

BOTANY - 2010

M.Sc. Botany

- The unique base present in the DNA of T-even phages is :
 - 5-hydroxymethyl adenine
 - 5-hydroxymethyl guanine
 - 5-hydroxymethyl cytosine
 - Uracil
- The position of heterocysts in *Nostoc* is :
 - Intercalary
 - Terminal
 - Lateral
 - None of the above
- Sexual reproduction in *Phytophthora* is :
 - Isogamous
 - Oogamous
 - Anisogamous
 - All of the above
- Which of the following spore types are uninucleate in *Puccinia graminis* ?
 - Uredospores and Basidiospores
 - Teleutospores Pycnidiospores
 - Uredospores and Teleutospores
 - Basidiospores and Pycnidiospores
- Siphonaceous habit is characteristic of :
 - Volvox*
 - Vaucheria*
 - Oedogonium*
 - Chara*
- A pigment absent in Xanthophyceae is :
 - Chlorophyll
 - Xanthophyll
 - Carotene
 - Phycocyanin
- Elaters in *Marchantia* exhibit :
 - Hydrochasy
 - Xerochasy
 - Circumnutation
 - Nutation
- Which of the following statements is true about *Anthoceros* ?
 - Tuberculate rhizoids are present on ventral surface of the thallus
 - Tuberculate rhizoids are present on dorsal surface of the thallus
 - Smooth-walled rhizoids are present on ventral surface of the thallus
 - Smooth-walled rhizoids are present on dorsal surface of the thallus

9. Sex organs in the prothallus of *Lycopodium* are :
- (a) Projected
 - (b) Embedded
 - (c) Either projected or embedded
 - (d) Neither projected nor embedded
10. Presence of carinal canal at the base of vascular bundles is characteristics of :
- (a) *Rhynia*
 - (b) *Lycopodium*
 - (c) *Marsilea*
 - (d) *Equisetum*
11. Lipids, proteins and carbohydrates are the main constituents of cell membrane. With respect to their relative proportions, which of the following statements is correct ?
- (a) All the three are present in equal proportions in a cell membrane
 - (b) Lipids are present in least proportion in a cell membrane
 - (c) Carbohydrates are present in least proportion in a cell membrane
 - (d) Proteins are present in least proportion in a cell membrane
12. The telomeres of eukaryotic chromosomes consists of short sequences of :
- (a) Guanine rich repeats
 - (b) Adenine rich repeats
 - (c) Cytosine rich repeats
 - (d) Thymine rich repeats
13. How many mitotic divisions are needed for a single cell to make 128 cells ?
- (a) 32
 - (b) 28
 - (c) 14
 - (d) 7
14. Carrier molecules in the plasma membrane are required for :
- (a) Facilitated diffusion only
 - (b) Active transport only
 - (c) Both for facilitated diffusion and active transport
 - (d) Osmosis
15. In mitochondria, cristae act as sites for :
- (a) Protein synthesis
 - (b) Oxidation-reduction reactions
 - (c) Breakdown of macromolecules
 - (d) Phosphorylation of flavoproteins
16. How many different kinds of gametes would be produced by a plant having the genotype AABbCC?
- (a) Three
 - (b) Four
 - (c) Nine
 - (d) Two

17. The enzyme that breaks hydrogen bonds in DNA is :
- (a) Helicase (b) Ligase
(c) Kinase (d) Topoisomerase
18. In which phase of mitosis the chromatids of chromosomes separate from each other ?
- (a) Prophase (b) Metaphase
(c) Anaphase (d) Telophase
19. Which of the following are degenerate codons :
- (a) GUA, GUG, GCA, GCG and GAA
(b) UUG, UUC, CCU, CAA and CUA
(c) UAA, UAG and UGA
(d) UUA, UUG, CUU, CUC, CUA and CUG
20. Synthesis of RNA molecule in some organisms is terminated by a signal recognized by:
- (a) Alpha factor (b) Gamma factor
(c) Rho factor (d) None of the above
21. Sex organs in *Ephedra* are borne on :
- (a) Bisexual compound strobili (b) Unisexual compound strobili
(c) Bisexual simple strobili (d) Unisexual simple strobili
22. Which of the following is true about *Cycas* ?
- (a) Male strobilus and megasporophylls occur on separate individuals
(b) Male strobilus and megasporophylls occur on same individual
(c) Neither (a) nor (b)
(d) Either (a) or (b)
23. Wings in *Pinus* seeds develop from :
- (a) Bract scales (b) Cone axis
(c) Ovuliferous scale (d) Seed coat
24. Takhtajan divided angiosperms into which of the following two classes ?
- (a) Lignosae and Herbaceae
(b) Magnoliopsida and Liliopsida
(c) Archichlamydeae and Metachlamydeae
(d) Choripetalae and Sympetalae

25. Which of the following is not a principle of International Code of Botanical Nomenclature?
- (a) Botanical Nomenclature is independent of Zoological Nomenclature
 - (b) Nomenclature of a taxonomic group is based upon priority of publication
 - (c) The application of names of taxonomic groups is not determined by means of nomenclatural types
 - (d) Each taxonomic group with a particular circumscription, position and rank can bear only one correct name, the earliest that is in accordance with the rules
26. A binomial name in which the generic name and the specific epithet are identical (have same spellings) is called as :
- (a) Tautonym
 - (b) Homonym
 - (c) Autonym
 - (d) Synonym
27. A specimen which is a duplicate of the holotype, collected from the same place, at the same time and by the same person is designated as :
- (a) Holotype
 - (b) Isotype
 - (c) Syntype
 - (d) Lectotype
28. Syngenesious condition of stamens is found in :
- (a) Lamiaceae
 - (b) Solanaceae
 - (c) Fabaceae
 - (d) Asteraceae
29. As per the rules of the Botanical Nomenclature Code, the names of two or more authors who publish a new species or propose a new name are linked by :
- (a) *et*
 - (b) *ex*
 - (c) *in*
 - (d) None of the above
30. "*Odines Anomali*" of Bentham and Hooker includes :
- (a) Plants represented only in fossil state
 - (b) Plants showing abnormal growth and development
 - (c) A few orders which could not be placed satisfactorily in classification
 - (d) All of the above
31. Quiescent centre occurs in :
- (a) Shoot apex
 - (b) Root apex
 - (c) Both (a) or (b)
 - (d) Neither (a) nor (b)

32. Casparian strips contain :
- | | |
|-------------|------------|
| (a) Cutin | (b) Pectin |
| (c) Suberin | (d) Wax |
33. A raphide is a deposit of :
- | | |
|---------------------|-----------------------|
| (a) Calcium oxalate | (b) Silica |
| (c) Starch | (d) Calcium carbonate |
34. Two distinct zones of tunica and corpus in the shoot apex of angiosperms are distinguished on the basis of :
- | |
|---|
| (a) Meristematic activity of cells |
| (b) Cytological characteristics of cells |
| (c) Histological characteristics of cells |
| (d) Plane of cell division |
35. A vascular bundle in which xylem encircles the phloem tissue is called as :
- | | |
|------------------------|-------------------------|
| (a) Amphicribal bundle | (b) Amphivasal bundle |
| (c) Collateral bundle | (d) Bicollateral bundle |
36. The most probable function of P-proteins in sieve elements is :
- | |
|---|
| (a) Deposition of callose on sieve plates |
| (b) Providing energy for active translocation |
| (c) Sealing of pores after wounding |
| (d) None of the above |
37. Sieve tubes differ from sieve cells in :
- | | |
|--------------------------------------|--------------------|
| (a) Having sieve plates at end walls | (b) Lacking nuclei |
| (c) Being shorter | (d) Being dead |
38. When the paratracheal parenchyma surrounds the vessels in such a way that wing-like lateral projections are formed, it is termed as :
- | | |
|--------------------------|-----------------|
| (a) Vasicentric | (b) Apotracheal |
| (c) Diffuse-in-aggregate | (d) Aliform |
39. Bulliform cells present in the epidermis of certain grasses help in :
- | | |
|--------------------------------------|----------------------|
| (a) Rolling of leaves in dry weather | (b) Tracking the sun |
| (c) Providing strength | (d) All of the above |

40. Ubisch bodies are secreted by :
- | | |
|---------------|---------------|
| (a) Endosperm | (b) Nucellus |
| (c) Tapetum | (d) Synergids |
41. Which of the following phytohormones plays a role in the opening and closing of stomata ?
- | | |
|------------------------|----------------------|
| (a) Indole acetic acid | (b) Abscisic acid |
| (c) Gibberellic acid | (d) All of the above |
42. Chlorosis in nitrogen deficient plants appears :
- | |
|---|
| (a) In young leaves only |
| (b) In mature leaves only |
| (c) First in young leaves and then in mature leaves |
| (d) First in mature leaves and then in young leaves |
43. CO₂ compensation point is high in :
- | | |
|---------------------------|---------------------------|
| (a) C ₃ plants | (b) C ₄ plants |
| (c) C ₂ plants | (d) None of the above |
44. The phenomenon of sharp decrease in the quantum yield of photosynthesis in organisms such as *Chlorella* upon using monochromatic light of wavelength greater than 680 nm is called as :
- | | |
|--------------------|--------------------------|
| (a) Warburg effect | (b) Emerson effect |
| (c) Red drop | (d) Richmond Lang effect |
45. Movements in plants that occur in response to touch are known as :
- | | |
|-----------------|-----------------|
| (a) Epinasty | (b) Haptonasty |
| (c) Thermonasty | (d) Seismonasty |
46. Single turn of citric acid cycle yields :
- | | |
|--|--|
| (a) 2FADH ₂ , 2NADH ₂ , 2GTP | (b) 1FADH ₂ , 3NADH ₂ , 1GTP |
| (c) 1FADH ₂ , 2NADH ₂ , 1GTP | (d) 1FADH ₂ , 1NADH ₂ , 2GTP |
47. Which of the following is responsible for apical dominance ?
- | | |
|---------|---------------------|
| (a) IAA | (b) GA ₃ |
| (c) ABA | (d) Florigen |
48. The catalytic efficiency of two different enzymes can be compared in terms of :
- | | |
|-------------------------------|-----------------------------------|
| (a) Formation of the products | (b) Optimum pH of the enzymes |
| (c) The Km value of enzymes | (d) Molecular size of the enzymes |

49. Which of the following plant growth regulators is used to induce rooting in the stem cuttings of plants ?
- | | |
|-----------------|-------------------|
| (a) Cytokinin | (b) Auxin |
| (c) Gibberellin | (d) Abscisic acid |
50. Growth curve in most annual plants is :
- | | |
|-------------|-----------------------|
| (a) Linear | (b) Bell shaped |
| (c) Sigmoid | (d) None of the above |
51. Occurrence of *Zoochlorellae* in the body wall of *Hydra* is an example of :
- | | |
|------------------|----------------|
| (a) Predation | (b) Parasitism |
| (c) Commensalism | (d) Mutualism |
52. Diurnal temperature of soil surface varies most in a :
- | | |
|---------------|----------------|
| (a) Desert | (b) Forest |
| (c) Grassland | (d) Shrub land |
53. Ecotone refers to :
- | |
|---|
| (a) Interaction between two populations |
| (b) Ecotypes of a species |
| (c) Transitional zone between two communities |
| (d) Ecads of a species |
54. Which one of the following ecosystem types has the highest annual net primary productivity ?
- | | |
|--------------------------------|--------------------------------|
| (a) Tropical deciduous forest | (b) Temperate evergreen forest |
| (c) Temperate deciduous forest | (d) Tropical rain forest |
55. Freshwater ecosystems with continuous flow of water are called as :
- | | |
|--------------------------|-----------------------------|
| (a) Lotic ecosystems | (b) Lentic ecosystems |
| (c) Eutrophic ecosystems | (d) Oligotrophic ecosystems |
56. cDNA is :
- | | |
|------------------|-----------------------|
| (a) Circular DNA | (b) Complimentary DNA |
| (c) Coiled DNA | (d) Cytoplasmic DNA |
57. Fragments of DNA formed after treatment with endonucleases are separated by :
- | | |
|-------------------------------|--------------------------|
| (a) Polymerase chain reaction | (b) Colony hybridization |
| (c) Electrophoresis | (d) All of the above |

58. The medicinal plant *Saussurea* belongs to family :
- (a) Asteraceae
 - (b) Solanaceae
 - (c) Malvaceae
 - (d) Rosaceae
59. Groundnut oil is good for health because it contains:
- (a) Polyunsaturated Fatty Acids (PUFA)
 - (b) Monounsaturated Fatty Acids (MUFA)
 - (c) Saturated fats
 - (d) All of the above
60. Which of the following combinations is correct ?
- (a) Tossa jute *Corchorus capsularis*
 - (b) White jute *Corchorus olitorius*
 - (c) Tossa jute *Corchorus indica*
 - (d) White jute *Corchorus capsularis*