. Kornberg**
77) DNA, RNA	**78) Sigma**
79) A- T	**80) Nus P protein**
81) 7-mg	**82) rifampicin**
83) G- C rich	**84) RNA polymerase**
85)Hogness	**86) TF II and TF III factors**
87)14 base pairs	**88) 3' end to 5' end**

89)Rho factor	**90)Ribonuclease P**
91)5 sub units	**92)15 bases**
93)10 to 35 bp	**94)RNA polymerase I**
95)3	**96)Richard J. Roberts, Phillip A. Sharp**
97)Alpha globin, beta globin	**98)five**
99)nucleolus	**100) self - splicing**
101)multiple	**102)exon skipping**
103)poly A tail	**104)RNse-P**
105)new genes	**106)3' end of RNA**
107)both introns and exons	**108)splicing error**
109) Iariat	**110) ribozyme**
111)both 3'-half tRNA and 5'-half tRNA	**112) baroque reaction**
113)alternative splicing	**114)snRNAs and protein complexes**
115) Walter Gilbert	**116)10^{11}**
117)5 Lakh	**118)65%, 35%**
119) 60 S, 40 S, 80 S	**120)Mg^{+2}**
121)aminoacyl attachment, peptide bond formation	**122)1700 yeas Peptidyl transferase**
123) 1700 yeas	**124) 7**
125)3	**126)ribosome**
127)5 S and 23 S rRNA and L proteins	**128)free**
129) GUA	**130)Jacob, Brenner and Meselson**
131)5' AGGAGG 3'	**132)1 molecule of GTP**
133)peptidyl transferase	**134)molecular chaperones**
135)RF1, RF2 and RF3	**136) methyl transferse**
137)regulatory protein	**138) Trp**
139)Y	**140)heat shock**
141)steroid/sex	**142)palindrome**
143)enhancers	**144)Andrew Fire, Craig Mello**
145)double,20-25	**146)Jacob and Monod**
147)aporepressor-corepressor complex	**148)amino acid**
149) Britten and Davidson	**150) Apical dominance**
151) vasopressin an oxytocin	**152)mRNA**
153) a small non coding RNA	**154) David Baulcombe et al.**
155) catalytic RNA molecules	**156) Cytosine**
157) hydrogen bonds	**158) Sugar molecule, nitrogenous molecule and phosphate group**
159) Matthew Meselson and Franklin Stahl	**160) DNA helicases**
161) DNA to RNA	**162) Anticodon**
163) RNA-induced silencing complex	**164) 20-25 nucleotides**
165) mi RNA	

Part-II

B. Answer the following or write very short notes on given term.

1) Chargaff's rules
2) Functions of DNA
3) Clover-leaf model
4) Euchromatin
5) Nucleosome
6) Heterochromatin
7) What is phosphodiester linkage?
8) How template strand is different from the coding strand?
9) What is the main role of DNA topoisomerase?
10) DNA polymerases
11) Reverse transcriptase
12) DNA ligase
13) Ori site
14) Primase
15) Topoisomerase
16) One gene-one enzyme theory
17) Central dogma
18) Termination codons
19) Overlapping and non-overlapping code
20) What is cistron?
21) Transcription bubble
22) RNA-dependent DNA polymerase
23) Termination of transcription
24) What is a capping of mRNA?
25) What is a palindromic sequence? Give one example.
26) Lariat intron
27) hnRNA
28) Eukaryotic mRNA
29) Initiation of translation
30) Termination of translation
31) Fidelity of translation
32) Promoter gene
33) Structural genes
34) Regulator gene
35) Histone code hypothesis
36) Ribozymes in gene silencing
37) Steroid hormones in gene regulation
38) Differentiate between enhancers and silencers
39) Differentiate between activators and repressors

40) What is the role of silencer in the process of transcription ?
41) Four important stages of gene regulation
42) TATA box
43) Pribnow box
44) Triplet code
45) Genetic code
46) What is oriC?
47) What is the lagging strand and leading strand?
48) Write down the function of the Single-Strand-Binding (SSB) protein.
49) What is telomerase?
50) Write down the role of the TATA box.
51) What is siRNA?
52) What is the function of a spliceosome?
53) What is the central dogma?
54) What is junk DNA called?
55) What is the function of the Lac permease protein?

Part-III

C. Answer the following or write short notes on a given term.

1) B-DNA
2) Supercoiling of DNA
3) Denaturation of DNA
4) What is Baltimore's classification system for viruses?
5) What is the chemical composition of chromatin?
6) What is micro RNA?
7) Differentiate between DNA and RNA.
8) Differentiate between B-DNA and Z-DNA
9) Differentiate between Euchromatin and heterochromatin
10) Differentiate between denaturation and renaturation of DNA
11) Differentiate between linear and circular DNA
12) Differentiate between sense and anti-sense strands of DNA
13) Pyrimidine dimerization
14) Leading strand
15) RNA priming
16) Kornberg's discovery
17) Okazaki fragment
18) Lagging strand
19) Leading strand
20) Theta mode of replication
21) Telomerase
22) Rolling circle model
23) Telomeric replication
24) Telomere loop
25) Differentiate between D-loop and T-loop
26) Differentiate between unidirectional and bidirectional DNA replication

27) Differentiate between leading and lagging strand
28) Adaptor hypothesis
29) Wobble hypothesis
30) Anticodon
31) Degeneracy of genetic code
32) University of genetic code
33) Non-ambiguity of the code
34) Transcription unit
35) Transcription factors in eukaryotes
36) CAAT box
37) GC box
38) Pribnow box
39) Transcription factories
40) Differentiate between replication and transcription
41) Differentiate between prokaryotic and eukaryotic transcription
42) Silencer
43) Enhancer
44) Cistron
45) RNA polymerase in prokaryotes
46) RNA polymerase in eukaryotes
47) Split gene
48) Spliceosome
49) Group II intron splicing
50) Poly A tail
51) Self-splicing
52) Alternative splicing
53) Exon shuffling
54) Group I intron splicing
55) 5' cap addition
56) Polyadenylation
57) RNA editing
58) Differentiate between intron and exon
59) Differentiate between self-splicing and alternative splicing
60) Differentiate between ribozyme and ribosome
61) Structure of ribosome
62) Polyribosomes
63) Charging tRNA
64) Molecular chaperones
65) 43S pre-initiation complex
66) Inhibitors of protein synthesis
67) Anticodon-codon interaction
68) Aminoacyl-tRNA synthetases
69) Ternary complex
70) Kozak's scanning hypothesis
71) What is the Shine-Dalgarno sequence?
72) Svedberg unit

73) Charging of tRNA
74) Fidleity of translation
75) trp operon
76) lac operon
77) Transcription factors for gene regulation
78) RISC
79) Activators
80) Regulator gene
81) siRNA
82) miRNA
83) RNA interference
84) Genetic imprinting
85) Met operon
86) Antisense RNA
87) RNAi silencing
88) Riboswitches
89) Position effect
90) House-keeping genes
91) Differentiate between inducible and repressible operons
92) Differentiate between positive and negative control of gene regulation
93) Differentiate between miRNA and siRNA
94) Differentiate between regulator and operator gene
95) Differentiate between lac operon and trp operon
96) What is DNA methylation?
97) What is the function of the Okazaki fragments?
98) What are the two major functions of tRNA ?
99) What are the protein synthesis inhibitors and its uses?
100) What are the disadvantages of RNA editing?
101) What is Inducible operon?
102) What is the role of telomeres in DNA replication?
103) What is the difference between alternative splicing and exon shuffling?
104) What are the three post-transcriptional modifications?
105) What are components of replisome?

Part-IV

D.

1) Describe the mechanism of DNA replication in eukaryotes.
2) Give an account of origin of genetic code.
3) Give an account of transcripton in prokaryotes.
4) Describe various splicing pathways.
5) What are ribozymes? Describe the structure and function of ribozymes.
6) Describe translation in eukaryotes.
7) Discuss the post-translational modification of proteins.
8) Describe the regulation of tryptophan synthesis in the prokaryotes.

9) Discuss in a comparative way lac operon and trp operon.
10) Give a brief account of gene silencing in eukaryotes.
11) Give an account of RNA interference.
12) What do you mean by riboswitches? Discuss their role in gene regulation.
13) Discuss the DNA replication in prokaryotes with suitable diagram.
14) How Cot curves of nucleic acid is determined and write its significance.
15) Write down about the tRNA charging, initiation, elongation and termination during translation mechanism.
16) Describe about eukaryotic transcription and its regulation.
17) Discuss the process of RNA editing.
18) Describe the alternative splicing mechanism with examples.
19) Describe the gene silencing advantages and disadvantages with example?
20) What is the potential functions of microRNA asbiomarkers and therapeutic targets?

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QUESTION BANK

SUBJECT- ZOOLOGY
PAPER– CORE – XII (GENETICS)

Part-I

A**. Fill in the blanks/answer in a single sentence**.

1) Name the genes located on the Y-chromosome.
2) Who discovered ABO blood groups in man?
3) Inheritance of baldness in man is an example of which types of genes?
4) How many linkage groups are present in man?
5) Who proposed the precocity theory of meiosis?
6) Name the nuclear enzyme responsible for the breakage of chromatid at chiasma.
7) Name an insect which shows complete linkage?
8) Monosomy is depicted by _____.
9) UV rays produce _____ type of radiations.
10) What type of polyploidy is observed in *Raphano brassica*?
11) Cat cry syndrome is caused by deletion of short arm of which chromosome?
12) Who developed the SIB method of mutation defection?
13) Barr bodies are absent in which sex?
14) According to genic balance theory X/A=1.5, the Drosophila individual will be _____.
15) Which cytoplasmic particle carries DNA in animals?
16) Name the particle responsible for sensitivity to CO_2 in Drosophila.
17) Name the toxic substance secreted by the Killer strain of Paramecium aurelia to destroy other races.
18) Uniparental inheritance is observed in _____inheritance.
19) Give the full form of Hfr.
20) The extra chromosomal genetic material in a plasmid is called as _____.
21) Gene transfer in bacteria produce partial zygotes called _____.
22) Clear areas of agar plates containing phage particles as well as bacteria are called _____.
23) Give the name of the mobile genes in Drosophila identified by David Hogness his colleagues in 1975.
24) Phage Mu is considered as a _____ agent.
25) What is the name of bacterial wild type.
26) The nutritional mutants in bacteria are referred to as _____.
27) Extrachromosomal inheritance is controlled by _____.
28) For the most parts of its life cycle, Chlamydomonas exists in _____state.
29) Sex-determining chromosomes are called _____.
30) Free martinism is an example of the role of _____ in sex determination.
31) De Vries first described mutation in which plant.
32) _____ mutations the normal base triplet or codon is changed.

33) Widely separated genes show _____linkage as they are easily separated by crossing over.
34) _____ is the most frequently used fusigenic agent for inducing cell fusion.
35) Brachyury lethal in mice affect _____length of mice.
36) Mosaic inheritance in coat colour in short horned cattle is an example of _____.
37) Incomplete dominance was discovered by _____.
38) The two alternative of a factor or gene is called as what?
39) Down's syndrome is an example of _____ in man.
40) Name the ability of a molecule to exist in more than one chemical form.
41) Law of Segregation on is also known as _____ gamete.
42) The Insertion Sequence (IS-Elements) are the simplest form of transposable elements found in _____.
43) _____ is a syndrome that affects the offspring of crosses involving different strains of the same species.
44) Bacterial Conjugation between F^+ and F^-results in the formation of merozygotes which are partial diploids. The use of F^+elements to create partial diploid is called _____.
45) Strength of linkage is related inversely to distance between _____.
46) Synaptonemal Complex is a _____.
47) The graphic representation of genes is known as _____.
48) The ratio 9:3:4 occurs during inheritance of _____ genes.
49) Linkage groups in maize are _____.
50) The spontaneous isomerization of a base to an alternative hydrogen bonding is called a _____.
51) 5-bromouracil has chemical structure similar to _____.
52) _____ and _____ cause determination of nitrogenous bases by replacing amino group by hydroxyl group.
53) Ethyl methane Sulphonate (EMS) is a chemical mutagen, it is a _____.
54) The two members of each homologous Pair are identical or similar in appearance are called _____.
55) X: A ratio (1.50) are responsible for activating the feminizing switch gene called _____.
56) Absence of antihemophilic globulin causes _____ disease.
57) When a carrier woman marries a Haemophilic man produces _____ sons and _____ daughters.
58) Cock feathering is _____ gene.
59) XY sex chromosomes were discovered by _____.
60) Inheritance human skin colour is an example of which type of inheritance?
61) When the expression of a character is influenced by the genotype of the female parent is referred to as _____.
62) Coiling pattern of shell in Snail (*Limna caperegro*), dextral coiling behavior governed by _____ and Sinistral by _____ respectively.
63) A dominant allele K controls the production of _____ a hormone-like substance that is the precursor of black pigment.
64) The effect of maternal genotype on the coiling behavior of water snails was studied by _____.
65) When an animal has both the characters of male and female it is called _____.

66) X-Chromosome inactivation is interpreted in terms of a phenomenon called _____.
67) The type of which inheritance in a sex-linked gene is inherited from grandfather to grandson through daughter is called _____.
68) XY-linked genes are also called _____.
69) Sex-limited genes are controlled by _____.
70) The term polygene was introduced by _____.
71) Sm 2 genotype is resistant to _____ and located in _____.
72) Uniparental inheritance is observed in _____ inheritance.
73) A plasmid that can integrate into the main bacterial chromosome is called _____.
74) Colour blindness was first studied by _____.
75) Chimaeras arise due to _____ of sex chromosomes during mitosis.
76) Drones develop _____ from the eggs.
77) When the effect of one mutation is suppressed by another mutation is called _____.
78) A mutation in a gene is suppressed by another mutation in same gene is called _____.
79) In a mutational event, when adenine is replaced by guanine called _____.
80) The action of UV radiation on DNA to induce mutation is _____.
81) In E. coli mismatches are detected by which repair protein?
82) What is the detection technique of autotrophs?
83) Sickel cell anemia is a result of _____ mutation in which, single amino acid substitution of valine for Glutamic acid in the beta chain.
84) What is the substitution of a Purine base with a Pyrimidine base known as?
85) Polyploidy is induced by treatment with an aqueous solution of a drug called _____.
86) *Raphano brassica* is an example of _____.
87) _____ is the addition of one or more chromosomes to the diploid genome of an organism.
88) Monosomy and Nullisomy are examples _____.
89) _____ are cells or individuals with a one complete basic set of chromosomes (X)of multiplies of the basic set.
90) _____ is one of in which effectively the whole of chromosome is joined end with another.
91) Fusion of two acrocentric human chromosomes 13 & 14 are example _____.
92) Philadelphia chromosome is an example of _____.
93) Replacement of one purine in a polynucleotide chain by another Purine and correspondingly one Pyrimidine by another Pyrimidine is called _____.
94) _____&_____ not usaul base analogues in E.coli.
95) Ethyl methane Sulphonate (EMS),Methyl methane Sulphonate (MMS), Ethyl imines (EI), Sulphur mustard, Nitrogen mustard are _____ agents and produces mutation by changing _____.
96) Hydroxylamine is a mutagen by changing _____ transition.
97) _____ discovered the Genic Balance Theory.
98) Neurospora, Chlamydomonas, Yeast, Aspargus, and Drosophila, Maize shows _____.
99) Pedigree study of hemophilia was studied by _____.
100) In which syndrome males have a bar body?

ANSWERS:-

1)Holandric gene	**51)Thymine**
2)Correns	**52)Nitrous oxide and Hydroxylamine**
3)Sex influenced genes	**53)Alkylating agent**
4)23	**54)Homomorphic chromosome**
5)C-D –Darligton	**55)Sex lethal**
6) Endonuclease	**56) Haemophilia-A**
7)Male drosophilia	**57)25% carrier daughter, 25% Haemophilic daughter ,25% normal son & 25% Haemophilic son**
8) 2n-1	**58)Sex linked gene**
9)Non-ionizing radiation	**59)Nettic Stevens**
10)Allopolyploidy	**60)Polygenic**
11)Chromosomes	**61)Maternal effect**
12) H. J. Muller	**62)D & d**
13)Male	**63)Kynurenine**
14)Super female	**64)Sturtevant**
15) Mitochondria	**65)Gynondromorph**
16)Sigma	**66)Dosage compensation**
17)Paramecin	**67)Criss-cross inheritance**
18)Cytoplasmic	**68)Pseudoautosomal genes**
19)High frequency recombination	**69)Secondary sexual character**
20)F-factor	**70)Mather**
21)Merozygotes	**71)Streptomycin and Chloroplast DNA**
22)Plaques	**72)Cytoplasmic**
23)Copia	**73)Episome**
24)Transposon	**74)Horner**
25)Prototrophs	**75)Nondisjunction**
26)Axuotrophs	**76)Parthenogenetically**
27)Cytoplasmic genes	**77)Suppressor mutation**
28)Haploid	**78)Intragenic mutation**
29)Heterosomes	**79)Transition**
30)Hormones	**80)Formation of thymine dimmers**
31)Evening Primrose	**81)Mut S**
32)Frameshift mutation	**82)Replica plating**
33)Weak linkage	**83)Point mutation**
34)Polyethylene glycol	**84)Transversion**
35)Tail	**85)Colchicine**
36)Codominance	**86)Allo polyploidy**
37)Carl Correns	**87)Hyperploidy**
38)Allele	**88)Aneuploidy**
39)Trisomy	**89)Euploidy**
40)Tautomerism	**90)Robert sonian translocation**
41)Purity of gametes	**91) Robert sonian translocation**
42)Prokaryotes	**92)Non-reciprocal translocation**
43)Hybrid dysgenesis	**93)Transition**

44)Sex duction	**94)5-hydroxymethyl Cytosine & 5-glucosyl hydroxymethyl cytosine**
45)Genes	**95)Alkylating agents and hydrogen bonding**
46)tripartite protein frame work	**96)GC AT transition**
47)Chromosome map	**97)Bridge**
48)Supplementary genes	**98)Single gene effect**
49)10	**99)Haldane**
50)Tautomeric shift	**100)Klinfilter's syndrome**

Part-II

B. Very Short Notes.

1) What is Pleiotropy, cite an example.
2) What is a semi-dominant trait?
3) What is the example of polygenic inheritance in humans?
4) What is polyploidy and aneuploidy?
5) What is TDF in the human Y chromosome?
6) What is multiple allele?
7) What are episomes in viruses?
8) What is complete linkage?
9) What is the P element in drosophila?
10) What are the examples of extrachromosomal inheritance?
11) Law of free recombination
12) Conditional lethal
13) Recessive Epistasis
14) Codominance
15) Dominant Epistasis
16) Pleiotropy
17) Complete lethal
18) Conditional lethal
19) Characteristics of sex-linked inheritance
20) Holandric genes.
21) Bleeder's Disease
22) Multiple alleles.
23) Difference between Test cross and Back cross
24) Chromosomal theory of linkage
25) Cis-arrangement linked genes
26) Trans arrangement of linked genes
27) Factors affecting the Strength of linkage.
28) Synaptonemal complex.
29) Characteristics of crossing over
30) Significance of crossing over
31) Coupling and repulsion of linkage
32) Silent mutation
33) Missense mutation.
34) Paracentric Inversion.

35) Pericentric Inversion
36) Robertsonian translocation
37) Distinguish between Forward and Reverse mutation.
38) Gynandromorphs in Drosophila
39) ZZ-ZW Sex chromosome mechanism
40) Semi dominant trait
41) TDF in Y-chromosome
42) Double sex - Switch gene
43) Polygenic inheritance
44) Episomes in viruses
45) Extra Chromosomal inheritance.
46) Delayed Mendelian inheritance
47) Kynurenine
48) Kappa particles
49) P elements in drosophila
50) Jumping gene
51) Retrotransposon
52) Difference between Autotrophs and Prototrophs
53) F' Factor
54) High-frequency recombination
55) Exconjugants
56) Is elements
57) Plasmid.
58) Competence factor in bacterial transformation
59) Site-specific recombination
60) TN-Elements.
61) Retrotransposon
62) Integron
63) Mutagen
64) What is Ac-Ds System
65) LINE
66) SINE
67) Define Coincidence

Part-III

C. Short Notes.

1) What causes epigenetic inheritance?
2) What is the purpose of crossing over in meiosis?
3) What causes chromosomal recombination?
4) What is mutagen? Cite example.
5) What does the SRY gene do in humans?
6) What is the Lyon's hypothesis?
7) Write down the role of Col plasmids.
8) What the CIB method in Drosophila is used for?

9) What is the frameshift mutations?
10) Why the complementation tests only work with recessive mutants?
11) Role of Ac-Ds elements in maize.
12) P-Elements in drosophila
13) Complementation test in bacteriophage.
14) Difference between Generalised and Specialised transduction
15) Inheritance of antibiotic resistance in Chlamydomonas
16) Transmission of Kappa particles in Paramecium.
17) Difference between Maternal effects and Cytoplasmic inheritance
18) Maternal effect
19) Lyon's hypotheses
20) Genic Balance theory of sex determination in Drosophila
21) Sex influenced inheritance
22) Sex limited characters
23) Free Martinism
24) Difference between Spontaneous and Induced Mutation
25) Difference between Autopolyploidy, and Allopolyploidy
26) CIB Method
27) Attached X-Method
28) Frame Shift Mutations
29) Deamination.
30) Base Analogues
31) Nullisomy
32) Aneuploidy
33) Alloploidy
34) Deletion
35) Difference between linkage and crossing over
36) Application of Somatic Cell Hybridisation
37) RFLP
38) Recombination frequency
39) Sigma particle in Drosophila
40) Plastid inheritance in Mirabilis
41) Conjugative Transposons.
42) Inheritance antibiotic resistance Chlamydomonas
43) Delayed Mendelian Inheritance
44) Causes of Epigenetic inheritance
45) Causes of Chromosomal recombination

Part-IV

D. Long questions.

1) What are the four stages of crossing over? Describe the stages with suitable diagram.
2) Discuss different types of structural chromosomal aberrations. Write a note on Down's syndrome.
3) Discuss about the sex linked inheritance with example.

4) What are the main causes of mutations? What is forward mutation and backward mutation?
5) What are the main characteristics of extranuclear inheritance? Discuss the X-chromosome dosage compensation in human.
6) Briefly discuss about the significance of streptomycin resistance in Chlamydomonas? Write a note on mitochondrial mutation in Saccharomyces.
7) What are the steps of conjugation in bacteria? Discuss bacterial conjugation with a suitable diagram.
8) What are transposons and describe their function? How do transposons affect human health?
9) Discuss the sex-linked inheritance with examples.
10) Define Linkage. Discuss Incomplete and complete linkage with examples.
11) Describe Somatic cell hybridization.
12) Explain the laws of inheritance.
13) What is crossing over? What are the four stages of crossing over? Describe the stages with a suitable diagram.
14) What is Mutagen? Describe the mode of action of alkylating agents, base analogs and acridine dyes as a chemical mutagen.
15) What is Chromosomal aberration? Describe structural Chromosomal aberration.
16) What is Mutation? Discuss the molecular basis of mutations.
17) What is Mutation? Discuss the Detection of mutations
18) Discuss the Sex determination in Drosophila.
19) What is Extra Chromosomal inheritance? Describe how the Coiling pattern of shell in Snail demonstrates the maternal effect.
20) Discuss the significance of Streptomycin resistance in Chlamydomonas. Write a note on Mitochondrial mutation in Saccharomyces.
21) What are transposons and describe its function? How do transposons affect human health?
22) What are the steps of Conjugation in bacteria? Discuss bacterial Conjugation with a Suitable diagram.
23) Write a note about the Ac-Ds element in maize and P-elements in Drosophila.
24) What is Sex determination? Discuss the Chromosomal basis of sex determination in humans.
25) Describe the molecular basis of mutations due to UV light.

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QUESTION BANK
SUBJECT- ZOOLOGY
PAPER- CORE- XIII (DEVELOPMENTAL BIOLOGY)

Part-I

A) **Answer in one word**.

1) During the development, one spermatogonium produces how many mature sperm cells and one oogonium how many mature egg cells?
2) "During Onto genic development of an animal the entire racial history" is repeated by an _____.
3) Flagella of sperm have _____ arrangement.
4) Spermiogenesis changes from _____ to _____.
5) In Spermatogenesis the phase of maturation involves _____.
6) Which of these in the lytic enzyme that is released by sperm?
7) The process of spermatogenesis occurs for _____ in adult humans.
8) What is the process of release of sperms from Sertoli cells?
9) If liberated ovum fertilized _____ form and if not _____ form.
10) What is the stage of the cell cycle at which primary oocytes are arrested?
11) The membrane surrounding the secondary oocyte is _____.
12) Ovary is suspended from dorsal abdominal wall by _____ and each ovary is attached to uterus by _____.
13) Cortex and Medulla of ovary is made of which connective tissues?
14) Antrum is filled with which viscous fluid?
15) Vitellogenesis is _____.
16) Lamp brush chromosomes helps in the formation of which material?
17) Primary oocytes surrounded by more layers of granulosa to form _____ and Primary follicles surrounded by granulosa cells and finally changed to _____.
18) The process by which spermatozoa become capable of going through acrosome reaction and fertilising an ovum is called_____.
19) Sperm chemo attractants of amphibians, Ascidians, Mollusca, Sea urchins, and Starfish is _____, _____, _____, _____, _____ respectively.
20) Fertilizin located on _____ and antifertilizin on _____.
21) Fertilizin reacts with antifertilizin by_____ system.
22) The cytoplasm of egg bulger forward at the point of producing a projection of hyaline cytoplasm called _____.
23) _____ said "Periacrosomal material is responsible for activation of egg".
24) The Cortical reaction leads to _____and enzyme released by cortical granules digest sperm receptor of _____.
25) ZP_2& ZP_3 are _____.
26) Process of fertilisation was first perceived by _____.
27) The process of fusion of male a female pronuclei is known as _____.
28) Which causes the clumping of sperms over the egg surface ?
29) Fertilizin released from egg is _____ in nature.
30) Final event in the process of fertilization is _____.
31) Centriole denoted by sperm to the egg during fertilization is _____.
32) Repressor theory of activation of fertilisation was given by _____.
33) PCL Zeta is introduced into the oocyte by the sperm cell, it cleaves _____.

34) Sperm nucleus moves inward from the site of fertilization cone, it rotates through an _____ angle, so that mitochondria& centriole assume the forward position.
35) When multiple no. of sperms fuse with single egg it is called _____.
36) In Sea urchin resting potential of an egg is -70mv, when sperm contact with egg, its potential become + 20mv due to influx of _____.
37) First block of polyspermy is _____.
38) The rise of Calcium triggers _____ block.
39) When the outermost egg membrane is soft called _____eggs & found in _____.
40) When eggs contain hard and rigid shell membrane called _____ & found in _____.
41) Arthropods, Coelenterates have _____ type of eggs.
42) Echinoderms, Amphioxus have _____eggs.
43) Egg with peripheral cytoplasm around the yolk is _____type of egg.
44) Egg with large amount of yolk is known as ____ eggs.
45) Which embryonic layer gives rise to development of gonads?
46) Where do the Spirally arranged mitochondria around an axial filament?
47) _____type of cleavage found in insects.
48) Discoidal & superficial are which type of cleavage.
49) The spindle in determinate cleavage is _____.
50) An outer envelope of cells in the blastocyst is called _____.
51) Implantation occurs after how many days of fertilisation?
52) In mammalian egg, Cleavage is _____.
53) Each seminiferous tubules is lined on its inside by _____.
54) Leydig cells are present in _____ & secrete _____.
55) Seminal plasma rich in _____.
56) For normal fertility what percent of sperm in ejaculation must exhibit Vigorous motility?
57) When the first two cleavage planes are meridional, third one is verticalbut three first cleavage planes are not right angles to each other is called _____ type of cleavage a found in _____.
58) In Protostome development cleavage is _____ &deuterostome development is _____.
59) Notochord grows from _____.
60) _____ proposed that "fertilised egg & blastomeres tend to divide into equal daughter cells."
61) _____ formulated that "the rate of cleavage in any region of egg is inversely proportional to the amount of yolk it contains."
62) _____ are manufactured in ooplasm& mitochondria by oxidation of yolk,glycogen& other chemical molecule of egg.
63) Fertilised eggs splits into smaller cells called _____.
64) _____ organ is formed during gastrulation.
65) Brain, nerve cells & spinal cord or the CNS develops from ____ embryonic layer.
66) Heart, Blood, Bones, Notochord contains _____ structure.
67) The diagrammatic representation the prospective fate of each part of an early embryo at an early stage ofdevelopment is called _____.
68) Nile blue sulphate, Neutral red & Bismark brown are _____ dyes.
69) Vital dyes are development by _____.
70) _____ marked the blastomeres with carbon particles to draw the fate map of Chick.
71) C14, H3, P32 are _____ markers.
72) _____ stain is frequently used which can be visualized by adding an appropriate substrate for its enzymatic activity.
73) _____ produces red &_____ produces grunt emission can be visualized using fluorescent microscope.

74) _____ & _____ are common of fluorescent dyes.
75) Genetic cell labeling techniques _____ has been employed for cell lineage.
76) _____ are prepared by xenoplastic transplantation using the embryos of quail & Chick.
77) Prospective non neural ectoderm develops to form central nervous system develops to form _____ in animal pole of frog.
78) Presumptive ectodermal, Mesodermal Notochordal& neural cells would to form _____.
79) Fate map of embryo is prepared in _____.
80) The process of rolling over of cells on the blastopore lip is called _____.
81) Prechordal plate cells & the notochordal cells together form a mid dorsal strip on the roof of _____.
82) Extension of micromeres blastulato form future ectoderm of embryo is called _____.
83) The roof of the primitive gut is composed of _____ while the floor& lateral walls are composed of _____.
84) The yolkless blastomeres are retained in superficial layer forms____ a large thin, flat epithelial layer called _____.
85) The process of separation of epiblast& hypoblast forming cells take place by a process called _____.
86) Central area of epiblast appears more transparent due to presence of yolk free cells lying above the blastocoels called& peripheral area of disco blartula is opaque, directly on the yolk is called _____.
87) Anterior end of primitive groove is a mass of closely packed cells called _____ &centre of Hensen's node has a funnel shaped depression called _____.
88) Prechordal plate cells &notochordal cells areproliferated from _____.
89) The embryonic tissue which exerts inductive influence is called _____ & chemical s substance that is emittedby inductor called _____.
90) The tissue on which the evocator of inductor acts is known as _____.
91) When induction Stimuli produced by blastomere cells of gartsula stage cause differentiation of some type of organ is called _____ & induction stimuli is secreted by blastomeres of gastrula cause formation of different type of organs called _____.
92) Transplantation of a piece of an embryo a moving it to another location on the same embryo is called _____.
93) Transplantation of a piece of tissue from one embryo to another embryo of the same species is called _____.
94) Transplantation of tissues from one body to another body of the same genus is called _____ & different genus is called _____.
95) Which embryonic process formation of notochord?
96) For which discovery, Spemann was awarded Nobel prize in 1935?
97) Egg nucleus of frog is otherwise Known as _____.
98) The type of blastula in amphibians. Containing micromeres & macromeres is known as _____.
99) In amphibians, fertilised egg grey crescent act as _____.
100) In amphibians, early gastrula stage _____ function as organizer.
101) In amphibians, late gastrula stage Chorda mesoderm located on _____ acts asorganizer.
102) Epidermis of skin like epidermal glands, hair, nail are _____ derivatives.
103) Pancreas, Liver, Gastric glands, Intestinal glands, Thyroid, Thymus are _____ derivatives.
104) Dermis of skin, kidney, Notochords, Heart, Urinary & reproductive tractsare _____ derivatives.
105) Membrane that gives protection to the embryo from external shocks is _____.
106) _____ type of placenta is found in sheep & cows.
107) _____ type of placenta is found in camel & giraffe based on nature of contact.
108) Maternal blood flow is approximately _____ ml/min at term.

109) Binding of blastocyst to endometrium is known as _____.
110) The implantation window is prepared after ____ days of ovulation in humans.
111) Ungulates, Lemurs are ____ typeplacenta & Primates, Rodents, Insectivore are _____ type placenta.
112) _____ hormone used in pregnancy to develop foetal metabolism , growth& development.
113) Villi of human placenta develops from _____.
114) The most primitive type of mammalian placenta is _____.
115) Regeneration was discovered by _____.
116) Prenatal Chromosomal abnormalities, Fetal infection, Sex determination done by _____.
117) The process by which Congenital malformations are produced in embryoare called _____.
118) During metamorphosis of tadpole larva, regression of tail & formation of digits take place by _____.
119) _____ is the process by which the beneathepidermis, lyingimmediatelybeneath the cuticle detaches from old cuticle.
120) The insect larva breaks the exoskeleton& emerges out it, is called _____.
121) The repair by cell division in the damaged tissue is called _____.
122) During regeneration, modification an orgon to another is known as _____.
123) _____ type of regenerative growththat can take place in a number of human organs after the organs are either damaged, removed or cease to function.
124) In Newts ,Triturus, if the lens of the eye is removed, a new lens is formed from uninjured iris is _____ type regeneration.
125) Iris is _____in origin.
126) The development of Superfluous number of organs or parts of the body as a result of is regeneration is known as _____.
127) When a different organ develops from the one that has been removed, the phenomenon is called _____.
128) _____is produced in Salivary glands & _____ stimulates the endothelial cells of the blood vessels to divide & injured blood vessels.
129) The rearrangement of pre-existing tissue, the use of adult Somatic stem cells & dedifferentiation and trans differentiation of cells & more than one mode can operate in different tissues of the same animal includes _____.
130) Neural cells express GAP-43, tubulin, actin array neuropeptides, Cytokines response to regenerate from the regenerate from the damage.
131) The phenomenon of Self multilation of the body is called _____.
132) Ecdysone is converted to _____ in tissues to coordinate changes in gene expression for protein synthesis.
133) Insect metamorphosis is controlled by _____ & _____.
134) Juvenile hormone is also called _____.
135) _____ & _____ secreted from Corpora allata, Sub-perophageal ganglia on respectively.
136) _____ & _____ secreted from neurosecretory cells, Endymal gland respectively.
137) Acrosome of sperm is formed from _____ part of spermatid.
138) Which hormone help in maturation of egg in the ovary?
139) Which antibody can cross the placenta & provide immunity to the fetus.
140) Regeneration of tail or limbs of amphibians is an example of _____.
141) During metamorphosis of tadpole larva regression of tail a formation of digits take place by _____.

142) At the time of fertilization _____ maturation division of the egg nucleus is completed.
143) Egg nucleus of frog is otherwise known as _____.
144) Salamander larva regenerate _____.
145) _____ type of placenta is found in camel & giraffe based on nature of contact.
146) Marine invertebrates the eggs are covered by thick layer of jelly outside the vitelline membrane are called __ .
147) Shark, some bony fishes, amphibians, reptiles primary membrane is called ___ .
148) Vitelline membrane is formed of _____ and_____.
149) After fertilization vitelline membrane is separated from plasma membrane create a space is called _____ and filled with __ fluid.
150) Tertiary egg membranes are secreted by ____.
151) Junction of middle piece and principal piece at annulus formed ------.
152) What is other name of ring centriole?
153) Mitochondria is present in which region of sperm?
154) Where do spirally arranged mitochondria around an axial filament occur?
155) Development of an organism involves three major types of cell processes namely cell division, differentiation and _____.

ANSWERS:-

1)4 Sperms and 1eggs	**79)Blastula**
2)Fritz Muller	**80)Involution**
3)9+2 arrangement	**81)Archenteron**
4)Spermatid to sperm	**82)Epiboly**
5)Formation of spermatids from primary spermatocytes through meiosis	**83)Chordamesodermal and endoderm**
6)Hyaluronidase	**84)Epiblast and Hypoblast**
7)64 days	**85)Delamination**
8)Spermination	**86)Area pellucida and Area opaca**
9)Corpusluteum and Corpus albicans.	**87)Hensen's node**
10)Prophase I	**88)Inductor &Evocator**
11)Zonapellucida	**89)Responsive tissue**
12)Mesovarium and Ovarian ligament	**90)Homotypic induction And**
13)Reticular Connective tissue and areolar connective tissue	**91)Heterotypic induction**
14)Liquor folliculi	**92) Autoplastic transplantation**
15)Formation and accumulation of yolk	**93)Homoplastic transplantation**
16)Yolk of Ovary	**94)Heteroplastic transplantation and Xenoplastic transplantation**
17)Primary follicles &Graffian follicles.	**95)Notogenesis**
18)Capacitation	**96)Neural induction**
19)Allurin, SAAF, SepSAP, Resact, startact	**97)Germinal vesicle**
20)Zonapellucide of Ovum and Acrosome of sperm.	**98)Amphiblastula**
21)Lock and Key System.	**99)Organiser**
22)Fertilization cone	**100) Dorsal lip of blastopore**
23)Berrill	**101) Roof of Archenteron**
24)Polyspermy blockage & ZP_2 , ZP_3	**102) Epidermal derivative**
25)Glycoprotein	**103) Endodermal derivatives**

26) Oscar Hertwig	**104)Mesodermal derivatives**
27)Amphimixis	**105) Amnion**
28)Fertilising	**106)Syndesmochorial placenta**
29)Glycoprotein and Mucopolysaccharide	**107)Intermediate placenta**
30)Amhimixis	**108)600-700 ml /min**
31)Proximal Centriole	**109)Implantation**
32)Monroy and Taylor	**110)6-8 days**
33)Phospholipid, Phosphatidylinositol 4,5 biphosphate (PIP) into Diacyl glycerol (DAG) and Inositol 1,4,5 triphosphate	**111)Indeciduate and Deciduata placenta**
34)180 degree	**112)Human placental lactogen**
35)Polyspermy	**113)Chorion**
36)Sodium ion	**114)Epitheliocherial**
37)Electrical block	**115)Trembley**
38)Slow block	**116)Amniocentesis**
39)Noncleidoic eggs and Oviparous animals	**117)Teratogenesis**
40)Cleiodic eggs , and birds , reptiles, Prototheria, Insects.	**118)Apoptosis**
41)Centrolecithal eggs	**119)Apolysis**
42)Homolecithal eggs	**120)Eclosion**
43)Centrolecithal eggs	**121)Epimorphosis**
44)Macrolecithal eggs	**122)Morphallaxis**
45)Mesoderm	**123)Compensatory growth**
46)Middle piece	**124)Wolffians regeneration**
47)Superficial Cleavage	**125)Neuroectodermal**
48) Meroblastic Cleavage	**126) Super regeneration**
49) Oblique	**127)Heteromorphosis**
50)Trophoblast	**128) Epidermal growth factor (EGF) and Fibroblast growth factor (FGF)**
51) 7 days	**129) Tissue Strategies**
52)Equal, holoblastic, indeterminate Cleavage Site	**130) Cellular physiological**
53)Spermatogonia and Sertoli cells	**131)Autotomy**
54)Interstitial space and androgen	**132) 20-Hydroxyecdysone**
55) Fructose, Calcium and certain enzymes	**133)Ecdysone& Juvenile hormone**
56) 40%.	**134)Neotenin**
57)Biradial Cleavage and Ctenophora&Polychoerus	**135) JH and DH**
58) Spiral, Determinate and Radial and Indeterminate Cleavage	**136) PTTH &Ecdysone**
59)Hypochordal rod	**137) Golgi apparatus**
60)Sach's Law	**138) FSH**
61) Balfour's Law	**139)IgG**
62) ATP	**140) Epimorphosis**
63)Blastomeres	**141) Lysozyme**

64)Archenteron	**142) 1st meiotic division**
65)Endoderm and Ectoderm	**143)Telolecithal egg**
66) Mesodermal	**144) Limb regeneration**
67)Fate mapping	**145) Diffused Placenta**
68)Vital dyes	**146) Jelly coat**
69)Vogt	**147)Zonaradiata**
70)N.Spratt	**148)Mucopolysaccharides and Fibrous proteins**
71)Radioactive markers	**149)Previtelline space and Previtelline fluid**
72)Horseradish Peroxidase	**150) Oviduct**
73)Dialkylindocarbocyanine) (Dil) and Dialkyloxacarbocyanine (Dio)	**151) Ring Centriole**
74) Fluorescence Dextran Amine (FDA) and Rhodamine Dextran Amine (RDA)	**152) Jensen 's ring**
75)Brain bow	**153) Neck**
76) Chimeras	**154) Middle Piece**
77) Epidermis of Skin and Brain, SpinalCord, and Sense organs	**155) Growth**
78)Epiblast of blastula	

PART – II

B. Write very short notes on the followings.

1) Informosomes
2) Mosaic egg
3) Regulative egg
4) Zona Pellucida
5) Zona radiata
6) Function of Egg membrane
7) Structure of Sperm
8) Cryopreservation
9) Baer'sLaw
10) Fertilizin - Antifertilizin reaction
11) Radial Cleavage
12) Spiral Cleavage
13) Morulation of Cleavage
14) Significance of cleavage
15) Blastocyst
16) Invagination of endoderm
17) Involution
18) Convergence
19) Divergence
20) Epiboly
21) Emboly
22) Significance of Primitive Streak

23) Endogenous induction
24) Exogenous induction
25) Primary & Secondary organizer
26) Vital dyes
27) Amphimixis
28) Future of Epiblast and Hypoblast in development of Chick
29) Role of dorsal lip of blastopore
30) Function Amniotic fluid
31) Role of thyroxine in amphibian metamorphosis
32) Endocrine function of human placenta
33) Function of Extra embryonic membrane in chick
34) Development of Chorionic Villi
35) Apoptosis
36) Autotomy
37) Physiological regeneration
38) Heteromorphosis
39) Blastema
40) Senescence
41) Teratogenesis

PART – III

C. Short Notes.

1) Compensatory regeneration in Mammalian liver
2) Factors affecting regeneration
3) Wear and tear theory of ageing
4) Role of telomeres in ageing
5) What is Free radicals and how antioxidants reduce the activity of free radicals
6) Significance of Aminocentesis
7) Characteristics of Stem cell
8) Cheap torches
9) Effect of Thalidomide in tetratogenesis
10)Recapitulation theory of biogenetic law
11) Theory of Preformation
12) Morphallaxis mode of regeneration
13) Fetal Alcohol Syndrome
14) Effect of drugs on teratogenesis
15) Regeneration mechanism of Epimorphosis
16) Aminocentesis
17) Polarity and Gradient theory of regeneration
18) Fate of Ectoderm
19) Fate of Endoderm
20) Fate of Mesoderm
21) Difference between Determinate and Indeterminate Cleavage
22) Difference between Implantation and Placentation
23) Difference between Cotyledonary and Zonary Cleavage
24) Types of Implantations
25) Formation of Amnion
26) Formation of Serosa (Chorion)

27) Formation of Allantois
28) Difference between Radial and Spiral Cleavage
29) Difference between Primary and Secondary Induction
30) Laws of Cleavage
31) Fast block of Polyspermy
32) Slow block of Polyspermy
33) Vitellogenesis
34) Capacitation of Sperm
35) Recapitulation theory
36) Weismann's germplasm theory
37) Difference between External and Internal fertilization
38) Cortical granulation
39) Acrosomal reaction
40) Difference between Spermatogenesis and Oogenesis
41) Factors controlling Spermatogenesis and Oogenesis
42) Role of Sertoli cell in Spermatogenesis
43) Significance of Placenta

Part – IV

D. Long answer questions.

1) What is Gametogenesis Describe the process of Spermatogenesis.
2)What is cell-cell interaction? Discuss Wnt and Hedgehog Pathway of cell interaction.
3) Write an essay about types of eggs and significance.
4) What is Egg membrane? Discuss the different types of Egg membranes and function of Egg membrane.
5) What is Fertilization? Discuss the mechanism of Fertilization.
6) What is Fate mapping? Discuss the different techniques of Construction of fate maps.
7)What is Cleavage? Describe the various types of Cleavage with eggs.
8) What is Embryonic induction? Describe the role of organizers during embryonic induction.
9) Discuss the formation and fate of three germ layer in mammalian embryo.
10) What is Extra embryonic membrane?
11) Why are they considered as an adaptation to terrestrial mode of life?
12) What is Placenta? Discuss various types of Placentae and function of Placenta.
13) What is Metamorphosis? Describe the hormonal regulation during metamorphosis in insects and amphibians.
14) What is Regeneration? Discuss the types of regeneration based on cellular mechanism. Write the mechanism of Regeneration in different organisms.
15) Discuss the concept of ageing? Write the different theories explaining ageing.
16) What is Aminocentesis? Discuss its procedure and significance?
17) What is Invitro fertilization? Describe the procedure of IVF and explaining the factors affecting success rate of IVF.
18) What is Teratogenesis? What are the Teratogens and explain the effect of teratogenic agents on embryonic development?

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QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER- CORE- XIV(EVOLUTION)

PART -I

A) Answer in one word.

1)Name a cell with a nucleus _____.
2)Name the type of fossil of organisms that are less than 0.5mm in size.
3)What is it called when all organisms have a tendency towards increase in size during evolution?
4)Chemical evolution is otherwise known _____.
5) Formation of primitive life is known as _____.
6) The nature of primitive life and its evolution is otherwise known as_____.
7) The synthesis of carbohydrates, polypeptides, and fatty acid along with of another complex gene I comport and along with water organic is called as _____.
8) What is it called when the footprints or tracks of moving organisms on soft, moist mad hardens into rocks?
9)The fossils of the content of the stomach are known as _____.
10) The fossils of faecal matter of various as sizes of animals are known as _____.
11) Chemo autotrophism started in _____.
12) What is called, when it is described as "the number of offspring of an individual or a population is able to produce during a given period of "time" ?
13) What is it called when the measure of individual deaths in a population & Serves as the counterbalance to fecundity ?
14) When "the population of the same species have characteristics that vary from one individual to the next" is called as _____.
15) _____ is the evolutionary strategy that favours the reproductive success of an organism's relatives .
16) Pleiotrophy causes correlated selection called _____.
17)_____ is the change in allele frequencies due to the repeated occurrence of the same mutations.
18) _____ is the movement of alleles, from one population to another due to interbreeding between members of two populations.
19) The number of individuals present in a subjectively designed geographic range is called as _____.
20) _____ is the % of individuals born that survive to the reproductive age .
21) _____ is the difference between. fitness of an average genotype in a population and the fitness. of some may reference genotype which be the best .
22) What is the other name of allopatric speciation?

23) _____ isolation is due to differences in the structure of genital organs.
24) When an irregular zygote develops & the zygote may die at any stage during development, it is known as _____.
25) In ____ isolation, the potential mates do not meet each other due to differences in habitats, requirements of food, space climate etc.
26) A measurable gradient in a single character of a species across its geographical range is called _____.
27)The hybrid zones where hybrids are disadvantaged, relative to their parental lines are known as _____.
28) A ___ is a grouping of humans based on shared physical or social into categories generally viewed as distinct by society.
29) A _____ species exists as discrete populations that are somewhat divergent from one another.
30) A monophyletic group whose range has extended around a geographic barrier to produce a ring-shaped distribution is called _____.
31) The population lives in the same regions but occupies different habitats is known as _____.
32) Some hybrids are sterile due to less developed testes and are called _____.
33) _____ concept treats species as classes of organisms with similar genes.
34) _____ isolation is due to sheer distance.
35) When fertilization takes place, but zygote dies it is called as _____.
36) When a population live in same. regions but occupy different habitats it is called _____ isolation.
37) Which species of ape man was discovered by Raymond Darf in 1925 ?
38) The fossil of which species of ape man was discovered from the rocks of middle Miocene & early Pliocene of Africa and Europe?
39) The fossil of which ape man was discovered by E. Lewis from the Pliocene rocks of Shivalik Hills of India ?
40) Fossil of which man was discovered by W.C Pei (1924) near Peking ?
41) _____ appeared about 1.7 million in middle Pleistocene .
42) The age of language, reading, writing and animal husbandry is 43) The age of tools of stones and bones is known as _____.
44) The age of agriculture associated with knowledge and use of cloth is known as_____.
45) ____ race of human is found in South America.
46) _____ races of man were found in Australia
47) _____ races of man were found in North Africa, Europe, Western Asia, Southeast India.
48) _____ race of man was found in South America as _____ age .
49) _____races of human were found in central Pacific islands from New-Zealand to Hawaii.
50) _____ races of man were found in North East Asia, Sudan, South America and North America.
51) Who proposed the theory of use and disuse of organs?
52) _____ period is called the "Age of reptile "
53) _____ is called as dawn horse, found in the North America.
54) _____ is the connecting link between reptile & birds.
55) Evolution history of an called as _____.
56) Single base substitutions in DNA are called _____.
57) _____ is the closest extinct ancester of modern human.

58) A distinct evolutionary lineage within a species is called as _____.
59) Who proposed the theory of Inheritance of acquired characters ?
60) Anybody traces of body of animal or plants buried & preserved by natural means is known as _____.
61) Cells with distinct nucleus is called ____.
62) Cells without a well-defined nucleus is called as _____.
63) "Inheritance of acquired characters" was proposed by _____.
64) ____ proposed the theory of Natural Selection.
65) _____ rocks contains various materials of land deposited in form of sediments in the lakes, river beds and also in shallow seas.
66) ____ fossils are more than one centimetre in size.
67) _____ are formed by solidification of lava .
68) _____ is the random variation in allele frequencies between generations due to sampling error in finite population.
69) In any given environment some individuals have characteristics that put them at an advantage over individuals who do an not possess is known as those some characteristics is known as ____.
70) ____ is the % of individuals born that survive to the reproductive age.
71) For any given genotype or phenotype the average number of offspring born per individual is known as ___.
72) _____ is the difference between the fitness of an average genotype in the population and the fitness of which some reference genotype be the best.
73) _____ is the random variation in allele frequencies between generations due to sampling population errors in a finite population.
74) For any given genotype or phenotype, the average number of offspring born per individual is known as ____.
75) _____ isolation is due to differences in the structure of genital organs.
76) _____ isolation is the property of individuals that prevents interbreeding in the population living in the same area.
77) Certain hybrids are either highly or partly fertile and they give rise to weak abnormal or sterile progeny in the second generation known as _____.
78) L.S.B. Leakey & Mary Leakey (1960) discovered the fossil of man feron Pleistocene rocks of OlduvaiGorge in East Africa.
79) ____ man has a massive jaw .
80) _____ man was the direct ancestor of the living modern man.
81) ____ was the first prehistoric man to make use of fire for hunting, defense, and cooking.
82) ____ regarded as the common ancestor of man.
83) _____ was similar to Ramapithecus discovered by: Leaky (1985).
84) Australopithecus africanus was discovered by_____.
85)Grasping hands present in _____.
86)____ has a similar dentition to modern.
87) Chin is absent in _____.
88) _____ has developed control of speech.
89) ____ were able to communicate by sort of language.
90) Heavy eyebrow ridges are absent in _____.
91) _____ lives in caves with families.

92) ____ evolved in Asia and then invaded Europe.
93) Thinning of skull bones is seen in _____.
94)_____ is known as the age of extensive use of bronze.
95) _____ is the modern age with profound use of iron.
96) _____ was capable of making tools.
97) _____ had a slightly prognathous face.
98) Ecosystem imbalance leads to ____.
99) The genetic load is generally expressed as _____.
100) Polyploid evolution is ____.
101) _____ isolation is due to differences in the structure of genital organs.
102) ____ is the evolutionary strategy that favors the reproductive success of an organism relative.
103)Due to genetic drift a different gene pool and a different population change in phenotypic forms form a new species such mechanism of speciation is called _____.
104)In a random mating population in equilibrium which of the following brings about change in gene frequency in a non-directional manner ____.
105) The concept of genetic drift was introduced by _____.
106) Thorn of Bougainvillea and Tendril of Cucurbita are examples of _____.
107) _____ is the correct sequence in which the following substances have appeared during the evolution of life on Earth.
108) When two species of different genealogy come to resemble each other as a result of adaptation the phenomenon is termed as _____.
109) _____ wasn't found to be synthesized in Miller's experiment.
110) The evolution of different species in a given area starting from a point and spreading to other geographical areas are known as _____.
111) _____ was absent in the atmosphere at the origin of life.
112) De Vries gave his mutation theory on organic evolution while working on ____.
113) Darwin's finches provide excellent evidence in favor of evolution. This evidence comes from the field of ____.
114)In the case of Pepper moth, the black-colored form became dominant over the light-colored form in England during the Industrial Revolution. This is an example of _____.
115) A type of natural selection in which more individuals acquire peripheral character value at both ends of the distribution curve is _____.
116) Natural Selection is best defined as occurring when the environment causes _____.
117) _____ favors one extreme form over the other extreme form and over intermediate forms of trait.
118) _____ is an example of protective resemblance with the surroundings.
119) _____ operates to eliminate intermediate phenotypes.
120) In a _____ there is reproductive isolation of a subpopulation in the midst of the parent population.
121) The formation of a new species through change in a single lineage is known as _____.
122) Reproduction isolation in sympatric speciation develops without a _____.
123) Speciation occurs most frequently in population that are _____.
124) The reproductive isolating factor occurring when a sperm and an egg are incompatible is _____.
125) _____ enables production of hybrids between two species.

126) In this kind of speciation evolution can be expected to be faster while the speciation between the speciating events _____.
127) In Galapagos Island, Darwin found different varieties of finches originated from a common ancestor. The original variety of these was _____.
128) The finches of the Galapagos islands provide evidence in favor of ____.
129)_____ evolution is illustrated by dog fish and whale.
130) The now extinct reptile group that evolved into ____.
131) The theory of K-T mass extinction proposed by _____.
132) What is the age K-T extinction?
133) Which Era ended with the K-T extinction?
134) Species which have diverged after origin from common ancestor giving rise to new species adapted to new habitats and ways of life is called _____.
135) _____ were example of adaptive radiation.
136)____ is used to know phylogeny.
137) Butterfly wings and birds wings are example of _____.
138) _____ was considered as a missing link between reptiles and birds.
139)A sampled "a" population has 36% of homozygous recessive genotype (aa). Then the frequency of allele "a" is _____.
140) Consider a population of sheep to be in Hardy-Weinberg equilibrium. The allele for black wool(w) has an allele frequency of 0.81 while the allele for white wool(W) has an allele frequency of 0.19. Then the percentage of heterozygous individuals in the population is _____.

ANSWERS:-

1) Eukaryote	**71) Survival rate**
2) Microfossils	**72) Genetic Load**
3) Cope's rule	**73) Genetic drift**
4) Chemogeny	**74) Reproduction rate**
5) Biogeny	**75) Mechanical**
6) Cognogeny	**76) Reproductive**
7) Hot dilute Soup	**77) Hybrid breakdown**
8) Track and Trials	**78) Homo habilia**
9) Gastroliths.	**79) Heidelberg man**
10) Copreolites	**80) Cro-magnon man**
11) Prokaryotes	**81) Java ape man**
12) Fecundity	**82) Dryopithecus**
13) Mortality	**83) Kenya pithecuswicker**
14) Genetic diversity	**84) Raymond Dart**
15) Kin Selection	**85) Australopithecus africanus**
16) Genetic correlation,	**86) Homo habilis**
17) Mutation Pressure	**87) Home heidelbergensis**
18) Gene flow	**88) Peking man**
19) population size	**89) Neanderthal man**
20) Survival rate	**90) Cromagnon man**

21) Genetic Load	**91) Cromagnon man**
22) Geographical isolation	**92) Cromagnon man**
23) Mechanical	**93) Modern man**
24) Zygotic mortality	**94) Bronze age**
25) Ecological / Habitat	**95) Iron age**
26) Clines	**96) Homo habilis**
27) Tension zone	**97) Neanderthal man**
28) Race	**98) Extinction**
29) polytypic	**99) L= (Wopt-v) / wopt**
30) Ring species	**100) Irreversible**
31) Ecological isolation	**101) Mechanical isolation**
32) Hybrid Sterility	**102) Kin selection**
33) Genetical species	**103) Founder effect**
34) Spatial	**104) Random drift**
35) zygotic morality	**105) Sewell Wright**
36) Ocological	**106) Homologous organs**
37) Australopithecus africanus	**107) Ammonia, Amino acid , Nucleic acid**
38) Drypithecusafricanus	**108) Convergent evolution**
39) Ramapithecus	**109) Glutamic acid**
40) Peking man	**110) Adaptive radiation**
41) Homo erectus	**111) Oxygen**
42)Mesolitic	**112) Oenotheralamarckiana**
43) Palaeolithic	**113) Biogeography**
44) Neolithic	**114) Natural Selection**
45) Bush man	**115) Disruptive selection**
46) Australoids	**116) Differential success in reproduction**
47) Caucasoids	**117) Directional selection**
48) Bush man	**118) Industrial melanism**
49) Polynesian	**119) Disruptive selection**
50) Mongoloids	**120) Sympatric speciation**
51) Lamarck	**121) Anagenesis**
52) Mesozoic era	**122) Geographical barrier**
53) Eohippus	**123) Allopatric**
54) Archaeopteryx	**124) Gametic isolation**
55) Phylogeny	**125) Parapatric speciation**
56) Point mutation	**126) Peripheral Speciation**
57) Nenderthal man	**127) Seed eating**
58) Races	**128) Biographical evolution**
59) Lamarck	**129) Convergent evolution**
60) Fossils	**130) Therapsids**
61) Protistans	**131) Louis Alvarez**
62) Monerans	**132) 66 million years ago**
63) Lamarck	**133) Mesozoic era**
64) Darwin	**134) Adaptive radiation**
65) Sedimentary	**135) Australian marsupials**

66) Microfossils	**136) rRNA**
67) Igneous	**137) Analogous organ**
68) Genetic drift	**138) Archaeopteryx**
69) Fitness	**139) 60%**
70) Survival rate	**140) 31%**

PART -II

B) Write very short notes on followings.

1) Coacervate
2) Fossil dating
3)Molecular clock
4) Clines
5) Gene flow
6)Dryopithecus
7) Altruism
8) Sibling Species
9) Genetic drift
10)Genetic load
11) Big Bang theory
12) Winter rule
13) Law of Superposition
14) Stratigraphy
15) Eocene horse
16) Oligocene horse
17) Igneous rock
18) Meristic variation
19) Ethological isolation
20) Zygote inviability
21) Cohesion concept
22) Ring Species
23) Biotic isolation
24) Heidelberg
25) Peking man
26) Java ape man.
27) Neanderthal man
28)*Homo habilis*
29) *Homo erectus*
30) Bush man
31) Heritable variation
32) Somatic variation
33) Heteroploidy

PART-III

C) Write short notes on following.

1) Chemogeny
2) Biogeny
3) Name of the 5 major extinctions
4) Neo-Lamarckism
5)Neo-Darwinism
6) Role of extinction in evolution
7) Mortality
8) Population size.
9) Migration
10)Sexual dimorphism
11) H.W. equilibrium
12) Genetic variation
13) Beneficial mutation
14) Sexual selection
15)Muller's view on reproductive isolation
16)Polymorphic species
17) Cladistic species concept 18) Parapatric Speciation.
19)Characters of cro-magnon man
20)Characters of Homo habilis
21) Evolutionary morphological changes of man
22)Anatomy of Phylogenetic tree
23) Characters & discovery of Neanderthal man
24) Uranium - Lead method to calculate
25) Transitional fossils
26) Point mutation
27) Somatic variation
28) Potassium argon method of calculation of the age of fossils
29) Kin selection
30) Urey Miller's experiment
31) Bottle neck effect
32) Founder effect
33) Differentiate between Mate choice and Competition for mate
34) Heterozygous superiority
35) Phylogenetic tree
36) Differentiate between homologous and Analogous organ
37) Differentiate between Convergent and Divergent evolution
38) Differentiate between Lamarckism and Neo - Lamarckism
39) Differentiate between Darwinism and Neo Darwinism
40) Differentiate Microevolution and Macroevolution
41) Differentiate between Founder effect and Bottleneck effect
42) Differentiate between Allopatric and Sympatric speciation

43) Differentiate between Allopatric and Parapatric speciation
44) Differentiate between Parapatric and Peripetric Speciation
45) Differentiate between Geographical and Reproductive Isolation
46) Differentiate between Background and Mass extinction
47) Differentiate between Eohippus and Equus
48) Why nascent oxygen is toxic to aerobic life?

PART - IV

D)Long questions.

1) Describe Darwin's theory of Organic evolution and add note on Neo-Darwinism.
2) Discuss about fossils and types of fossils. How interpretation of the fossil record act as evidence for evolution?
3) Describe K-T extinction in detail.
4)What is mutation? Describe different types of mutation.
6)State Hardy - Weinberg law and its equation. What are different evolutionary forces upsetting Hardy-Weinberg equilibrium?
7) Discuss the role of migration & mutation in changing allele frequency.
8) Describe Kin selection with examples.
9) Define the biological species concept. Discuss industrial melanism and different modes of speciation.
10) What is isolation? Discuss different mechanisms of Isolation & its role in speciation.
11) Discuss about Hominin. How their characteristics contrasted with Primates.
12) Describe molecular analysis of human origin. Discuss different factors of molecular evolution.
13) How to prepare a phylogenetic tree?
14) Describe Macroevolution with Galapagos finches.
15) What is H-W equilibrium? In a population, that is in Hardy-Weinberg equilibrium, the frequency of the recessive homozygote genotype of a certain trait is 0.09. Calculate the percentage of Individuals homozygous for the dominant allele.

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QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER – DSE – I (ANIMAL BEHAVIOUR)

Part-I

A. Answer in one word.

1) An instinct is a _____ behavior.
2) Some behavior patterns appear only after a specific developmental stage or time. This stage or time is called _____.
3) People can only form new habits when they _____ particular behavior patterns.
4) The animal's choice of a place to live is called _____selection.
5) Behaviour that is valued by others in a particular culture is known as _____.
6) "The advantage which certain individuals have over other individuals of the same sex because of the reproductive trait" according to _____.
7) The natural sleep/wake cycle that governs when people are most alert and when they are most tired is called the _____.
8) Our sleep-wake cycle follows a _____ rhythm.
9) Name the external factors which signal to trigger instructive acts.
10) Cuckoos have the habit of laying their eggs in someone else's nest. Name it.
11) Orientating response towards water current is _____.
12) Repeated stimulation of muscle fiber produces _____.
13) When the speed of locomotion is affected by external stimulation, the Kinesis is called ___.
14) Give the term for the helping behavior existing between members of a social group.
15) Colour discrimination experiment in honeybees was performed by _____.
16) When the food source is more than 100 meters away from the colony the honeybees perform which type of dance.
17) Mate choice is also known as _____ selection.
18) In birds the parental care are typically _____ type.
19) Name the father of Chronobiology.
20) Name a human body function that oscillates on a 24hrs. pattern.
21) The hormone melatonin is secreted from which endocrine gland?
22) The primary circadian clock is located in _____ in mammals.
23) Write the full form of SCN.
24) The melatonin level is high during _____.

25) Each biological rhythm is composed of repeating units called _____.
26) The most fascinating response to the lunar rhythms is shown by _____.
27) The biological clock in mammals is present Lot in SCN is located in _____.
28) Most of organisms showing circalunar periodicity are _____.
29) _____ plays an important role in aging.
30) Light is a _____ type zeitgeber.
31) Phenomenon of diapause has observed in the eggs of _____.
32) Foraging behavior is the link between honey bee colony and _____.
33) Orienting response towards touch is _____.
34) Ducklings of wood duck show _____imprinting.
35) Which imprinting takes place soon after hatching?
36) The reduction of responsiveness which is of no use ok harm to the life of the animal is termed as _____.
37) _____ is the elapsed time between a stimulus and a reflex response.
38) Which summation occurs when a high frequency of action potentials elicits postsynaptic potentials.
39) Who coined the term "ethology"?
40) Instincts are transmitted through _____.
41) Write the full-form of FAP.
42) The process of separating useful sensory information from thousands of stimuli known as
43) In flatworm, _____ Kinesis found.
44) Cleaning symbiosis is an example of _____.
45) State Hamilton's formula.
46) Red deer shows _____ type selection.
47) The act of killing infants soon after birth is known as _____.
48) Conflict over mating rates is an example of _____type conflict.
49) For which famous experiment Ivan Pavlov was famous for?
50) Name the external factors that signal to trigger initiative acts.
51) Cuckoos have the habit of laying someone else's nest. Name it .
52) Sign stimuli are also called _____.
53) Pheromones are chemical releasers which affect individuals of _____ species.
54) The theory of imprinting or childhood learning was developed by _____.
55) Stereotyped behaviour is commonly known as _____.
56) Animal following caravanning is known as _____.
57) Name the type of reflex are which has one sensory one motor nerve fibre.
58) Name the path through which impulse travels during reflex action.
59) _____first noticed imprinting in Graylag goose.
60) The simplest form of learning is _____.
61) In Meno taxis, the stimulus is light, hence it is also termed as _____ reactions.
62) Imprinting is well-marked during the stage of life cycle.

63) Secretion of saliva on looking at delicious food is an example of _____.
64) Thorndike experimented a lot on learning process using a puzzle box and an animal name it.
65) Name the cells of the comb for rearing young ores.
66) Name the procedure by which old queen replaced by a new strang queen.
67) The mating between young queen and drone high up in the air is called as _____.
68) If the ford is near the hive the forager bee *Apis mellifera* perform _____dance.
69) The division of labour exhibited by the colonial insects is called _____ polyethism.
70) Royal Jelly is secreted from the _____ gland of worker bee.
71) The behaviour of the workers is regulated by the queen who emits _____.
72) *Apis dorsata* is commonly known as _____.
73) In sea lion males are larger than the females at birth. What Kind of dimorphism it is ?
74) Which hypothesis explains female's preference for elaborate males against dull colored ordinary male.
75) _____ traitssignal good overall quality of the individual.
76) Mate choice is also known as _____ selection.
77) Ideas on sexual selection were first introduced in 1871 by _____.
78) Name the scientist who designed "flower clock"?
79) Name the persons whose thinking skills are best in the morning.
80) The primary circadian clock is located in _____in mammals.
81) Most of the organisms showing circular periodicity are _____.
82) The earliest account of the circadian process was the leaf movements of tamarind free were given by _____.
83) Outstanding work on the biological clock was done by _____.
84) Cheaters are the individuals who accept the altruism from others but fail to reciprocate when occasion arises. Example of such cheaters include _____.
85) In _____ orientation the role of change of direction increases in proportion to the intensity stimulation.
86) Name the author of the book "Animal Intelligence", a classic book on animal behavior
87) The hormone melatonin is secreted from which endocrine gland?
88) The melatonin level is high during _____.
89) Sperm competition concept was developed by _____.
90) Identify the type of selected selection in which pea-hen shows a preference for peacocks with good plumage and spectacular dance ability _____.
91) In asymmetry of sex, one sex invests more in the offspring than the other, name the sex.
92) What Kind of selection is observed in female zebra finch which prefers males with more colorful beaks and feathers.
93) Using Drosophila as a model presented experimental evidence of mate choice.
94) The tidal clocks are present in a group of aquatic animals called _____.
95) The meaning of the German word zeitgebers is _____.

96) The behaviour of the workers is regulated by the queen who emits _____.
97) An extensive communication system in bees was discovered by _____.
98) Orienting response towards gravity is _____.
99) The determining feature of a stimulus that produces a response is called _____.
100) The type of learning associated with skinner is _____.

ANSWERS: -

1) Learned	**51) Broad parasitism**
2) Maturation	**52) Key stimulus**
3) Adopted	**53) Same**
4) Habitat	**54) Konard Lorenz**
5) Prosocial behavior	**55) Innate behavior**
6)Darwin	**56) Body shrew**
7) Circadian rhythm	**57) Monosynaptic**
8) Circadian rhythm	**58) Reflex arc**
9) Sign stimuli	**59) Konard Lorenz**
10) Broad parasitism	**60) Habituation**
11) Rheotaxis	**61)Light compass**
12) Fatigue	**62) Early stage**
13) Orthokinesis	**63) Conditioned reflex**
14) Altruism	**64) Cat**
15) Karl Von Frisch	**65) Broo cells**
16) Waggle dance	**66) Supercedure**
17) Inter sexual	**67) Nuptial flight**
18) Biparental	**68) Round dance**
19) Franz halberg	**69) Temporal**
20) B.P./activity of adrenaline	**70) Pharyngeal gland**
21) Pineal gland	**71)Pheromones**
22) SCN	**72) Rock bee**
23) Suprachiasmatic nucleus	**73) Sexual**
24) Night	**74) Sexy son hypothesis**
25) Cycles	**75) Indicator traits**
26) Grunion fish	**76) Inter sexual**
27) Hypothalamus	**77) Charles Darwin**
28) Marine	**78) Carlous Linnaeus**
29) Melatonin	**79) Morning type**
30) Photic	**80) SCN**
31) Grasshopper	**81) Marine**
32) Surrounding environment	**82) Androsthenes**
33) Thigmotaxis	**83)Erwin Banning**
34) Voice	**84) Homo sapiens**
35) Fiscal imprinting	**85) Klinokinesis**

36) Habituation	**86)George John Romanes**
37) Latency	**87) Pineal gland**
38) Temporal	**88) Night**
39) IsidoreGeoffroy Saint Hailaire	**89)Geoff Parker**
40) Genes	**90) Intersexual**
41) Fixed action pattern	**91) Female sex**
42) Stimulus filtering	**92) Sexual selection**
43) Klinokinesis	**93) A. J. Bateman**
44) Reciprocal altruism	**94) Crustacea**
45) rB> C	**95) Time givers**
46) Intersexual selection	**96) Pheromones**
47) Infanticide	**97) Karl Von Frish**
48)Interlocus sexual conflict	**98) Geotaxis**
49) Classical conditioning	**99) Sign stimuli**
50) Sign stimuli	**100) Operant conditioning**

Part-II

B. Answer the very short noes .

1) What is imprinting?
2) What is habituation?
3) Who is the Father of Ethology?
4) What is kinesis or taxis?
5) A visual alarm signal, common in mammals, is called?
6) What is communication?
7) What do you mean waggle dance?
8) What is sexual conflict?
9) What is photoperiod?
10) What is chronobiology?
11) State Hamilton's rule ?
12) What is polyethism ?
13) What is brood parasitism?
14) What is IRM?
15) Define Mnemotaxis .
16) Define Orientation.
17) Define reflex action.
18) Draw a reflex arc.
19) Describe Foraging task.
20) Three advantages of socialization.
21) Describe Nuptial flight of honeybee.
22) What is asymmetry of sex?

23) Define Sexual dimorphism.
24) What is SCN ?
25) Write two importance of biological clock.
26) What is Zeitgeber?
27) Define Jet lag.
28) Define biological oscillation.
29) Who is father of Chronobiology?

Part-III

C. Answer the following short notes .

1) Difference between proximate and ultimate behavior.
2) Write down the concept of Niko Tinbergen.
3) What is Karl von Frisch concept?
4) Write the characteristics of individual behavioral patterns.
5) Differentiate Instinct and learning behavior.
6) Differentiate between classical and operant conditioning.
7) Short note on Kinesis.
8) Contribution of Kard von Frish on honey bees.
9) Short note on Reciprocal altruism.
10) Short note on Sexual conflict.
11) Short note on Male rivalry.
12) Short note on the Sexy son hypothesis.
13) Differentiate between intersexual and intrasexual selection.
14) Waggle Dance Vs Round Dance.
15) Short note on the asymmetry of Sex.
16) Short note on Kin Selection.
17) Role of melatonin.
18) Short note on amplitude.
19) History of Chronobiology.
20) Difference between Tidal and Lunar rhythm.
21) Short note on Zeitgebers.
22) Short note on the Biological Clock
23) What is foraging? Give an example.

Part-IV

D. Long answer questions.

1) Define ethology and explain a brief profile of Ivan Pavlov and Konrad Lorenz on ethology.
2) Describe behavior as a basis of evolution and disciple of Science with a suitable example.
3) Write a note on Orientation and Reflexes with an example.
4) Write a small description on Imprinting.
5) Describe the sexual behavior. Add a short note on sexual asymmetry.
6) What is social behaviour? Describe the concept of society with honey bee as an example.
7) What is melatonin? Describe its role and function in chronobiology.
8) Describe the major difference in short and long-term rhythms with suitable example.
9) Discuss the different approaches of animal with evolution.
10) Discuss about behaviour. Write about innate behaviour .
11) Animal behaviour as discipline of Science.
12) Explain proximate and ultimate behaviour. Explain classical conditioning.
13) Explain Operant conditioning.
14) Types of reflex and reflex path – Explain.
15) Explain Orientation and habituation.
16) Define communication. Describe the foraging behavior of honeybee.
17) Explain Altruistic behavior and Hamilton's rule.
18) Parental care in 3 spined stickle back.
19) How does biological clock regulate animal behaviour?
20) Explain tidal rhythm and lunar rhythm.
21) Explain Circadian rhythm.

DERABIS COLLEGE

QUESTIONS BANK

SUBJECT - ZOOLOGY

PAPER– DSE – II (IMMUNOLOGY)

Part-I

A) Fill in the blanks/answer in a single sentence.

1) Neutrophils, basophils, lymphocytes, eosinophils and monocytes are examples of _____.
2) _____ of the immunity is called the first line of defense.
3) BCG vaccination (Bacillus Calmette Guerini) is injected to get immunity from _____.
4) The ability of the body to fight diseases is called _____.
5) What is the chemical name for Vitamin A ?
6) ELISA stands for _____.
7) Immunoglobulins makes the largest percentage in breast milk is _____.
8) Type I hypersensitivity involves lg _____.
9) Where clonal selection does occur in the body?
10) Which class of lymphocytes is involved in innate immunity?
11) Which class of WBCs are responsible for adaptive immunity?
12) The antibodies found in body fluids are responsible for _____ immunity.
13) Which vertebrates first evolve adaptive?
14) _____ proteins act as humoral defenses in invertebrates.
15) _____ of invertebrates is analogus to complement protein of vertebrate.
16) Circulating immune cells of insects are called_____ .
17) Morula is a ball of _____ cells.
18) Majority of the circulating leukocytes are _____.
19) At what age does the thymus reach its maximum size?
20) Organized structures in secondary lymphoid tissues that are rich in B cells are called _____.
21) Which cells are specialized for the transcytosis of antigen across the epithelium?
22) The immune systems associated with mucosa ltissues are called _____.
23) _____ are the potent antifungal peptides found in human saliva.
24) _____ is the antibacterial and antifungal peptide of skin.
25) Which types of phagocytes are to be excavated first to the site of injury?
26) Trans endothelial migration of leukocytes is called _____.
27) Name a collectin with opsonizing activity?
28) Which cells act as connecting link a between the innate and adaptive immune systems ?
29) Mast cells release the potent inflammatory chemical called _____.
30) Phagocytes recognize microbes by _____.
31) Phagocytosis-enhancing proteins are called _____.
32) Which type of immunity found only in vertebrates?

33) Which cells secrete antibodies?
34) The newly formed B and T cells are called _____.
35) Central tolerance occurs in _____ organs.
36) The most common sites affected by RA are _____.
37) What is the latest vaccine for HIV?
38) _____ continuously produce viruses and acts like a HIV factory.
39) Which is the most abundant class of Ig?
40) The V regions of the heavy and light chains combine to form _____.
41) The first antibody released in primary response is _____.
42) Which is the oldest type of immunoassay?
43) In ELISA antibodies are to covalently bound to _____.
44) The enzymes that cleave C3 and C5 are called _____.
45) Local anaphylactic reactions are called _____.
46) Cell mediated hypersensitivity is called _____.
47) Cross-linking of IgE receptors on mast cells triggers _____.
48) Name the most promising malaria vaccine developed by GSK.
49) _____ cells attach intracellular pathogen.
50) In birds B lymphocytes are produced in _____ .
51) _____ enzyme generate mutation in the HIV genome.
52) The epitope of antigen bound to _____ of antibody.
53) _____ class of antibody involved in allergic responses.
54) Primary lymphoid organ is _____.
55) _____ constitutes about 50% of the lymphoid tissues in the human body.
56) Small masses of lymphatic tissues found through out the ileum region of the small intestine are called _____ .
57) Oral Polio drops contain __ pathogen.
58) Antibodies are ____.
59) Interferon are _____ .
60) The class of antibodies ___ can cross placenta .
61) Antigen binding sites are present in ____ region of antibody.
62) _____ antibodies are present in the surface of B lymphocyte.
63) _____ antibodies are the first line defense against inhaled and ingested pathogens.
64) _____ is the smallest antibody.
65) _____ antibodies constitute the largest proportion of total antibodies .
66) _____ region of antibodies called variable region.
67) _____ and ____ is the approximate weight of the heavy and light chain of antibody respectively.
68) _____ antibody binds to complement component C1, activates classical complement pathway leads to opsonization.
69) The Classical and Alternative pathways meet at complement at ___ site.
70) The initial complement component that is bound by complement fixing antibodies is C1q.
71) A complement component that is strongly chemotactic for neutrophils is ___.
72) The membrane attack complex composed of _____.
73) Isotypes refers to variations in the immunoglobulin via ___.
74) The immunoglobulin joining chain (J chain) is associated with only multimeric forms of ____ and ___ .

75) Monoclonal antibodies are formed by ___ technology.
76) ___ is used for typing when a patient is being prepared for an organ transplant.
77) _____ play an important role in antigen presentation.
78) The first tenet of clonal selection theory relies specially on ____ clones.
79) Cell-associated differentiation antigens (CDs) are functional cell surface proteins or receptors that can be measured in situ for ____.
80) An anamenstic response involves an effector response high intensity ____.
81) The pregnancy test detects the presence of ___.
82) Coating of microorganisms or other particles by complement or antibody is called _____.
83) B cells and T cells are two types of cells involved in ____.
84) The common disorders caused by poor immune system include _____ .
85) _____ coined the term vaccine.
86) Skin , Body hair, Cilia, Eyelashes, Respiratory tract and GI tract are examples of ___ .
87) ___ type of immunoglobulin present in fetus.
88) Blood cells that increase in number during allergic conditions like asthma are ____ .
89) Interferon is a glycoprotein which is ____.
90) HIV contains a protein coat and genetic material and is horse chestnut shaped ____ .
91) _____ is the name of MHC in humans.
92) ____ receives antigen presented by MHC molecule.
93) ____ class recognized by CD4 TH cells .
94) _____ class recognizes CD8 Tc cells.
95) The test that is done prior to transplantation surgery to determine the compatibility of MHC proteins between donor and recipient is called ____.
96) The genes for HLA proteins are clustered in the MHC located on _____.
97) MHC class II is a cell surface molecule present on ____.
98) MHC class I is a cell surface molecule present on ____.
99) _____ discovered the radioimmunoassay.
100) _____ microgram antigen detected in RIA test.
101) ELISA techniques have been combined with biosensors to form ____.
102) _____ complement components is the most potent in attracting neutrophils to the site of infections.
103) _____ complement components are the most important opsonin.
104) ___ complement component is C3 cleaved.
105) _____ factor stabilizes C3 convertase (C3bBb).
106) A deficiency of ___ complement components predisposed to bacteremia caused by members of genus Neisseria.
107) ____ hypersensitivity reactions is a result of massive deposition of immune complex in various tissues and can induce complement activation and inflammation responses.
108) _____ hypersensitivity reaction involved antibody-directed complement activation and antibody-dependent cell toxicity.
109) A hereditary predisposition of the development of immediate hypersensitivity reactions against common environmental antigens ____.
110) ____ domain present in the Fc region of IgE enables the binding of glycoprotein receptors on the surface of the basophils and the mast cells.

111) ___ is a drug that can induce four types of hypersensitivity reactions.
112) IgM and IgG mediated ____ hypersensitivity.
113) Systemic lupus Erythematosus, Rheumatoid arthritis, and Good Pasture's syndrome disease are examples of __ hypersensitivity reactions.
114) ____ cytokines are important for DTH and also used for the diagnosis of Mycobacterium tuberculosis.
115) ___ interleukin activates eosinophil that consists of FcR for IgE.
116) ___ is responsible for Tcell expansion after antigen recognition.
117) ___ is used for the treatment of viral hepatitis and multiple sclerosis.
118) ___ is used for the treatment of Chronic granulomatous disease.
119) Transforming growth factor - beta stimulates the production of IgA that is required for mucosal immunity.
120) ___ receptors class of cytokine receptors utilize G- protein-coupled receptors for its downstream function.
121) The cell that relates nonspecific and specifc immunity are _____.
122) First antibody synthesized in pre-B-cells is _____.
123) Complements were discovered by _____.
124) Mast cells produce _____ during degranulation.
125) Exogenous antigen-bearing pathogens are processed by _____.
126) The failure of vaccines in infants is due to _____.
127) The strength of binding antigen with antibody is called _____.
128) The preparation of attenuated vaccine involves a strategy of making the pathogens harmless or less virulent while retaining the desired antigens commonly called as _____.
129) The DNA technologists have identified the genes encoding _____.
130) C3a, C4a, C5a are _____ that trigger local inflammatory reactions.
131) _____ pathway is activated by gram positive and gram negative bacteria.
132) MBL or Ficolins are secreted by _____.
133) MBL or Ficolins are _____ proteins that can recognize the pathogen-associated molecular patterns (PAMPs) and their concentration increase during inflammatory responses.
134) Coom's test is used for detection of _____.
135) To detect drug addiction _____ test is used.
136) _____ test is used for diagnosis of pneumonia.
137) For diagnosis of specific antigen _____ test is done.
138) _____ is used for detection of syphilis.
139) _____ first discovered quantitative double immunodiffusion assay.
140) _____ refers to the binding of similar epitopes present on different antigens.
141) The total binding strength of all binding sites of an antibody with multivalent antigen is called _____.
142) Antibody affinity can be measured by _____.
143) In antigen-antibody interaction K1 indicates _____ and K-1 indicates _____.
144) The ratio of K1 / K-1 is _____.
145) The lower the value of K_d indicates _____ interaction.

146) Experimentally K_d is determined by _____ which is now replaced by _____.
147) In IgE immunoglobulin heavy chain have _____ domain.
148) _____ are the antibodies that catalyzed specific chemical reactions.
149) _____ has intrinsic adjuvant like activities.
150) _____ is used to assay the label of leukotriene C4 in blood in asthma patient.

Part-II

B) Very Short Notes.

1) Write the role of cytokines in the human body.
2) What is epitope?
3) Name any two autoimmune diseases.
4) What is the role of adjuvants?
5) What is monoclonal antibody?
6) What is MAC (membrane attack complex)?
7) What is the hinge region in an antibody?
8) What is recombinant vaccine?
9) What are examples of APC cells?
10) What is phagolysosome?
11) Mention the immune functions of erythroid cells.
12) What is leukocytosis ? Write its significance?
13) What is the function of the red pulp of the spleen?
14) How‘rubor' and 'calor' are caused?
15) What are the basic stages of inflammation?
16) What is opsonization?
17) What are the 3 types of diagnostic tests for the presence of autoantibodies?
18) Write the four main types of antimicrobial substances.
19) How many isotypes of immunoglobulins occur in humans and what are they?
20) Name the commonly used enzymes in ELISA.
21) Define Self-MHC restriction.
22) What is the role of invariant chain peptide?
23) What are molecular chaperones?
24) How is the lectin pathway initiated?
25) Why cytokines are pleiotropic?
26) What is cascade induction of cytokine?
27) What is atopic allergy? Give examples.
28) What are the 3 causes of the sudden appearance of emerging viruses?
29) What do you mean by DNA vaccines? Give examples.
30) What is pleiotropism?

Part-III

C) Short Notes.

1) Difference between B-cell and T-cell.
2) What is the antibody-dependent cellular cytotoxicity.
3) What is the Active immunization?
4) What is the clonal selection theory?
5) What is GALT and MALT?
6) Write a short note on RIA.
7) What are the functions of MHC I and MHC II?
8) What is the role of cytokines in inflammation?
9) What is the main function of macrophage monocytes?
10) What is a booster dose?
11) Write a short note on adjuvants.
12) Write a short note on Haematopoiesis.
13) Write a short note on anatomical barriers.
14) Differentiate between Cell mediated immunity and Humoral immunity.
15) Why APCs are important?
16) Write a short note on direct ELISA.
17) Write a short note on hapten.
18) Write a short note on RIA.
19) Write a short note on neutralization.
20) Write a short note on rheumatoid arthritis.
21) Write a short note on HLA.
22) Difference between antigen and antibody.
23) Write a short note on anaphylatoxin.
24) Write a short note on interleukins.
25) Function of cytokine.
26) Write a short note on Complement fixation.
27) Difference between epitope & paratope.
28) Write a short note on attenuated virus.
29) Write a short note on conventional vaccines.

Part-IV

D) Long answer questions.

1) Briefly discuss different anatomical barriers in the human immune system.
2) What is cell-mediated immunity? Describe the components and functions of cell-mediated immunity with a diagram.
3) Describe the structure of Immunoglobulin. Add a note on their diversity and function.
4) Explain the principles of ELISA with different types and functions.
5) Describe the main three complement system pathways.
6) Explain Endogenous pathways of antigen processing and presentation.
7) Give a detailed account of vaccine types and vaccination.
8) Describe hypersensitivity I and II.
9) Define and explain innate immunity.
10) Describe acquired immunity.

11) Explain about cells of the immune system.
12) Describe different types of Igs.
13) Explain about ELISA.
14) Give a detailed explanation about antigen-antibody interaction.
15) Define antigen. Give an account of antigen with an example.
16) Define and explain MHC.
17) Give an account of the complement system.
18) Define Cytokine. Explain its types with examples.
19) Define HIV. Explain it with function.
20) Explain different types of vaccines.
21) Explain about Type I & I hypersensitivity.
22) Explain about Type II & IV hypersensitivity.
23) Explain the various peripheral lymphoid organs and discuss their immunological role in the body.

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QUESTIONS BANK

SUBJECT - ZOOLOGY

Paper – DSE – III (FISH AND FISHERY)

Part-I

A. Fill in the blanks.

1) Small fishes use their _____ fin for swimming.
2) The central part of the cycloid scale is called _____.
3) In hormonal control of bioluminescence _____ hormone control light emission.
4) Transgenic Tilapia that serves as a source of islet cells for human transplant are genetically modified with _____ gene.
5) Fish Silage is used as _____ feed.
6) Red paste disease is caused by _____ bacteria.
7) The scientific name of brine shrimp is _____.
8) The pH of water in aquarium for fresh water fishes should be _____.
9) _____ body shaped reduce water resistance to movement in fishes.
10) _____ locomotion is characteristics of rays and skates.
11) Tuna show _____ locomotion.
12) Small fishes use their _____ fin for swimming.
13) Sucking Disk of sucker fish is modified _____ fin.
14) Caudal fin in shark is of _____ type.
15) The fin that enables the flight for flying fish is modified _____ fin.
16) The claspers in shark are modified form of _____ fin.
17) Caudal fin in flying fish is of _____ type.
18) In _____ swim bladder is modified into lungs.
19) The swim bladder type whose ducts pneumatics in at trophied is _____.
20) Swim bladder of lung fish resembles the lung of _____.
21) In hormonal control of bioluminescence _____ hormone control light emission.
22) _____ bacteria housed in photophores produced light in bioluminescence.
23) _____type of gill occurs in bony fish.
24) _____ type of gill occurs in elasmobranches.
25) The respiratory pigment that binds to O_2during gaseous exchange in _____.
26) The egg that sink are called _____ eggs.
27) The egg that float are called _____ eggs.
28) Sensory receptors that response to mechanical pressure is called _____.

29) European Eel exhibits _____ type of migration.
30) Around _____ % of the global Tuna catches are from Indian ocean.
31) Fishing licences for EEZ is under _____ government.
32) The integration of aquaculture and hydroponics Is called _____.
33) In intensive fish culture the quantity of fish produced per unit area is _____.
34) In _____ practice all available niches are utilised.
35) Eradication of fish enemies is done with _____.
36) For induced breeding the turbidity of water should be between _____.
37) Plants are planted in the aquarium with help of _____.
38) Bacterial gill disease is caused by _____.
39) _____ fish use their dorsal fin as a lure.
40) _____ type fin support mud-skippers on land.
41) The scale that give a sand paper like quality to skin is _____.
42) Saw teeth of *Pristis* is a modification of _____ scales.
43) The central part of cycloid scale is called _____.
44) In porcupine fish spine are modification of _____.
45) Scales present in primitive Actinopterygians is known as _____.
46) _____ scale found in ancient lobed finned fish.
47) _____ fish exhibit presence of spawning marks on its scales.
48) The duct that links swim bladder with a esophagus called _____.
49) The sac like structure present between the gut and kidney called _____
50) The electric organs are best developed in _____.
51) The strength of the electric discharge generated by the Torpedo varies between_____ volts.
52) _____ tissue that got transformed into electric organ.
53) In which fish Kidney shaped electric organs are found _____.
54) In chemical luminescence the chemical substance secreted is _____.
55) Numerous folds that increase the surface area of gills called _____.
56) The condition in which the reduced male of angler fish attaches to the female and provides sperm for reproduction is called _____.
57) Reproductive strategy found in anemone fish is called _____.
58) Intromittent organ found in cartilaginous fishes named as _____.
59) Stimulation of egg development simply by the of presence of sperm without genetic contribution is known as _____.
60) The largest hair present in the Neuromast sensory hair cell is called _____.
61) A shoal swimming in the same direction is Known as _____.
62) When some individuals migrate while others do not, it is called _____.
63) Fishes that migrate for the sake of feeding are termed as _____.
64) Indian shad exhibit _____type of migration.
65) Drifting with the wader current is known as _____.

66) The water temperature under cold water fisheries is around _____.
67) A semi-enclosed coastal body of water having free connections with open sea called _____.
68) ----------is the largest estuary on the Indian coast covering gangetic delta.
69) _____contribute around 6% of the total pelagic fish landings of India.
70) The instore coastal fisheries is upto _____ nautical miles.
71) Seine used to catch pelagic and migratory fishes is _____.
72) _____ is used to encircle a detected fish school.
73) The gear used to catch individual fish is called _____.
74) The collection & trade of native ornamental fish species from natural water is regulated by _____.
75) One of the major cause of depletion of fish stock is _____.
76) The protein content of supplement feed fore brood fish is _____.
77) The size of the fish used as brood fish is _____.
78) The most effective method of injection to inject brooders is _____.
79) Installation of _____ maintains proper oxygen content in aquarium.
80) Hlisa shows _____ type of migration.

ANSWERS:-

1) Caudal fin	**41) Placoid**
2) Focus	**42) Placoid**
3) Melatonin	**43) Focus**
4) Insulin gene	**44) Scale**
5) Fish meal	**45) Ganoid**
6) Bacterium cyprinid	**46) Cosmoid**
7) Artemia salina	**47) Atlantic salmon**
8) 6.8-7.8	**48) Ductus pneumatius**
9) Streamlined	**49) Swim bladder**
10)Bartoid	**50) Torpedo**
11) Thunniform	**51) 30-40 volts**
12) Pectoral fin	**52) Muscle tissue**
13) Dorsal	**53) Torpedo**
14) Heterocercal	**54) Luciferin**
15) Pectoral	**55) Gill lamellae**
16) Pelvic	**56) Sexual parasitism**
17) Homocercal	**57) Hermaphroditism**
18) Dipnoi	**58) Claspers**
19) Physoclistous	**59) Gynogenesis**
20) Amphibians	**60) Kinocillium**
21) Adrenalin	**61) Schooling**
22) Symbiotic	**62) Partial migration**
23) Opencular gill	**63) Feeding migration**

24) Septal gill	**64) Anadromous**
25) Haemoglobin	**65) Denatant**
26) Demersal	**66) 〖25〗^0 c**
27) Pelagic	**67) Estuary**
28) Mechanorepector	**68) Hoogly- Matlah**
29) Catadromous	**69) Anchovies**
30) 19	**70) 12**
31) Central	**71) Purse seine**
32) Aquaponics	**72) Drag net**
33) High	**73) Hook and line**
34) Polycuturs	**74) State/UTs**
35) Piscicide	**75) Overfishing**
36) 100-1000ppm	**76) 25-30%**
37) Planting sticks	**77) 2-3 kg**
38) Flavobacterium branchiophilum	**78) Intramuscular**
39) Angel fish	**79) Aerators**
40) Pectoral fin	**80) Anadromous**

Part-II

B) Write Very short notes on given term.

1) Who proposed gill-arch theory?
2) What is turbidity?
3) What is over fishing?
4) What is shoaling?
5) What are biological factors influencing fish migration?
6) What is schooling in fishes?
7) What is Angiogenesis?
8) What are transgenes?
9) What is the function of endolymphatic duct in shark ?
10) What are pelagic eggs?
11) Hypophysation
12) Sustainable sea food
13) Need for sustainable aquaculture.
14) Flat fish
15) Tuna fish

Part-III

C. Write short notes on given term.

1) What is Anadromous migration in Fish ?
2) What are disease registant gene?
3) What are aquarium filters ?
4) What are advantages of Zebra fish taken as a model?
5) What is the use of Is in glass?
6) What is bacterial gill disease?
7) What are spawnig method in fishes?
8) What are polyculture in relation to aquaculture?
9) What is (BFT) Biofloc-technology?
10) What is cart-net for fishing?
11) EEZ
12) Coastal fishery
13) Gill-rakers
14) Respiratory pump in fishes
15) Septal gills

Part-IV

D. Long answer questions.

1) Write an essay on the origin and evolution of fish fins with examples of modifications of dorsal fins.
2) Describe the different type of locomotion found in fishes with significance.
3) Discuss the cause of depletion of fish resources and give an account overcome them.
4) What are the objectives of National fishery policy? Describe regulation of Inland fishery.
5) What is aquaculture? Discuss about the factors which affect the aquaculture.
6) What is fish hatching? Describe different type of fish hatching in India.
7) What is transgenic fish? What are the techniques used for development of transgenic fish with example.
8) Write about the viral diseases found in fish and discuss the important practices of disease management in pisciculture.
9) Give an account of mechanism of gas exchange in fishes.
10) Give an account of bioluminiscences in fishes.
11) What is composite fish culture.
12) What is aquarium? Discuss the steps towards preparation of a home aquarium.