

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. The 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-carpus 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 monocot 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 quiescent 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 _____ oriented 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 corpus organization?
10. What is dermatogen?
11. What is periblem?
12. What is plerome?
13. What is calyptragen?
14. What is the function of root cap?

15. What is quiescent centre?
16. What is promeristem?
17. What is parenchyma?
19. What is tracheids?
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 bundle?
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 vascentic 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. Phloem.
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 bordered pits.
22. Trichoblasts.
23. Kranz anatomy.
24. Phelloderm and Phellogen.
25. Anatomical characteristics of dorsiventral leaf.
26. Anatomical characteristics of isobilateral leaf.
27. Apical cell theory.
28. Histogen theory.
29. Tunica-carpus theory.

30. Vascular cambium and Cork cambium.
31. Functions of medullary Ray.
32. Significance of anomalous secondary growth in monocot.
33. Unusual structures 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. Monocot root anatomy.
46. Dicot root anatomy.
47. Monocot 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, demonstrate from labelled sketches how a vessel is formed .
8. Giving diagrams, describe the anatomy of a dorsiventral leaf . How does it differ 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 bundle 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 purpurea* 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 oil 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 coconut grows along the sea shore, Why?
11. Give the names and the families of the oil yielding plant studied by 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 olerius 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. Mediterranean 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 form of gene is known as _____.
2. The term gene was coined by _____.
3. Alleles with similar phenotypic effect 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 genes are also known as _____ elements.
14. _____ keep on changing their position in a chromosome and also between chromosomes 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 undergo 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 of 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. First 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 $p^2 + 2pq + q^2 = 1$.

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 inheritance?
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 is found in which chromosome?
32. What is chromosomal complement?
33. What is probability?
34. Which are known 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 are 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. Autopolyploid
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. Explain 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 chiasma and crossing over.
19. Define chromosomal aberration. Describe the 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 . Illustrate 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 consumers ?
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 govern soil 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 monocot 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 Ranunculids 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 the rules and principles of ICN.
4. What is palynology? Describe about its role in 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 are 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.