QUESTION BANK
DEPARTMENT OF BOTANY

SEMESTER- I

Core 1 (Microbiology and Phycology)

A. Fill in the blanks (1 mark each)

1. The study of Algae is known as_____.
2. The reserve food material in chlorophyceae is _____.
3. The alga _____is an example of heterotrichous habit.
4. Water blooms are generally formed by_____.
5. The reserve food floridean starch is found in the members of class_____.
6. The principal pigment of Phaeophyceae importing distinctive brown colour is _____.
7. _____is the reserve food material in cyanophyceae.
8. Pyrenoids are meant for _____synthesis in various algae.
9. Fusion between gametes of unequal sizes is called_____.
10. Cup shaped chloroplast is found in _____.
11. Coenobium is found in _____.
12. The species of chlamydomons which forms the red snow is _____.
13. _____genus has the characteristics of cap cells.
14. Multicillated zoospore is found in _____.
15. In coleochaete the chloroplasts are _____shape.
16. _____type of thallus is found in Ectocarpus.
17. Agar-agar is mainly obtained from _____.
18. The algae _____is used in study of photosynthesis.
19. _____is known as Pond scum.
20. _____contains alginic acid.
21. The cell wall of algae is made up of _____.
22. _____type of life cycle is found in Ectocapus.
23. _____type of life cycle is found in Fucus.
24. _____type of life cycle is found in Polysiphonia.
25. Zygotic meiosis is characteristics of _____.
26. _____is known as father of modern Indian Algology.
27. The asexual, motile, flagellated reproductive body of algae is known as_____.
28. _____is known as 'Jewels of the plant world'.
29. The genetic material of TMV is_____.
30. Blue green algae fix _____directly from air to enhance fertility of soil.
31. Cholera is caused by_____.
32. Flagella spread over entire surface of bacteria cell is called _____flagella.
33. Small circular DNA molecules capable of replicating and containing genes that are useful but not necessary to the bacterium are called_____.

34. NAG stands for_____.
35. Cube like arrangement of spherical bacteria is referred as_____.
36. Spiral bacterium with flexible body is known as_____.
37. NAM stands for_____.
38. Organisms that obtain energy from the oxidation of either organic or inorganic compounds are called_____.
39. _____is the polysaccharide layer that lies outside the cell wall of bacteria and is not easily removed.
40. Hair like projection involved in bacterial mating is called_____.
41. _____are the viruses which infect bacteria.
42. Phages that show lysogenic cycle are called_____.
43. _____discovered virus.
44. In a virus infection on bacterial cell, phage 'ghost' represents_____.
45. The genetic material of QX174 is _____.
46. Organisms which parasitize only a specific host are _____.
47. Bacteriophage releases lysozyme at _____phase.
48. The protein sub unit of TMV is called_____.
49. The process of reverse transcription was discovered by_____.
50. The bacteria used in gene transfer is _____

B. Very short type question (1.5 marks each)

1. What is prophage?
2. What is the genetic material of HIV?
3. What is the genetic material of TMV?
4. What is the genetic material of retrovirus?
5. What is the genetic material of Poliovirus?
6. What is reverse transcription?
7. Who discovered Bacteria?
8. Name the nucleic acid present in plant viruses?
9. What is Transduction?
10. What is bacterial transformation?
11. What is bacterial conjugation?
12. Who discovered bacterial transformation?
13. Who discovered bacterial conjugation?
14. Who discovered Transduction?
15. Which bacteria is responsible for curd formation.
16. Which bacteria is used for acetic acid formation.
17. Name an aerobic nitrogen fixing bacteria.
18. Name a denitrifying bacteria.
19. Name a nitrifying bacteria.
20. What is facultative parasites?
21. Which algae are responsible for 'Red Snow'?
22. Name the parasitic alga that causes 'Red Rust' in tea & coffee.

23. What is isogamy?
24. What is anisogamy?
25. What is oogamy?
26. What is zoopore?
27. What is aplanospore?
28. Which algae are known as kelps?
29. Which algae are source of Iodine?
30. What is the reserve food material of Brown algae?
31. Name a coenocytic algae.
32. What is hypnospore?
33. Which algae are source of algin?
34. Name the site for nitrogen fixation of Nostoc.
35. What is the photoreceptive organ of Chlamydomonas?
36. Which algae contains cup shaped chloroplast?
37. Which algae has characteristics of palmella stage?
38. What is zygospore?
39. Which type of life cycle found in chlamydomonas?
40. Which algae has reticulate chloroplast?
41. Which algae has characteristics feature of synzoospore or compound zoospore?
42. Which algae has characteristics feature of Gongrosira stage.
43. Name the algae having characteristics feature of unilocular & plurilocular sporangia.
44. What is common name of fucus?
45. Which algae are source of agar-agar?
46. Which are most primitive group of Algae?
47. Which type of life cycle found in Polysiphonia?
48. What is the reserve food material of cyanophyta?
49. Which is the most advanced group of algae?
50. Name the term used for male gametes of Polysiphonia.

C. Short questions (2.5 marks each)

1. Archaebacteria.
2. Mycoplasma.
3. Facultative parasitic bacteria.
4. Facultative saprophytic bacteria.
5. Cell wall of algae.
6. Binary fission.
7. Sphaeroplast.
8. Heterocyst.
9. Conjugation.
10. Transformation.
11. Transduction.
12. Nitrogen fixing bacteria.
13. Isogamy.

14. Oogamy.
15. Anisogamy.
16. M.O.P lyengar.
17. F.E Fritsch.
18. Prion.
19. Viroid.
20. Bio fertilizer.
21. Agar-agar.
22. Cyanobacteria
23. Coenobium.
24. Zoospore.
25. Aplanospore.
26. Hypnopore.
27. Palmella Stage.
28. Prophage
29. Gongrosira stage.
30. Coenocytic algae.
31. Pyrenoid.
32. Haplontic life cycle.
33. Spermatium.
34. TMV
35. Lytic life cycle.
36. Lysogenic life cycle.
37. Methanogenic bacteria.
38. Endospore.
39. Bacteriophage.
40. Gram +ve bacteria.
41. Pigments of Rhodophyta.
42. Pigments of Phaeophyta.
43. Diplobiontic life cycle.
44. Algin
45. Water bloom
46. Fermentation
47. Role of Algae in Biotechnology.
48. Transduction.
49. Globule.
50. Nucule.

D. Long questions (8 marks each)

1. Describe about microbial nutrition.
2. Describe about microbial growth and metabolism.
3. Describe about Baltimore classification of virus.
4. Describe about structure and life cycle of T-phage.

5. Describe about structure of bacteria.
6. Describe about vegetative & asexual reproduction of bacteria.
7. Describe about genetic recombination in bacteria.
8. Describe about economic importance of bacteria.
9. Describe about morphology & life cycle of Nostoc.
10. Describe about range of thallus structure in algae.
11. Describe about methods of reproduction in Algae.
12. Describe about Fritsch classification.
13. Describe about morphology & life cycle of Chlamydomonas.
14. Describe about morphology & life cycle of Oedogonium.
15. Describe about morphology & life cycle of Volvox.
16. Describe about different type of life cycles found in Algae.
17. Describe about morphology & life cycle of Ectocarpus.
18. Describe about morphology & life cycle of Vaucheria.
19. Describe about morphology & life cycle of Polysiphonia.
20. Give an account of the status of microorganism in the living world.

Core 2 (Biomolecules and Cell biology)

A. Fill in the blanks (1 mark each)

1. Water molecule is electrically ----------

2. The distance of a covalent bond is _____

3. A buffer solution has a definite _____value.

4. Molecules of small size, low molecular weight but high solubility are known as _____.
5. Crossing over occurs in_____ stage of meiosis.
6. Carbohyarates are hydrates of _____
7. _____are the building block materials for the complex carbohydrates
8. _____is a storage polysaccharide of animals and fungi
9. In nature _____are the stored form of energy
10. The term lipid was coined by_____
11. _____ are hydrophobic in nature
12. _____are of biological origin which speed up various chemical reactions
13. Enzymes are _____in nature
14. Emil fisher proposed _____model for explaining enzyme action
15. Enzymes are mostly _____
16. Enzymes are the polymers of _____
17. Enzymes occur in the cell in the form of _____
18. An apo enzyme is a _____

19. NADP is a _____
20. _____is a structural polysaccharide
21. Most of the lipids are esters of _____
22. Insulin is a _____
23. Glycerol, a component of _____is used in manufacture of food
24. _____are found in all living organisms
25. _____are the bearers of hereditary characters .
26 . A nucleoside is _____
27. Left handed DNA is known as _____
28. Pyrimidines present in RNA are _____
29. DNA was first discovered by _____
30. The two strands of DNA are _____and _____
31. _____was awarded Nobel prize for synthesis of RNA
32. Middle lamella is made of _____
33. Cytoplasmic continuity is due to _____
34. _____is absent in prokaryotes
35. _____is a major secretary organelle of the cell
36. _____is known as physical basis of life
37. _____ are known as power houses of the cell .
38 . Centrosome splits into two _____
39. Ribosomes are produced in _____
40. _____cell wall is near to cell membrane
41. Microtubules are absent in _____
42. Nucleic acids were discovered by _____
43. Nucleus was discovered by _____
44. _____discovered plastids
45. _____are suicide bag of cell
46. The cells divide by _____in asexual reproduction
47. The longest phase of inter phase is _____
48. The term meiosis was introduced by _____
49. The term mitosis was coined by _____
50 . Mitosis is best observed in _____

B. Very short type questions (1.5 marks each)

1 .What is biomolecule ?
2 . What is chemical bond ?
3 . What is buffer solution ?
4 . What is Ionic bond ?
5 . What is exergonic reaction?
6 . What is endergonic reaction ?
7 . What is free energy?

8 . What is redox reaction?
9 . What is the pH value of rain water ?
10 . What is enzyme ?
11 . What is apoenzyme ?
12 . What is coenzyme ?
13 . What is disaccharide ?
14 . What is polysaccharide ?
15 . What are active sites ?
16 . What are conjugate enzymes ?
17 . What is peptide bond ?
18 . What is holoenzyme ?
19 . What is fatty acid ?
20 What is monoaccharide ?
21 . What is primary protein ?
22 . What is iso electric point ?
23 . What is entropy ?
24 . Who discovered nucleic acid ?
25 .What is first law of thermodynamics ?
26 . Write Michelis-Menten's equation ?
27 . What is cofactor ?
28 . What is a cell ?
29 . Who discovered cell ?
30 . Who discovered cell theory ?
31 . Who proposed the term nucleus ?
32 . Who discovered fluid mosaic model ?
33 . Who coined the term ribosome ?
34 . What is eukaryotic cell?
35 . What is prokaryotic cell ?
36 . What is oligosaccharide?
37 . Who discovered nucleolus ?
38 . What is B- DNA ?
39 . What is nucleoside ?
40 . What is mRNA ?
41 . What is passive transport ?
42 . What is chromatin ?
43 . Who discovered Lysosome ?
44 . What is nuclear pore complex ?
45 . What is cell cycle ?
46 . What is chiasmata?
47 . What is synapsis ?
48 . What is interphase ?
49 . Who discovered ribosome ?

50 . Who coined the term mitosis ?

C. Short questions (2.5 marks)

1 . What are carbohydrates ? Give suitable example ?
2 . Write short note on fatty acid.
3 . Name two fibrous proteins.
4 . What is secondary protein ? Give an example .
5 . What are lipids ? Give an example .
6 . What do you meant by enthalpy and entropy.
7 . Name the process by which somatic cells divide .
8 . Write first law and second law of thermodynamics
9 . What are endergonic and exergonic reactions ?
10 . Write the full form of ATP and ADP.
11 . Give two properties of water molecule .
12 . What is melting point and boiling point?
13 . Give pH value of rain water and tap water.
14 . write two significance of chemical bonds .
15 . What is purine and pyrimidine?
16 . What is nucleoside and nucleotide ?
17 . Give two example of secondary protein ?
18 . Write two functions of DNA.
19 . Write is two functions of RNA.
20 . What is two functions of fatty acid ?
21 . Which two organelles are referred as 'a cell within a cell'?
22 . Name three major components of primary cell wall .
23 . Name three cell organelles enveloped by a single unit membrane .
24 . Explain why cell is called the basic unit of life .
25 . Explain the roles of SER and RER .
26 . Write the two function of ribosome.
27 . Describe crossing over.
28 . White two functions of cell membrane .
29 . Who proposed the term golgi complex and in which year?
30 . What is eukaryotic and prokaryotic cell.
31 . Name two contractile protein .
32 . Who proposed mitochondria and in which year ?
33 . Who studied the structure of proteins and give one example of protein .
34 . When does the reduction in chromosome number occurs during meiosis ?
35 . What is simple and compound lipid ?
36 . Give two example of simple lipid ?
37 . What is steroid and cholesterol ?

38 . Write two properties of triglyceride.
39 . Who proposed the term protein and in which year ?
40 . What is primary structure and secondary structure of protein .
41 . Who proposed the term nucleic acid and in which year ?
42 . What is DNA and RNA .
43 . Write the two types of Nucleic acid .
44 . What is B-DNA and Z-DNA .
45 . What is reducing and non reducing sugar ?
46 . Write the two chemical properties of triglyceride .
47 . Write the full form of AMP and ATP .
48 . What is holo enzyme and apoenzyme ?
49 . What is cell and cell theory ?
50 . Describe active and passive transport.

D. Long questions (8 marks each)

1 . Describe the structure and physical properties of water .
2 . Describe different types of covalent bonds .
3 . What is carbohydrate? Classify the carbohydrates with suitable examples .
4 . What is protein? Describe the different structures of proteins
5 . Describe the structure and function of ATP molecule. .
6 . Explain the principle of conservation of energy in nonliving and living systems .
7 . Describe the molecular mechanism of enzyme action .
8 . Give an account of nomenclature and classification of enzymes
9. Describe different factor that affect the enzyme activity.
10. Describe the Watson and Crick model of DNA.
11. Give a comparative account of prokaryotic and eukaryotic cell.
12. Describe the structural organization of the cell membrane.
13. Give an illustrated account of structure of nucleus.
14. Describe the structure and function of mitochondria.
15. Descrbe the structure and function of chloroplast .
16. Give an account of structure ad function of ribosome.
17. Describe the structure and function of golgi complex.
18. Describe the different stages of mitosis.
19. Describe the different stages of meiosis-1.
20. What is cell cycle ? Describe eukaryotic cell cycle.

.

SEMESTER- II
Core 3 (Mycology and Phytopathology)

A. Fill in the blanks (1 mark each)

1 . The word fungus is derived from the Latin word---------- .
2 . The study of fungus is known as---------- .
3 . The nutrition in fungi is ---------- .
4 . Fungi lack ------- .
5 . The cell wall of the fungi is made up of--------- .
6 . Father of modern mycology is --------- .
7 . In Saccharomyces , ---------- is the most common method of vegetative reproduction .
8 . Sexual reproduction in yeast takes place by---------- .
9 . Sometimes in yeast the conjugation takes place between a parent cell and a bud . It is called---------- .
10 . Aspergillus is also known as------ -- .
11 . The fruit body of penicillin is called -------- -- .
12 . The spores in the members of zygomycetes are---------- .
13 . Rhizopus multiplies by the formation of---------- .
14 . The rusts are serious diseases of our economic plants. The disease is caused by the fungus---------- .
15 . Black stem rust of wheat is caused by---------- .
16 .Number of ascopores formed in Saccharomyces cerevisiae is -- -- .
17 . Basidiocarps are the fruit bodies of -------- -- .
18 . The edible mushroom is---------- .
19 . The secondary dikaryotic mycelium formed in the ---------- phase of Agaricus .
20 . Plasmogamy in Albugo candida takes place by -------- -- .
21 . Albugo candida absorbs its nourishment from the host cells through ----
22 . In Phytophthera infectans , the asexual reproductive bodies behave as ------ -- .
23 . The algal component of a lichen thallus is known as--------- .
24 . The lichens consisting of a member of basidiomycetes are known as – ------ .
25. Yeast like budding of Oidia in Mucor/Rhizopus is called------ -- .
26. In majority of lichens , the fungal component is a member of class --- .
27. The common mode of reproduction in Rhizopus is by------- .
28. The name of the lichen which produces antibiotics is ------ -- .
29. Root rot of Sweet Potato is caused by -------- -- .
30. Lichens are bioindicators of-------- -- .
31. Fungus used for the fermentation of cheese is --- -- .

32. The study of plant disease is known as---------- .
33. Father of Indian plant pathology is---------- .
34. Phytophthora infectans causes the disease known as-------- -- .
35. The name of the disease caused by Albugo Candida is ------ .
36. The name of the causal organism of early blight of potato is--------- .
37 .In ----------mycorrhiza, the tips of fungal hyphae occur inside cortical cells.
38 . Gibberellin are produced by the fungus ------- -- .
39 . The yeasts secret the enzyme complex is called as-------- .
40 . The smuts of crop plants are caused by-------- .
41 . The chemicals used for killing fungal pathogens are called-------- .
42 . Litmus dye is obtained from lichen---------- .
43 . The first colonizers on rocks in mountains are ----------.
44 . Lichens are composite thollophytes containing an alga and a-------- .
45 . The cultures of fungi are needed for----------studies .
46 . Mycorrhiza is an association between the ---------and a fungus.
47 ---------- types of mycorrhiza commonly occurs.
48. Fungi growing on dungs are called------ -- .
49 .Thread like filaments which form the plant body of fungi are------- .
50 . Which fungi is used in citric acid production -- -- .

B. very short questions (1.5 marks each)

1 . What is true fungi ?
2 . Which type of nutrition is found in fungi ?
3 . Which fungi is known as laboratory weed ?
4 . What is budding ?
5 . What is stolon ?
6 . Write any one character of Ascomycetes .
7 . What is parasexuality ?
8 . What the fruiting bodies ?
9 . Write any one character of Basidiomycetes ?
10 . What is an ascus ?
11 . what is spermatization ?
12 . Which type of tissue is found in Fungi?
13 .Name the group of fungi with septate mycelium and lack of sexual reproduction ?
14 . Give one Economic importance of yeast .
15 . What is Eurotium ?
16 . What is psedoparenchyma?
17 . What is prosenchyma ?
18 . What is sporophore ?
19 . Write the tern sclerotium ?
20 . Who discovered penicillin ?
21 .Give one economic importance of penicillium .

22. 'Ergot' is obtained from which fungi?
23. What is rust of disease ?
24. Which is causal organism for Bengal famine 1943?
25. Genus Penicillium belongs to which class ?
26. What is facultative parasite?
27. What is Uredospore?
28. What is teleutospore ?
29. What is obligate parasite?
30. What is obligate saprophytes ?
31. What is reserve food material of fungi?
32. Give one example of fruticose lichen.
33. What is mycorrhiza ?
34. What is Ectomycorrhiza ?
35. What is Endomycorrhiza?
36. Name one edible mushroom .
37. What is antibiotics ?
38. What is chlorosis ?
39. Which fungi is known as bread mould ?
40. What is foliose lichen?
41. What is mycobiont ?
42. What is facultative saprophytes?
43. What is crustose lichen ?
44. What is fructicose lichen?
45. What is necrosis ?
46. Write the name of the causal organism for early blight of potato .
47. Write any plant character of fungi.
48. The name of the disease caused by Albugo Candida .
49. Which division of Fungi is known club Fungi.
50. Name the group of organism which are source of alfatoxin.

C. Short questions (2.5 marks each)

1 . Write any two characters of phycomycetes .
2 . Write any three characters of Basidiomycetes .
3 . Write any two important characters of Fungi .
4 . Write the two vegetative characters of Rhizopus .
5 . Why Rhizopus is called as bread mould ?
6 . Write two important characters of asexual reproduction in Rhizopus ?
7 . Who first used the term heterothallism and in which year ?
8 . Write characteristic features of zygomycota .?
9 . What do you mean by heterothallism ?
10 . Write about mycorrhiza. .

11 . What do you meant by zygospore ?
12 . What do you mean by heterokaryosis and parasexuality.
13 . Who first described yeast cell and in which year .
14 . Write two vegetative characters of yeast cell .
15 . Write two vegetative features of Penicillium .
16 . Write two important significance of Neurospora .
17 . What do you mean by autoecious and heterocious?
18 . Write two alternate host of Puccinia .
19 . Wtat do you mean by Teleutospore and Uredospore ?
20 . Write two important characters of slime mold. .
21 Write the fruiting bodies in slime molds .
22 . Write the two important vegetative characters of phytophthora .
23 . Write the division and Family of Albugo .
24 . Why oomycota are not considered as true fungi ?
25 . What do you mean by oospores in Albugo ?
26 . What do you meant by periplasm and ooplasm ?
27 . Write the two important characters of lichen ?
28 . What is crustose lichen and Foliose lichen ?
29 . Give two examples of Foliose lichen ?
30 . Give three examples of fruticose lichen ?
31 . Write two Economics important of lichen ?
32 . What Ectomycorrhiza and endomycorrhiza ?
33 . Who discovered penicillin and in which year ?
34 . What is Alfatoxin and ochratoxin ?
35 . Describe about nutrition in Fungi.
36 . Describe vegetative structure of Agaricus.
37 . What do you mean by loose smut and covered smut ?
38 . Write the kingdom and order of Agaricus ?
39 . Write about cell wall of Fungi?
40 . Write the plant characters of fungi ?
41 . What do you mean by photobiont and mycobiont ?
42 . What do you mean by Isidia and sordaria ?
43 . Write the two ecological significance of lichen ?
44 . What do you mean by symbiosis ?
45 . Write the two medicinal uses of lichen ?
46 . What do you mean by plant pathology and pathogens ?
47 . What do you mean by Necrosis and Chlorosis ?
48 . Write about different species of Saccharomyces ?
49 . Write the two control measures of early blight .
50 . Write two symptoms of early blight of patato.

D. Long questions (8 marks each)

1 . Give an account of the modern classification of fungi ?
2 . Discuss the sexual reproduction in Rhizopus ans its significance ?
3 . Give an account of sexual reproduction in Aspergillus ?
4 . Give an account of life cycle of Penicillium..
5 . Give an account of the life cycles in saccharomyces .
6 . Give an account of taxonomic status of slime molds .
7 . Discuss the general features of slime molds .
8 . Describe the life cycle of phytophthora .
9 . Describe the life cycle of Albugo .
10 . Describe the life history of Agaricus .
11 . Discuss the life cycle of Puccinia.
12 . Give a bnief account of the general characters of oomycota .
13 . Give an account of reproduction in lichens .
14 . Describe the economic importance of lichens .
15 . Describe the morphology and structure of lichens .
16 . Give an account of role of fungi in food industries .
17 . Discuss the role of fungi in biotechnology .
18 . What do you mean by disease cycle ? Discuss the various stages of disease cycle .
19 . Discuss the early blight of potato disease and its methods of control .
20 . Give an account of degeneration of sex in fungi.

Core 4 (Archegoniate)

A. Fill in the blanks (1 mark each)

1. The number of ventral canal cell in bryophytes is always _____
2. In liverworts, the rhizoids are _____ cellular
3. Bryophytes are classified into _____major classes.
4. In Bryophyte, calyptra develops from _____.
5. In all bryophytes, water is _____for fertilization.
6. Bryophytes in general are known as _____of plant kingdom.
7. Bryophytes don't possess _____in their gametophytic plant body.
8. In bryophytes, spore mother cell are _____ in nature.
9. Members of anthocerotopsida are commonly known as _____.
10. The sperms of bryophytes are_____.
11. In Riccia, antherozoids are _____.
12. In Marchantia, the endothecium ultimately gives rise to _____.
13. The calyptra, protecting the sporogonium of Riccia is _____in nature.
14. Anthoceros is commonly known as _____.
15. The sporophyte of anthoceros grows indefinitely due to the presence of _____.
16. The pseudoelaters of Anthoceros are _____

17. In Riccia crystallina, the ventral scales are _____
18. Elaters are not found in _____.
19. The antherozoids of Riccia are _____.
20. In Riccia the anthenidium is _____shaped.
21. Calyptra in Marchantia is found in _____.
22. The stalk of gemmae of marchantia is _____.
23. Gemma cup is found in _____.
24. In Marchantia the chloroplast is _____.
25. Formation of elaters is characteristic of _____.
26. In Marchantia asexual reproduction is happened by_____.
27. Elaters are _____in nature.
28. In Funaria spores germinate to form _____.
29. In Funaria, the reducation division takes place in _____.
30. The conducting strand in Funaria is called_____.
31. Spore mother cell in funaria is _____in nature.
32. All members of psilophytopsida are _____.
33. True roots are _____in psilotopsida.
34. In crustation fossils are suitable for the study of _____.
35. The process of preservation of living beings or their parts is known as_____.
36. Rhynia was discovered by _____.
37. A Devonian vascular plant is named as _____.
38. Rhynia major is found in _____.
39. Rhynia is a _____pteridophyte.
40. Psilotum belongs to the order of _____.
41. Psilotum consists of stem and _____.
42. Sperms in Selaginella are _____.
43. Heterospory means presence of _____type of spores.
44. Stem in Selaginella is _____.
45. In Selaginella the male gametes are _____.
46. In Pinus pollination is _____.
47. Pinus is _____plant.
48. The coralloid root of Cycas _____nature.
49. The archegonium of Cycas lacks _____.
50. In plant kingdom the largest ovules occur in _____.

B. Very short type questions (1.5 marks each)

1. Give the names of spore wall layers found in Riccia ?.
2. In which species of Riccia the midrib is absent ?.
3. Name of the types of rhizoids in Riccia ?.
4. Name of the tissue which gives rise to spore mother cell in Anthoceros ?.
5. Name one monoecious species of Anthoceros ?.
6. In which bryophyte pyrenoids are present in chloroplast ?.
7. What is the mode of nutrition in sporophyte in Funaria ?.
8. Name one growth stage of the gametophyte in the life cycle of Funaria ?.
9. What is thallus of Marachantia ?.
10. What is a gemma cup ?.
11. Define protonema ?.

12. What is calyptra ?.
13. What is peristome ?.
14. In which plant will you find peristome ?.
15. Name a fossil plant that you have studied ?.
16. Name the sporophytic species of Rhynia ?.
17. Who discovered Rhynia ?.
18. Which type of stele occurs in Rhynia ?.
19. Name the gametophytic phase of Rhynia major ?.
20. To which sub-division of ptridophyte Rhynia belongs ?.
21. Name a pteridophyte whose spores have eaters ?.
22. Name the type of stele found in Equisetum ?.
23. Which pteridophyta has a spore with elaters ?.
24. What is a stele ?.
25. Name a hydrophytic pteridophyte .
26. Nam the type of stele found in Marsilea .
27. Name the stele found in Marsilea rhizome .
28. What type of stele occurs in Selaginella ?
29. Name a pteridophyta growing in water .
30. In which plant ligule is found ?
31. From where will you collect Selaginella ?
32. Which pteridophyte has trabeculated endodermis ?
33. What is heterospory ?
34. What is a rhizophore ?
35. What is ligule ?
36. What is actinostele ?
37. What is solenosteie ?.
38. Define plectostele .
39. Name most primitive type of stele.
40. What is dictyostele ?.
41. Name the scientist who proposed stelar theory ?.
42. What is haplostele ?
43. Write one important character of gymnosperm ?.
44. What male core of Cyces ?.
45. What is megasporophyll ?.
46. What is coralloid root ?
47. What is ovule ?
48. What is microsporophyll ?.
49. write one economic importance of gymnospermic plant.
50. What is needle of Pinus ?

C. Short question (2.5 marks each)

1. Name two aquatic species of Riccia.
2. Write two important features of sporophytes of Riccia.
3. Name the parts of sporophyte of Riccia.
4. Name the class and order of Marchantia.
5. What is archesporium and perichaetium ?.
6. Name the two types of scales found in Marchantia.

7. What are gemmae and archesporium?
8. Name two monoecious species of Anthoceros.
9. Describe two important differences between liverworts and hornworts.
10. What is the difference between elaters and pseudoelaters?
11. Give two important points of sporophyte of Anthoceros.
12. What are the two algal characters of Anthoceros?
13. Write structure and function of protonema.
14. Name two distinct phases of gametophyte of Funaria.
15. Give two important points of moss archegonia.
16. Name two species of Rhynia.
17. Mention the age and locality of Rhynia.
18. When and by whom was Rhynia discovered?
19. What is heterophory and homospory?
20. What is protostele and solenostele ?
21. In which plant ligule is found and where?
22. Write two special features of Selaginella.
23. What are the two types of spores produced in Selaginella?
24. Write morphological nature of rhizophore.
25. Give two important points on Selaginella stem.
26. Give two important points on Selaginella ligule.
27. Why Selaginella is known as hetrosporous?
28. Give two important features of leaves of selaginella.
29. Name the type of stele found in Marsilea petiole.
30. Name the type o f stele found in Marsilea stem.
31. Where and in which plant vallecular canal is found?
32. What is the two function of elaters of spores of Equisetum?
33. What is plectostele and protostele?
34. What is the function of carinal canal?
35. Describe one hydrophytic and xerophytic character of Equisetum.
36. Mention two important characters which are common to Cycads and Ferns.
37. Mention two important characters shared by all gymnosperms.
38. Name the two tallest species of Cycas.
39. What is male and female strobillus?
40. What is microsporophyll and megasporophyll?
41. Give two important characters to differentiate the archegonia of pinus from that of Cycas.
42. Name two common species of Pinus growing in plains ?.
43. At what age the female cone of Pinus is able to release mature seeds?
44. Name the two species of Pinus from which chilgoza is obtained.
45. Give two important characters of Cyas.
46. Give two important character of Pinus.
47. Give two anatomical differences between the stems of Cycas and Pinus.
48. Give two important features of the order Gnetales.
49. While two important functions of Gnetum.
50. Write structural peculiarities of the stem of Gnetum.

D. Long questions (8 marks each)

1. Describe the sexual reproduction and anatomical structure of Riccia.

2. Describe the life cycle of Riccia.
3. Give an account of thallus structure and anatomical structure of Marchantia.
4. Describe in details the life cycle of Marchantia.
5. Describe in details the life cycle of Anthroceros.
6. Compare the structure of sporophytes of Marchantia with Anthoceros.
7. Describe the life cycle of Funaria.
8. Describe the life history of Psilotum.
9. What is heterospory and seed habit? Explain in with the help of Selaginella.
10. Give a comparative account of reproductive structures of Selaginella and Equisetum.
11. Describe the life cycle of Selaginella.
12. Describe the morphological nature of sporocarp of Marsilea.
13. Explain the life cycle of Marsilea with the help of labelled diagram only.
14. Describe the anatomical features of rhizome and petiole of Marsilea.
15. Describe the habitat, habit and external morphology of Cycas.
16. Describe the female gametophyte of Cycas and comment on various changes brought about after fertilization.
17. Describe the post fertilization changes in the ovule of Cycas.
18. Give an illustrated account of the internal structure of the Pinus needle and point out its xerophytic features.
19. Describe the internal structure of Pinus needle and compare it with the leaflet of Cycas.
20. Give a detailed account of the morphology and anatomy of Gnetum.

Semester – III

Core-5 (Anatomy)

A. Fill in the Blanks (1 mark each)

1. The word_____has been derived from two words:ana means as under and tamaein means to cut.
2. The first person to present plant anatomy as forensic evidence in the court of law was_____.
3. Parenchyma cells engaged in photosynthesis are termed as_____.
4. The principal function of sclerenchyma is to provide_____.
5. Permanent tissue is formed by the division and differentiation of_____cells.
6. Permanent tissues can be classified into simple and_____. tissues.
7. Sclerenchyma is divided into fibres and_____.
8. Plerome gives rise to_____.
9. Periblem gives rise to_____.
10. Collenchyma hypodermis is found in_____.
11. _____tissue is thin walled and living.
12. Th hydathodes are_____.
13. Dermatogem give rise to_____.
14. _____cells contain numerous chloroplasts.
15. _____cells are usually described as isodiametric form.
16. The food in plants is stored in_____.
17. The term meristem was given by_____.
18. Companion cells are associated with_____.
19. Passage cells are found in_____.
20. Wood is the common name of_____
21. A living mechanical tissue is_____.
22. Root hairs are found in_____.
23. The tunica-corpus theory was proposed by_____.
24. Shoot increases in length by the activity of cells at its _____
25. Peripheral meristem is also known as_____.
26. Conjoint, collateral and open vascular bundles are found in_____.
27. In monocut stems,the hypodermis is_____.
28. Bundle sheath is present in_____

29. A leaf is described as_____when the two surfaces can't be distinguished anatomically
30. The ground tissue of the leaf is known as _____
31. Multiple epidermis is found in_____.
32. In sweet pea and garden pea_____are modified into tendrils.

33. In flowering plants the lead Gap is found in_____.
34. Sheathing leaf base is characteristic of_____.
35. Senescence of leaves can be prevented by the application of_____.
36. _____first observed quiscent centre in zea Mays.
37. Root hairs are extensions of_____.
38. In roots first formed elements of the xylem are_____.
39. Cambium cells divide in_____plane.
40. Xylem and phloem arise from_____initials of the Cambium.
41. Secondary growth takes place in_____.
42. Annual rings are not prominent in the plants_____region.
43. Casuarina has a ring of_____orinted cortical bundles below the ridges.
44. In Boerhavia,the_____bundles are arranged in two rings.
45. Chemically,the cuticular waxes are_____.
46. Sunken stomata is a characteristic of_____.
47. Paranchymatic cells having air chambers are known as_____.
48. Secretory glands provide us economically important products like_____.
49. _____is known as father of plant anatomy.
50 Aerenchyma present in_____plants.

B. Very short type questions (1.5 marks each)

1. What is apical meristem?
2. What is intercalary meristem?
3. What is lateral meristem?
4. What is tissue?
5. What is simple tissue?
6. What is complex tissue?
7. What is meristematic tissue?
8. What is permanent tissue?
9. What is tunica carpus organization?
10. What is dermatogen?
11. What is periblem?
12. What is plerome?
13. What is calyptrogen?
14. What is the function of root cap?

15. What is quiscent centre?

16. What is promeristem?

17. What is parenchyma?

19. What is trachieds?

20. What are phellogen layers?

21. What is the chief primary function of a tissue?

22. What are sclereids?

23. Which fibres possess the lignified secondary walls?

24. Which is known as wood?

25. What are libriform wood fibres?

26. What are sieve plates?

27. What is a bark?

28. What is tuberculated endodermis?

29. What is endarch type of vascular bandle?

30. What is a phelloderm?

31. What is bundle sheath ?

32. What are chlorenchyma cells?

33. What are conducting tissues?

34. What is a stoma?

35. What are aerenchyma?

36. What are passage cells?

37. What is fascicular cambium?

38. What is inter fascicular cambium?

39. What is autumn wood?

40. What is spring wood?

41. What is vasicentic wood parenchyma?

42. What is heart wood?

43. What is sap wood?

44. What are rhytidomes?

45. What is a lenticel?

46. What is a cystolith?

47. Why air chambers are present in hydrophytic plants?

48. What is kranz anatomy?

49. What are trichomes?

50. What are stinging hairs?

C. Short type questions – (2.5 marks each)

1. simple tissue.
2. Complex tissue.
3. Parenchyma.
4. Collenchyma.
5. Sclerenchyma.
6. Xylem.
7. Pholem.
8. Shoot apical meristem.
9. Root apical meristem.
10. Meristematic tissues
11. Permanent tissues
12. Role of stomata in photosynthesis.
13. Applications of plant anatomy in systematics.
14. Plasmodesmata.
15. Vascular bundle of Cucurbitaceae.
16. Anatomical adaptation of xerophytes.
17. Anatomical adaptations of hydrophytes.
18. Anatomical characteristics of abscission layer.
19. Sap wood.
20. Heart wood.
21. Simple and boarded pits.
22. Trichoblasts.
23. Kranz anatomy.
24. Phelloderm and Phellogen.
25. Anatomical characteristics of dorsiventral leaf.
26. Anatomical characteristics of isobillateral leaf.
27. Apical cell theory.
28. Histogen theory.
29. Tunica-curpus theory.

30. Vascular cambium and Cork cambium.
31. Functions of medullary Ray.
32. Significance of anomalous secondary growth in monocut.
33. Unusual stuctures found in the stem of Boerhaavia.
34. Amphistomatic leaves.
35. Glands of Pitcher plant.
36. Hydathodes
37. Functions of epicuticular wax.
38. Applications of plant anatomy in forensics.
39. Intercalary meristem.
40. Lateral meristem.
41. Companion cell.
42. Korper-Kappe Theory.
43. Casparian stripes.
44. Mesophyll tissues
45. Monocut root anatomy.
46. Dicot root anatomy.
47. Monocut stem anatomy.
48. Dicot stem anatomy.
49. Lenticels.
50. Laticifers

D. Long questions (8 marks each)

1. Give a detailed account of permanent tissues .

2. What are complex tissues? Write a detailed note and support your answer with the help of suitable diagrams.

3. Differentiate between simple and complex tissues with the help of suitable diagrams .

4. Differentiate between tracheids and vessels.

5. Describe different theories regarding the organization of shoot apex in plants.

6. Describe the type of cell organisation in dicot stems .

7. Starting from a cambial cell, demonostrate from labelled sketches how a vessel in famed .

8. Giving diagrams, describe the anatomy of a dorsiventral leaf . How does it different from that of an isobilateral leaf .

9. Describe different theories relating the growth and development of root apex .

10. Enumerate any three types of mechanical tissues and describe their distinguishing

features .

11. Give the labelled structure of a vasculer bandle of any monocot and mention the functions of each part .
12. Discuss the various stages of the secondary growth in typical dicot root .
13. Explain the terms exarch, endarch and mesarch types of xylem by giving examples .
14. What are ring bark and scaly bark and support your answer with suitable diagrams .
15. Give the structure and function of vascular cambium. How does seasonal activity of wood takes place in dicot trees .
16. Give a general account of adaptations in xerophytes.
17. Discuss the adaptations in hydrophytes by taking into consideration of hydrilla stem .
18. Give a schematic representation of the structure and composition of the cuticle and epidermis with suitable labeled diagrams .
19. Write in detail the types of stomata found in plants.
20. Write detailed note on hairs and trichomes found on the surface of the stem with suitable diagrams .

Core-6 (Economic Botany)

A. Fill in the blanks (1 mark each)

1. Kalyan sona and Sonalika are two varieties of _____
2. The process leads to adaptation of a variety or population of a variety to a new environment is called _____
3. The centre of origin of wheat plant is _____
4. Tea was introduced in India by_____.
5. Alternative name of leguminosae is_____.
6. Scientific name of pigeon pea is _____
7. Arachis hypogea is the scientific name of _____
8. Cocos nucifera is belonging to the family _____
9. Central tobacco research institute is situated at_____.
10. Digitalis purpuria belongs to the family_____.
11. The economic product of tobacco plant is_____.
12. Botanical name of Jute is_____.
13. Tectona grandis belongs to the family_____.
14. Cotton fibre is derived from_____.
15. Coffee and tea can be classified as_____.

16. Pinus strobes is also known as _____
17. Botanical name of cotton is _____
18. The leading cotton growing state in India is_____.
19. In India, cotton is mainly grown as_____crop.
20. The Jute fibres are separated from stem by the process of_____which is usually done in gentle flowing deep clear tepid water.
21. Botanical name of fennel is_____.
22. Botanical name of saffron is_____.
23. Botanical name of black pepper is_____.
24. Botanical name of clove is_____.
25. Saffron belongs to the family_____.
26. Black pepper belongs to the family_____.
27. Clove belongs to the family_____.
28. Fennel belongs to the family_____.
29. 8 main centres of origin of cultivated plants was originally proposed by _____.
30. Ground nut was introduced from_____in India.
31. Hira and moti are varieties of_____.
32. Pisum sativum is a native of_____.
33. The centre of origin of rice plant is _____
34. Cocos nucifera belongs to family_____.
35. The scientific name of Cinchona is_____.
36. Cinchona belongs to the family_____.
37. Digitalis belongs to the family_____.
38. Papaver belongs to the family_____.
39. Cannabis belongs to the family_____.
40. Brassica belongs to the family_____.
41. _____type of root found in rice.
42. Potato is propagated by_____.
43. The common bread wheat is_____.
44. The common name of Eleusine corocana is_____.
45. Central potato research institute is situated at_____.
46. Baggase is the by product of the_____industry.
47. _____ is known as king of Indian spices
48. In India, the maximum production of Pper nigrum occur in _____
49. Coffee and tea are_____beverages.
50. Jute belongs to the family_____.

B. Very short type questions (1.5 marks each)

1. What is plant Introduction?
2. Write any two hybrid varieties of rice.
3. What is plant domestication?
4. What is alternative name of leguminasae?
5. Where CRRI is situated?

6. What is botanical name of common bread wheat?
7. Give the botanical name of black gram.
8. Where is the native place of potato?
9. Where is sugarcane breeding institute located in India?
10. Name two oill yielding crop.
11. Which type of inflorescence found in coconut?
12. Name the spice which is considered as 'king of Indian spices'.
13. Which part of clove is used as spices?
14. Which part of saffron is used as spices?
15. To which family saffron belongs to?
16. Which Indian state is leading in tobacco production?
17. Name a non-alcoholic beverage.
18. Name the main centre of coffee plantation in India.
19. What is the term used for terminal bud of tea?
20. Name two alkaloids present in coffee seeds.
21. Where Central Tobacco Research Institute is situated?
22. Name an important surface fibre obtained by plants.
23. Name an important bast fibre obtained from a member of family Tiliaceae.
24. Which part of cotton plant yields cotton fibre?
25. To which family Tectona grandis belongs to?
26. Which wood is the source of oleoresin?
27. Name the botanical name of the plant from which the drug quinine is obtained.
28. What is the family of Digitalis purpurea?
29. Write any medicinal use of Papaver somniferum.
30. Name a hybrid variety of coconut plant.
31. Define secondary centre of origin.
32. Define primary centre of origin.
33. Name the centre of origin of the coffee.
34. Name a hybrid variety of green gram.
35. Which type of soil is best for cotton cultivation?
36. What type of fruit is present in wheat?
37. Name one cotton producing species of Gossypium.
38. What is commonly known as emmer wheat?
39. Name a improve variety of Wheat.
40. Name a improve variety of Cotton.
41. What is botanical name of Saffron?
42. Which plant is the source of rubber?
43. Which type of pollination is found in Rice?
44. What is the plant having varieties of named as pusa Baisakhi, Kharif sona, Krishna II etc?
45. Give botanical name of any oil producing crop.

46. Which of the Indian states is the leading producer of rubber?
47. What kind of soil will be preferred for growing rubber?
48. Which of the Indian states leads in spice production?
49. What is the medicinal use of cannabis?
50. Which type of inflorescence found in Rice.

C. Short type questions (2.5 marks each)

1. Plant introduction
2. Plant domestication
3. Chinese centre of origin
4. Name three improved varieties of wheat
5. Name any two millet crops of your region and describe their uses
6. What are millets? Give botanical names of three important millets.
7. What is the biological importance of legumes.
8. Write botanical names of three pulse crops
9. Innumerate the uses of baggase
10. Mostly cocoanut grows along the sea shore, Why?
11. Give the names and the families of the oil yielding plant studied bu you
12. What are essential oils? How are they different from fatty oils?
13. Write botanical name and used plant part of clove
14. Write botanical name and used plant part of saffron
15. Write botanical name and used plant part of black pepper
16. Write botanical name and used plant part of fennel
17. Write botanical name of two non alcoholic beverages
18. Write two main centres of coffee plantation in India
19. Write the family of coffee and location of coffee board in India
20. Name the two main alkaloids present in coffee seed
21. What is the meaning of CTC written on the tea packet
22. How currying Name of tobacco is done?
23. Write the botanical name of tobacco and location of central tobacco institute
24. Name the botanical name and family of the plant from which the drug quinine is obtained
25. Write the medicinal uses of Digitalis
26. Write the medicinal uses of Papaver
27. Write the medicinal uses of Cannabis
28. Name 4 species of Gossypium from which cotton fibres are obtained
29. What is the meaning of rating?
30. Which of the indian states are leading producer of i. Jute and ii. Cotton
31. Describe the morphology of the useful parts of cotton
32. How would you distinguish cotton fibre from those of jute
33. How would you distinguish corchorus capsularis and corchorus oletorius on the basis of morphology and characters of fibres
34. Cotton plants can not be grown at high altitudes, Why?
35. What do you mean by ginning and combing in relation to the processing of the cotton
36. Give the name and family of the fibre yielding plant you have studied
37. Which of the Indian states are the leading producers for teak

38. Distinguish between pine wood and teak wood
39. Differentiate between hard wood and soft wood
40. Write the precautions that have to taken while tapping rubber
41. Explain how latex is processed to get rubber
42. Write the botanical name and family of Indian rubber plant
43. Write adaptations for wind pollination in rice
44. Indian centre of origin
45. South American centre of origin
46. Central Asiatic centre of origin
47. Mediterranian centre of origin
48. Mention the other uses of paddy other than grains being used as staple food
49. Name the family and botanical name of rye
50. Write ecological importance of legumes

D. Long questions (8 marks each)

1. Describe about different centre of origin of crop plants.
2. Describe about cultivation & processing of rice.
3. Describe about morphology & cultivation of wheat.
4. Describe briefly about millets.
5. Give a general account of legumes & its importance to man and ecosystem.
6. Describe about morphology & processing of sugarcane.
7. Describe about morphology, propagation & uses of potato.
8. Describe about morphology, processing & uses of tea.
9. Describe about morphology, processing & uses of coffee.
10. Describe about morphology, processing & uses of Tobacco.
11. Give a general description & uses of Groundnut.
12. Give a general description & uses of Coconut.
13. Give a general account & extraction of essential oil.
14. Describe about the tapping, processing & uses of pararubber.
15. Give a general account of timber yielding plants with special references to Teak and Pine.
16. Describe about morphology, extraction & uses of Cotton.
17. Describe about morphology, extraction & uses of Jute.
18. Describe about crop domestication and loss of genetic diversity.
19. Describe about some drug yielding plants.
20. Describe about some important spices.

Paper-7 (Genetics)

A. Fill in the blanks (1 mark each)

1. Alternative from of gene is known as_____.
2. The term is gene was coined by_____.
3. Alleles with similar phenotypic effectd are known as_____.
4. _____.refers to the presence of more than two alleles at a locus.
5. Presence of two wild alleles in one chromosome of a pair and their mutant allele in another homologous chromosome is referred to as_____.
6. Classical concept of gene was introduced by_____.
7. The term transposon was coined by_____.
8. Lactose utilization by E. coli requires the gene_____which transports lactose into the cell.
9. A kilobase pair is_____base pairs in length.
10. _____frequencies do not change from generation to generation in a population at Hardy-Weinberg equilibrium.
11. The entire collection of genes among a population is its_____.
12. The ABO blood group in man was first discovered by_____.
13. Jumping gene are also known as_____elements.
14. _____keep on changing their position in a chromosome and also between chromosome in a genome.
15. An_____is a type of mutation where a segment of a chromosome is rotated 180°.
16. A_____mutation causes a novel allele to be converted back to a wild-type allele.
17. Genes may under for sudden changes in position and composition called _____.
18. Wild-type and heterozygous individuals of a_____disease show normal phenotypes.
19. Any physical or chemical agent that increases the rate of mutation above the spontaneous rate is a_____.
20. Polyploid speciation is perhaps the fastest form of speciation because _____ is instantaneous.
21. _____are heritable changes in base sequence that can affect phenotype.
22. Trans position af alleles is called_____
23. Cis position of alleles is called_____.
24. Split genes are usually found in_____

25. Gene with intervening sequences are known as_____.
26. Jumping genes were first discovered by McCintock in 1950 in_____
27. The part of DNA specifying a single polypeptide chain is termed as_____.
28. The smallest segment of DNA capable of being separated and exchange with other chromosome is called _____
29. McCintock was awarded Nobel Prize in 1983 for discovery of_____.
30. _____are defective copies of normal gene which are non functional.
31. Firstt case of intragenic recombination was reported for bar locus in_____.
32. The term gene was coined by johnnsen in 1909 for_____.
33. Term selfish DNA was first used by_____
34. The terms cistron , muton and recon was coined by_____.
35. A single generation of selection will eliminate a lethal_____allele from the population.
36. Mendel was born in_____.
37. Mendel was a priest in_____.
38. The genotypic ratio of monohybrid cross is_____.
39. The phenotypic ratio of monohybrid cross is_____.
40. The phenotypic ratio of dihybrid cross is_____.
41. The Gene for tallness is expressed as_____.
42. New diseases emerge in human populations as a consequence of new_____.
43. Genetic drift is more likely to occur in_____populations.
44. The factor that causes the greatest change in gene pools is_____.
45. Natural selection can act upon an individual's_____, the external expression of genes.
46. If you know the_____of all the organisms in a population , you can calculate the allelic frequency of the population.
47. Full form of CIB is_____.
48. Genetic material of T4 Phage is_____
49. _____discovered linkage.
50. The binomial equation representing the_____proportions is p2 + 2pq +q2 = 1.

B. Very short Questions (1.5 marks each)

1. Mendel was born in which country?
2. Why Mendel succeeded in his work?
3. What is homozygous condition?
4. What is heterozygous condition?
5. What is pure lines?
6. What is hybridization?

7. What is the ratio of monohybrid cross?

8. What is the ratio of dihybrid cross?

9. What is multiple allelism?

10. What is the definition of epistasis?

11. What is pleiotropy?

12. What is polygenic in heritance?

13. What is the definition of mutation?

14. How many types of mutations are found?

15. What is lethality?

16. What is recessive factor?

17. What is dominant factor?

18. What do you mean by factor?

19. What is linkage?

20. What is law of segregation.

21. What is cross pollination?

22. What is self pollination?

23. What is emasculation?

24. What is test cross?

25. What is back cross?

26. What are genes?

27. What is genotypic ratio?

28. What is phenotypic ratio?

29. In males, which pair of sex chromosomes are found?

30. In females, which pair of sex chromosomes are found?

31. Baldness in found in which chromosome?

32. What is chromosomal compliment?

33. What is probability?

34. Which are know as autosomes .

35. What are kappa particles .

36. In which case kappa particles are found .

37. What is complete linkage.

38. What is incomplete linkage.

39. What is coupling phase of linkage.

40. What is repulsion phase of linkage.

41. What is the definition of crossing over.

42. What is polyploidy.

43. What is euploidy .

44. What is deletions.

45. What is duplication in chromosomal aberration.

46. What is the definition of inversion.

47. What is the definition of translocation.

48. What is position effect.

49. What is a gene pool.

50. Can we differentiate natural selection from isolation ?

C. Short questions (2.5 marks each)

1. Allele
2. Dominant gene
3. Recessive gene
4. Homozygous
5. Heterozygous
6. Test cross
7. Pure line
8. Heterosis
9. Incomplete dominance
10. Independent assortment
11. Linkage
12. Crossing over
13. Kappa particles in Paramecium
14. Epistasis
15. Pleiotropism
16. Multiple allelism
17. Co-dominance

18. Autosomes
19. Sex chromosomes
20. Lethal alleles
21. Polygenic inheritance
22. Maternal effect in snail coiling
23. Chloroplast mutation in four o'clock plant
24. Mitochondrial mutation in Yeast
25. Gene mapping
26. Sex linkage
27. Interference
28. Coincidence
29. Deletion
30. Duplication
31. Translocation
32. Inversion
33. Position effects
34. Euploidy
35. Aneuploidy
36. Gene mutation
37. CIB method
38. Role of transposons in mutation
39. Gene
40. Molecular concept of gene
41. Structure of T4 Phage
42. Gene pool
43. Hardy-Weinberg law
44. Genetic drift
45. Genetic variation
46. rII locus
47. Speciation
48. Allopolyploidy
49. Autopolyplod
50. Back cross

D. Long questions (8 marks each)

1. Describe the conclusions of workers on plant hybridization before Mendel and discuss the reasons for their failure.
2. Discuss the reasons for Mendel's success .
3. Explain the law of segregation with suitable examples
4. Define adaptation. How can molecular and other adaptations originate in living organisms
5. Explain law of dominance with suitable examples.

6. What is a test cross? Describe the results obtained from a test cross of a dihybrid F_1.

7. Discuss the physical basis of independent segregation of two genes with the help of suitable examples .

8. Define dominance. Expain the various types of dominance with the help of suitable examples

9. Describe the various systems of deriving gene symbols and discuss their merits and demerits.

10. What is Mendelism? Describe it in details.

11. Describe in details the process of linkage in an organism.

12. What is crossing over? Describe it in details with suitable examples.

13. Define gene interaction. Explain any one of the gene interactions with the help of a suitable example.

14. Briefly describe the various evidences which prove that genes are located in chromosomes.

15. Briefly describe the multiple factor hypothesis of polygenic inheritance .

16. Environment plays an important role in the expression of quantitative traits. Discuss this statement with the help of suitable examples.

17. Explain the various characteristic features of cytoplasmic inheritance with the help of suitable examples .

18. Discuss the relationship between chaisma and crossing over.

19. Define chromosomal aberration. Describe tha various structural chromosomal aberrations with the help of suitable diagrams.

20. Define euploidy. Describe the cytological and morphological features of autopolyploids .

SEMESTER- IV

Core-8(Molecular Biology)

A. Short questions (1 mark each)

1 . what are nucleic acids?

2. who discovered nucleic acids?.

3. what is cistron?

4. what is the meaning of virulent?

5. what are bacteriophages?

6. what is cot curve?

7. what are nucleosomes?

8. How many types of RNAs are found ?

9. what is histone?

10. what is Z-DNA?

11. Which types of RNA has a clover leaf like shape?

12. why replication of DNA is essential ?

13. what is replication fork?

14. Why DNA polymerase III is important.?

15.What is okazaki fragment.?

16. By which components DNA is made.?

17. what is reannealing.?

18.what is the function of primer?

19.what is the function of DNA ligase?

20.What is the function of replicase.?

21. what is telomere.?

22. who proposed one gene one enzyme theory.?

23.what is codon.?

24. what is wobble hypothesis.?

25.what is the central dogma ?

26. who is Hargobind Khorana.?

27. what is Rho factor.?

28. which are the inhibitors in transcription.?

29. what is CAAT box.?

30. what is split gene?

31. what are exons.?

33. what are ribozymes.?

34.what is RNA editing.?

35. what is RNA splicing.?

36. what are spliceosomes.?

37. what is translations.?

38.what is the function RNA helicase.?

39. Which are the initiative factors is protein synthesis.?

40. which is the initiation codon in protein synthesis.?

41. which is the termination codons in protein synthesis.?

42. which are the releasing factors in protein synthesis.?

43. which are responsible for regulation of transcription in RNA synthesis.?

44.what are regulator genes.?

45. what are operator genes.?

46. what are promoter genes?.

47.what are structural genes?.

48.what are inducers in lac-operon.?

49. what is the definition of house keeping genes?

50. How many housekeeping genes are present in human?

B. Long questions (8 marks each)

1. Give an evidence to prove that DNA is the carrier of genetic information .

2 . Describe Griffith's experiment.

3 . Narrate Avery,Mcleod, Mc carthy to prove that DNA as genetic material .

4 . Give an account of Hershey and chase experiment to confirm that DNA is the genetic material .

5 . What are the important featuers of DNA as the genetic material .

6 . Describe the experiment on transformation to show that DNA is the genetic material .

7 . Give an illustrative account of Fraenkel conrat experiment on viruses .

8 . Give an illustrative account of structre of DNA double helix .

9 . What are nucleic acids ? Describe different types of DNA .

10 . What are organelle DNA ?Describe its important characterstic features .

11 .Ilustrate the nucleosome concept.

12 . Give an account of the RNA structure.

13 . Give compartive account of DNA and RNA .

14 . What is DNA replication ? Describe the mechanism of DNA replication .

15 . What is genetic code? Describe the salient features of genetic code.

16 . What is transcription? Describe the general mechanism of transcription .

17 . What are ribozymes ? Describe structure and function of ribozymes.

18 . What are split genes ? Describe the structure and function of introns and exons .

19 . Give an accountt of the process of translation in prokaryotes .

20 . Describe translation in eukaryotes .

Core 9 (Plant Ecology and phytogeography)

A. Short questions (1 mark each)

1. What is ecology ?
2. What is auto ecology ?
3. What is synecology ?
4. Which percentage of nitrogen is found in atmosphere ?
5. What is hydrosphere ?
6. What is lithosphere ?
7. What is biosphere ?
8. Which is the upper layer of soil ?
9. Define soil.
10. What is precipitation ?
11. What is ecotone ?
12. What is the definition of population ?
13. What is the definition of community ?
14. What is the definition of species ?
15. What is ecosystem ?
16. What is trophic level ?
17. What is a food chain ?
18. What is a food web ?
19. What is the definition of ecological pyramid ?
20. What is vegetation ?
21. What do you mean by biogeochemical cycle ?
22. What is niche ?
23. What is hydrological cycle ?
24. What is homeostasis ?
25. Which are detritus to an ecosystem ?
26. What is succession ?
27. What is 'O' horizon ?
28. What is 'A' horizon ?
29. What is 'B' horizon ?
30. What is 'C' horizon ?
31. What is 'R' horizon ?
32. What is field capacity ?
33. What is capillary water ?
34. What is mortality ?
35. What is mutualism ?
36. What is commensalism ?
37. What are producers ?
38. What are consumes ?
39. What are decomposers ?

40. What is production efficiency ?
41. What is overexploitation ?
42. What is the full form of IAS in biodiversity ?
43. What is endemism ?
44. In which country maximum number of endemic plant species occur ?
45. Who provided the first list of various principles governing geographic distribution of plants ?
46. Which is one of the global hottest hot spots of biodiversity in India ?
47. Write name of five hottest hot spots of world ?
48. What is phytogeography ?
49. Write names of major natural forest types in India ?
50. Write the names of major islands having fair proportion of endemic species in their flora

B. Long questions (8 marks each)

1. Give an account of role of limiting factor in ecology of organisms
2. Give an account of effect of light in distribution of plants
3. How temperature affects distribution of animals and how animals adapt themselves in extreme temperatures.
4. What is soil? Write a brief account of mechanism of soil formation.
5. Define soil profile. Write a short account of factors that governsoil formation.
6. Discuss the hydrological cycle occur on earth surface with suitable diagrams.
7. Define population. Give a short account of characteristics of a population.
8. Define natality and mortality. Give a brief account of different types of survivorship curves among animal populations.
9. Describe briefly the various factors that regulate the growth of a population.
10. Define competition. With suitable examples write a brief account of types of inter and intra specific competition among populations.
11. Define ecosystem. Write a brief account of the structure and function of a typical ecosystem.
12. Write a brief account of the abiotic and biotic components of a fresh water ecosystem.
13. Define biogeochemical cycle. How human activities could affect these cycles.
14. Describe energy flow in an ecosystem which follows the law of thermodynamics.
15. Explain the differences between grazing and detritus food chain.
16. Explain primary and net productivity
17. What is phytogeography? Write a short account of basic principle governing geographical distribution of plants.
18. Write a short account of natural forest or grassland vegetation of India.
19. Write an account of biogeographic regions of India.
20. Compare the environmental conditions and dominant vegetation types of mixed tropical forests of India.

Core-10 (Plant Systematics)

A. Short questions (1 mark each)

21. What is Binomial Nomenclature?
22. What is herbarium?
23. Which system of classification is based on few superficial characters?
24. What is typification?
25. What is monophyly?
26. Who was the first to give concept of species?
27. Who proposed 'binomial system of nomenclature'?
28. What is Analogy?
29. Expand ICN?
30. Pollinium is found in which monocot family?
31. Polysiphonous pollen tube is present in which dicot family?
32. Which family has characteristic feature of compound pollen?
33. What is Monographs?
34. Where Royal botanical garden is situated?
35. What is Neotype?
36. Write smallest unit of classification?
37. What is lectotype?
38. What is the article number for rules of priority in ICN?
39. Name the monocut families where distribution of silica bodies are used in their systematics?
40. Where Indian botanical garden is situated?
41. What is the alternative name for family Palmae?
42. Where National botanical garden is situated?
43. Sporopollenin in angiospermic plants is a constituents of which part of plant?
44. For what condition the term “et al” is used while citing the authors in a scientific name?
45. What is the standard size of a herbarium sheet?
46. What do you understand by the term 'Chemotaxonomy'?
47. Write names of two national herbaria of India?
48. Which classification uses the term like Magnolids Ranunuculids and commenilids?
49. What is Palynology?
50. Who wrote' Die naturlichenpflanzenfamilien'?
51. Give an example of Phylogenetic classification?
52. Who wrote 'Genera Plantarum'?

53. Concept of Lignosae and Herbaceae was given by which taxonomist.
54. What is Nominaconservanda?
55. What is tautonym?
56. What is a Flora?
57. Who compiled 'Flora of British India'?
58. What is the difference between a species and cultivar?
59. What is an arboretum?
60. What is a subspecies?
61. What is a vasculum?
62. What is Holotype?
63. Which type of embryo sac is found in members of family onagraceae?
64. Who proposed natural system of classification?
65. What is the alternative name of Poaceae.
66. What you understand by a valid botanical name?
67. Expand OTU?
68. What is principle of priority?
69. What is valid publication?
70. Who is known as father of Taxonomy?

.

B. Long questions (8 marks each)

1. Discuss the concept of botanical keys. Describe briefly on single access and multi-access keys.
2. Discuss about herbarium methodology.
3. Discuss about therules and principles ofICN.
4. What is palynology? Describe about it's role plant Taxonomy.
5. Describe the cytological attributes commonly used for taxonomic evidences.
6. Describe Bentham and Hooker's system of classification with merits and demerits.
7. Describe the Phylogenetic System of classification with Merits and demerits.
8. What is numerical taxonomy? Write the principle of merits and demerits of numerical taxonomy.
9. What is OTUs? Describe how different characters are used for analysis of OTUs.
10. What is the concept of Phylogeny in Plant Taxonomy? Differentiate between monophyletic and polyphyletic Origin of angiosperm.
11. Describe about typification.
12. Discuss the origin and evolution of angiosperms.
13. Discuss the Phylogeny group (APGIII) classification in angiosperm.
14. What is botanical garden. Describe about some famous botanical gardens of world..
15. What is herbarium. Describe about some famous herbarium of world.
16. Discuss about role of cytology in Plant taxonomy.

17. Describe about Engler and Prantl's classification.
18. Describe about major contributions of different scientists to plant Taxonomy.
19. Describe about contribution of different scientists to plant taxonomy.
20. Describe about coevolution of angiosperm with animals.

DEPARTMENT OF BOTANY

QUESTION BANK

SEMESTER -V

Core-11 (Reproductive biology of Angiosperms)

A. Short question (1 mark each)

1. Name a family of angiosperm where pollini is found.
2. How many sporangia are present in a typical anther?
3. Which phase in angiosperm is very inconspicuous and extremely reduced?
4. Where compound pollen grain is found?
5. How many microspores are formed from each microspore mother cell of cyperaceae family?
6. Name the two types of tapetum usually recognised in angiosperms.
7. How many walls found in mature anther?
8. Name the most common type of embryo sac.
9. Name the term used for 'arrangement of ovule in the ovary'.
10. What is Megasporogenesis?
11. What is geitonogamy?
12. What are Cleistogamous plants?
13. Name a water pollinated plant.
14. What is self-incompatibility?
15. Name a suitable plant which shows the Phenomenon of ornithophily.
16. What is Cheiropteriphily?
17. Who proposed 'opposite s-allete concept'?
18. Which family has gametophytic self-sterile plants?
19. What is porogamy?
20. What is polyspermy?
21. Who discovered double fertilization?
22. What is heterofertilization?
23. Name a plant in which endosperm is watery in nature.
24. Give one common example which shows mosaic endosperm.
25. What is perisperm?
26. Which family has characteristics of Pseudo embryo sac?
27. Give an example among angiosperm where polyembryony is found?
28. What is Apomixis?
29. What is parthenogenesis?

30. What is MGU?
31. What is hydrochory?
32. Give an example of winged seeds.
33. Name the structure which help seeds to float in air by parachute mechanism.
34. Name a plant in which persistent style is helpful in dispersal of seed.
35. Which family has characteristics of smallest seeds?
36. Name the site where proteins causing gametophytic self-sterility(GSI) are located.
37. What is sporopollenin.
38. Which is the most common type of ovule?
39. Name the type of ovule where the body is upright with micropyle, chalaza and funicle falling in a straight line.
40. What is the term used for "Pollination by snail ?
41. Where aril is found?
42. Give a characteristics feature of wind pollinated plants.
43. Which is responsible for synthesis of exine protein in pollen grain?
44. What is the diploid structure present in the ovule of angiosperm just before fertilization?
45. Name the kind of pollination found in Lotus.
46. Expand NPC.
47. What is massule?
49. Write any contribution of P.Maheswari.
48. What is Chasmogamy?
50. What is the chief constituent of pollen kit?

B. Long questions (8 marks each)

1. Describe briefly about the development of male gametophyte in angiosperms..
2. Give an illustrated account of the development of the female gametophyte of angiosperms.
3. Describe about different type of embryo sac.
4. Describe briefly about the contrivances of self & cross pollination.
5. Describe about various agent and type of pollination found in angiosperms.
6. Describe about self incompatibility.
7. Describe about types & develoment of endosperm.
8. Describe about double fertilization.
9. Describe about development of embryo.
10. Describe about different structure of seed & its dispersal.
11. Explain about polyembryony, its causes & applications.
12. Describe about agrobacterium mediated germline transformation.
13. Describe about apomixis, its causes & applications.
14. Describe about germline transformation by electrofusion method.

15. Describe about germline transformation by biolistic method.
16. Explain about contribution of P. Maheswari to plant embryology.
17. Explain about contribution B. M Johri to plant embryology.
18. Describe about palynology and its scope.
19. Describe about structure and types of ovule.
20. Describe about history and scope of embryology.

Core 12 (Plant Physiology)

A. Short question (1 mark each)

1. What is a colloid ?
2. What do you mean by diffusion ?
3. What is osmosis ?
4. What is diffusion ?
5. Who discovered diffusion ?
6. What is D.P.D ?
7. What is T.P ?
8. What is osmotic pressure ?
9. What is diffusion pressure?
10. What is endosmosis?
11. What is exosmosis?
12. What is plasmolysis?
13. Who proposed mosaic hypothesis of permeability?
14. What is imbibition ?
15. What is water potential ?
16. What is wilting coefficient?
17. Is soil temperature affects absorption of water?
18. Can epiphytes absorb water?
19. Who coined the term root pressure?
20. What is transpiration?
21. What is stomata and what is its role?
22. What is guttation?
23. What is the critical deficiency level of sulfur?
24. In the absence of O2, which type of physiological disease is found in potato?
25. What is the full form of ATP ?
26. What are binding proteins?
27. When guard cells become faccid?
28. What is aeropanics?
29. What are aquaporins ?
30. What are plant growth regulators?
31. Who discovered auxin?

32. Which hormone induces cell elongation?
33. What is tropic movement?
34. Which part of the plant contains highest level of auxin?
35. Write the molecular formula of gibberlin.
36. Which substance in plants capable of stimulating cytokinesis?
37. In which part of the plants cytokinins are synthesized?
38. Which is the plant growth inhibitor?
39. Who first isolated abscissic acid ?
40. Write the molecular formula of abscissic acid ?
41. Is abscissic acid a potent inhibitor of seed germination?
42. Which is a fruit ripening hormone?
43. Write the molecular formula ethylene?
44. Name sone of the synthetic growth retardants?
45. Which is a long day plant?
46. Why some plants are named as long day plants ?
47. Why some plants are named as short day plants ?
48. What do you mean by critical day length ?
49. What is florigen ?
50. Write is phytochrome?

B. Long questions (8 marks each)

1. Differentiate between osmotic potential and pressure potential of a cell.
2. Define an establish relationship among O.P, T.P, W.P and D.P.D.
3. Discuss the mechanism of water absorption by plants.
4. Differentiate between active absorption and passive absorption.
5. Describe factors affecting water absorption.
6. Describe various theories relating to ascent of sap.
7. Describe the path of water from root hair to leaf.
8. Discuss the mechanism of opening and closing of stomata.
9. Describe various methods of transpiration measurement.
10. Give an account of factors affecting transpiration.
11. Give an account of micro and macro elements.
12. Describe deficiency symptoms of major elements.
13. Describe the mechanism of absorption of mineral salts by root of higher plants.
14. Explain different theories of the absorption of salts in plants.
15. Discuss in detail the causes and types of seed germination.
16. Describe the process of translocation of solute in plants.
17. Give an account of physiological activities of plant growth hormones.
18. What is abscission? Discuss it in the light of different theories.
19. Write an account of photoperiodism.
20. Describe vernalization in detail.

DSE-1 (Analytical techniques in plant sciences)

A. Short questions (1 mark each)

1. What is the role of Agarose in gel electrophoresis?
2. Write an application of freeze fracture in electron microscope.
3. Mass to charge ratio is used to determine protein identity using _____ technique.
4. Centrifugal force is used in which biological instrument ?
5. What is the role of SDS in SDS-PAGE.
6. Name the molecule used to stain DNA during gel electrophoresis.
7. State Beer Lambert's law.
8. Which test would you adopt to test goodness of fit?
9. What are the three measures of central tendency?
10. Which of the microscopes is usually good for unstained specimens?
11. If you were given a specimen of an active, motile microorganism, which microscope would be the most effective in visualizing the live microbe
12. Scanning electron microscopy is most often used to reveal_____.
13. If magnifying power of objective is 45X and magnifying power of eye piece is 10X. Find the magnifying power of microscope.
14. Which microscopy is used to visualise sub cellular components of cells.
15. Name the kind of electrophoretic technique used to separate proteins.
16. Which technique is used to distinguish between live and dead cells?
17. Write the full form of FISH.
18. In which type of chromatography, the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure?
19. Expand TLC.
20. Expand GLC
21. Expand HPLC.
22. Expand AGE.
23. Expand PAGE.
24. SDS-PAGE.
25. Define Autoradiography.
26. What is marker enzymes?
27. Define population.

28. Define sample.
29. Define mean.
30. Define mode.
31. Define median.
32. What is the purpose of negative staining?
33. Which microscope is used to get three dimensional picture of specimen?
34. Which part of scanning electron microscope collects the radiated back secondary electron?
35. Where do we obtained the magnified image of the specimen in SEM?
36. Which centrifugation is used to separate certain organelles from cell?
37. Name the polysaccharide used as media for density gradient.
38. Name the technique used for purifying liquids containing suspension.
39. Which technique is used for studying synthesis of molecules and tracing metabolic pathway.
40. In which type of chromatography, the stationary phase is held in a narrow tube and the mobile phase is forced through it under pressure?
41. Which type of chromatography involves in separation of substances in a mixture over a 0.2mm thick layer of an adsorbent?
42. What is a chromophore?
43. What is the wavelength range for UV spectrum of light?
44. Who discovered the mass spectrometer?
45. In which state of matter mass spectroscopy is being performed?
46. Write the most common type of gel used for DNA separation.
47. Which is the technique suited for the separation of large DNA fragments.
48. What is the role of SDS in SDS-PAGE?
49. Write the term used for a circle divided into sectors proportional to the frequency of items.
50. Which type of electron microscope requires heavy metal staining?

B. Long questions (8 marks each)

1. Describe about principles of light Microscopy.
2. Describe about fluroscence microscopy.
3. What are radioisotopes? Describe their role in biological research.
4. Discuss about flow cytometry.
5. Describe about transmission electron microscopy.
6. Describe about scanning electron microscopy.
7. Describe about different methods of centrifugation.
8. Describe about sucrose gradient centrifugation.
9. What is centrifugation? Describe about analytical centrifugation.
10. Describe about autoradiography.

11. Write about principles of spectrophotometry and it's application in biological research.
12. Describe about paper chromatography.
13. Discuss about molecular sieve chromatography.
14. Describe about column chromatography.
15. Discuss about mass spectrometry.
16. Give an account of X-ray diffraction.
17. What is electrophoresis.Describe different types electrophoresis.
18. Describe about role of statistics in biology.
19. Describe about different methods to represent data.
20. Describe about measure of central tendency.

DSE 2 (Natural Resource Management)

A. Short questions (1 mark each)

01. What is natural resources?

02. What is Red data book?

03. What is the definition of water?

04. What is the meaning of soil degradation?

05. What is biodiversity ?

06. What is the definition on soil?

07. What is bioprospecting ?

08. What is the full form of IPR?

09. What is the full form of CBD?

10. What is forest?

11. What is Canopy?

12. What is energy?

13. What is renewable energy?

14. What is non-renewable energy?

15. Expand EIA

16. Expand GIS

17. What is ecological foot print?
18. What is carbon foot print?
19. What is sustainable utilization?
20. What is silviculture?
21. Which is known as pastoral land?
22. What is watershed?
23. What are the threats to biodiversity?
24. Give an example of a mojar forest product.
25. Give an examples of a minor forest product.
26. How many types of biodiversity is found?
27. What is hotspot area?
28. What are endangerad species?
29. Define horticulture.
30. What is an aquifer .
31. What is groundwater .
32. What is an estuarine .
33. What are wetlands .
34. What do you mean by endemism .
35. What is the contemporary practice in resource management .
36. When the biodiversity plan was formulated .
37. What is the meaning of resource .
38. What is resource accounting .
39. What is the definition of waste .
40. Write one of the hotspot region of odisha .
41. What do you meant by depletion .
42. Why biodiversity is important to ecosystem .
43. Which factor is very much responsible of soil degradation .
44. Which are known as biological resources .

45. Name 2 renewable sources of energy .

46. Name 2 non- renewable sources of energy .

47. Which is an agricultural field .

48. Define lake .

49. Write the name of a National park of Odisha.

50. Write the name any bird sanctuary of India.

B. Long Questions (8 marks each)

1. What are natural resources ? Describe different types of natural resources.

2. What is sustainability ? Describe the sustainable utilization of natural resources.

3. Describe in details the concept and approaches of natual resources.

4. What is land ? Describe in dtails the utilization of land in Agriculture.

5. Describe the utilization of land in silviculture.

6. What is soil ? Describe the process of soil degradation.

7. Describe soil degradation process and its management.

8. Describe different watersheds and how these are important to flora and fauna.

9. Describe the threats and management of watersheds.

10. What is biodiversity? Describe the types and significance biodiversity.

11. Describe the threats to biodiversity.

12. Describe the management strategis of biodiversity.

13. What is forest cover and describe the significance of it with special reference to India.

14. Describe in details the major and minor forest products.

15. What is energy? Describe the renewable and non-renewable sources of energy.

16. Describe ecological fort prints with special emphasis on carbon foot print.

17. Describe the management of forest resources.

18. Explain some of the contemporary practices in resource management ?

19. What is waste management ? Describe national and international efforts of waste

management.

20. Describe how can we conserve the national resources.

SEMESTER- VI

Core13 (Plant Metabolism)

A. Short questions (1 mark each)

1. What is metabolism?
2. What is anabolism?
3. What is catabolism?
4. What is allosteric enzyme?
5. What is isozyme?
6. What are antenna molecules?
7. What is FAD?
8. How many photosynthetic pigments are found in plants?
9. What is the molecular formula of chlorophyll-a?
10. What in the molecular formula of chlorophyll-b?
11. Photosynthesis occur in which organelle of a cell?
12. How many ATP released from a single NADPH molecule?
13. Molecular O_2 is evolved in which pigment system?
14. Cyclic photophosphorylation in found in which pigment system
15. How many molecules of ATP is synthesized in cyclic photophosphorylation
16. How many molecules of ATP are synthesized in non-cyclic photophosphorylation
17. Which cycle is known as photosynthetic carbon reduction pathway?
18. What is photorespiration?
19. What is dark reaction?

20. What are chemo autotrophs?

21. What is Q10?

22. What is an enzyme?

23. What is ribozyme?

24. Write some names of nitrogen fixing symbionts?

25. Which bacteria are responsible for biological nitrogen fixation

26. What do you mean by symbiosis?

27. What is nitrogenase complex?

28. What is transamination ?

29. What is the full from of ATP?

30. What is anaplerotic reaction ?

31. Which is the 1st carbon acceptor in CAM plants?

32. Which in the first CO_2 acceptor in C4 plants?

33. Who first used the from lipid ?

34. Write the general formula of saturated fatty acids

35. Write the general formula of unsaturated fatty acid

36. By which system, the systematic nomenclature of fatty acids in based?

37. In which category the plant fats are included?

38. What is emulsification?

39. Give an example of a compound lipid

40. What are derived lipids?

41. What are steroids?

42. In which way plant fats are differ from animal fats?

43. What is the formula of ATP synthase?

44. What is ammonia assimilation?

45. In which part of the plants, fats are found concentrated?

46. Is free nitrogen responsible for nitrogen cycle?

47. Why ATP in regenerated in living cell?

48. What do you mean by kink formation?

49. What is lection?

50. Give some examples of photosyrthetic bacteria

B. Long questions (8 marks each)

1. Describe anabolic and catabolic pathways of metabolism.

2. Describe role of regulatary enzymes with suitable examples .

3. Describe the mechanism of signal transduction found in plants

4. Describe oxidative phosphorylation in detail .

5. Describe the process of Glycolysis.

6. Discuss Kreb cycle.

7. Describe election transport system in detail.

8. Write a note on biological nitrogen fixation.

9. Describe process of mineral nitrogen assimilation.

10. Discuss the process of root nodule formation .

11. Describe the structure and mechanism of nitrogense action .

12. Describe beta-oxidation of lipids .

13. What are lipids? Describe their properties.

14. Discuss biosynthesis of fats.

15. Differentiate saturated and unsaturated fatty acids.

16. What is gluco-neogenesis? Describe its role in mobilization of lipids during seed germination .

17. Discuss in the synthesis and breakdown of triglycerides

18. Describe the factors affecting respiration

19. Describe the mechanism of ATP synthesis in plants

20. Differentiate between oxidative and photo phosphorylation

Core-14 (Plant Biotechnology)

A. Short questions (1 mark each)

1. Expand YAC.
2. Expand BAC.
3. Expand PAC.
4. Expand MAC.
5. Expand GUS.
6. Expand GFP.
7. What is cryporeservation.
8. Expand PCR.
9. What is Cybrid?
10. What is micro propagation?
11. What is Transformation?
12. What is the letter “c” denotes in cDNA Library?
13. Expand ‘Bt’ in Bt cotton.
14. What is somatic hybridization?
15. Expand PEG.
16. Name the suitable host used in generic engineering to introduce DNA fragment.
17. What is other name of vectors?
18. Which enzyme is known as molecular scissor?
19. Which enzyme is used to join donor fragments and vector fragments?
20. What is totipotency?
21. Name the extra chromosomal circular DNA found in the Ecoil.
22. Which year restriction endonucleases are discovered?
23. Which organism is used for citric acid production?
24. Define Differentiation.
25. Define Redifferentiation
26. Define Dedifferentiation
27. What is callus?
28. What is embryogenesis?
29. What is organogenesis?
30. What is used as gelling agent in tissue culture?

31. What is androgenesis?
32. Who invented PCR technology?
33. Who is known as father of tissue culture?
34. Which pair of hormone is required for callus Differentiation?
35. Expand HAC.
36. Name the medium which is composed of chemically defined compound.
37. Name the chemical which is widely used for protoplast fusion.
38. Name the filter paper used in northern blotting.
39. What is the use of southern blotting?
40. What is the use of northern blotting?
41. Who invented southern blotting?
42. Name the heat stable DNA polymerase used in PCR.
43. Write the characteristic feature of Golden rice.
44. Write the characteristic feature of Flvr savr tomato.
45. What is bioremediation.
46. What is Humulin.
47. What is edible vaccine.
48. Name a herbicide resistant genetically modified plant.
49. Which metal is used as micro-carrier in particle gun bombardment method?
50. Name the chemical released from wound of dicot plant that induces vir genes of Agrobacterium tumefaciens.

B. Long questions (8 marks each)

1. Describe about aspetic tissue culture techniques.
2. Describe about protoplast isolation & culture.
3. Describe about applications of tissue culture.
4. Describe different type, biological role and application of restriction endonuclease.
5. Describe about different prokaryotic cloning vector.
6. Describe about different eukaryotic cloning vector.
7. Describe about PCR mediated gene cloning.
8. Describe about methods of Recombinant DNA
9. Describe about construction of cDNA libraries.
10. Describe about Agrobacterium mediated gene transfer.
11. Describe about different methods of direct gene transfer.
12. Describe about genetically modified pest resistance plant with special reference to Bt cotton.
13. escribe about the transgenic crops with improved quality traits with special reference Golden rice.
14. Describe about transformation & selection of recombinant clones.
15. Describe about role of transgenics in bioremediation.
16. Describe about production of industrial enzymes through genetic engineering.

17. Describe about colony hybridization.
18. Describe about selection of transgenics through selective marker gene and reporter gene
19. Describe about biosafety concerns with respect to GMO.
20. Describe about transgenic crops.

DSE-3 (Horticulture Practices & post-harvest technology)

A. Short questions (1 mark each)

1. What is horticulture?
2. What is floriculture?
3. What is olericulture?
4. What is pomology?
5. Name a ornamental climber.
6. Name a ornamental flowering tree.
7. Name a ornamental annual plant.
8. Name a ornamental perrinial plant.
9. Expand PGR.
10. What is drip irrigation?
11. What is surface irrigation?
12. What is furrow irrigation?
13. What is border irrigation?
14. What is hydroponic?
15. Name an ancient mughal garden.
16. Expand IPM.
17. Expand IPR.
18. What is plant quarantine?
19. What is micro-propagation?
20. What is germplasm?
21. What is botanical name of Rose?
22. What is the family of marigold?
23. What is the botanical name of gulmohar?
24. Name a hybrid variety of Pumpkin.
25. What is botanical name of Indian Laburnum?
26. What is the family of gladiolus?
27. What is the botanical name of fishtail?
28. Give any characteristics feature of orchid.
29. What is bonsai?
30. What is the difference between insect & pest?

31. Name a hybrid variety of Banana.
32. Name a hybrid variety of Mango.
33. What is Bio-fertilizer?
34. Name an aerobic nitrogen fixing bacteria.
35. Name an anaerobic nitrogen fixing bacteria.
36. What is biopesticides?
37. Name a biopesticides.
38. Which is the casual organism for crown gall disease in apple?
39. Which is the causal agent for wart disease of potato?
40. Which is the causal agent of dowry mildew disease?
41. Which disease of plant is known as ring disease?
42. Name the disease of plant in which large yellow spot appears on the leaves.
43. What is the causal agent for bunchy top of banana?
44. In which disease of plant stem rot at soil line with brown to red .
45. Where is the native place of mango?
46. Where is the native place of banana?
47. What is selective herbicide?
48. Which PGR breaks dormancy of potato tuber?
49. Which is known as fruit ripening hormone?
50. Auxin is synthesized in which part of the plant?

B. Long questions (8 marks each)

1. Describe about scope, importance & branches of horticulture.
2. Describe about role of horticulture in rural economy and employment generation.
3. Describe about urban horticulture & ecotourism.
4. Describe about salient features of orchid.
5. Describe about ornamental trees.
6. Describe about characteristics features & horticultural importance of banana.
7. Describe about horticultural techniques i.e. application of manure , fertilizer, nutrients & PGRS.
8. Describe about weed controls application of bio-pesticides.
9. Describe about different irrigation methods.
10. Describe about different propagation method.
11. Describe about planning & design of park & avenue.
12. Describe about floriculture.
13. Describe about post-harvest technology of horticultural crops.
14. Describe about disease control & management in horticultural crops.
15. Describe about quarantine practices of horticultural crops.
16. Describe about IPM strategies for horticultural crops.

17. Describe about role of micro-propagation & tissue culture in horticultural plant conservation.
18. Describe about IPR issues related to horticultural crops.
19. Describe different methods to minimize losses during storage & transportation of vegetables.
20. Describe about documentation & conservation of germplasm.