

(d) Association

56. Which of the following plants produces a caryopsis ?

- (a) *Triticum aestivum*
- (b) *Artemisia annua*
- (c) *Solanum tuberosum*
- (d) *Lathyrus odoratus*

57. The famous timber "Saguan" is obtained from

- (a) *Eucalyptus globosus*
- (b) *Tectona grandis*
- (c) *Shorea robusta*
- (d) *Dalbergia sissoo*

58. The common gunny bag fibre is obtained from

- (a) *Crotalaria juncea*
- (b) *Cocos nucifera*
- (c) *Corchorus capsularis*
- (d) *Quercus superba*

59. pBR327 is :

- (a) yeast plasmid vector
- (b) phagemid pBluescript vector
- (c) pUC vector
- (d) *E. coli* plasmid vector

60. Which of the following properties of Ti plasmids of *Agrobacterium* made them a suitable choice for use as vectors ?

- (a) Large size
- (b) Absence of unique restriction sites
- (c) Tumour induction properties
- (d) Presence of *vir* gene.

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1. Bacteria cannot survive in a highly salted pickle because

- (A) Salt inhibits reproduction
- (B) Pickle, does not contain nutrients necessary for bacterial growth
- (C) Bacteria do not get enough light for photosynthesis
- (D) Bacterial cells become plasmolysed and consequently killed

2. In which of the following conditions transpiration would be the most rapid?

- (A) High humidity

- (B) Excess of water in the soil
- (C) Low humidity and high temperature
- (D) Low wind velocity

3. Which of the following denotes the covalently bound non-protein component of an enzyme?

- (A) Coenzyme
- (B) Cofactor
- (C) Apoenzyme
- (D) Prosthetic group

4. Majority of the higher plants growing in well-aerated soils rich in organic matter preferably utilize:

- (A) NH_4^+
- (B) NO_2
- (C) NO_3
- (D) Organic nitrogen

5. In most of the enzymatic reactions that involve ATP as the phosphoryl donor, the *true* substrate is

- (A) Mg ATP^{2-}
- (B) Mn ATP^{2-}
- (C) Ca ATP^{2-}
- (D) None of the above

6. During photorespiration, the conversion of glycine to serine, and of serine to CO_2 and NH_3 takes place in :

- (A) Chloroplasts
- (B) Mitochondria
- (C) Peroxisomes
- (D) None of the above

7. Which of the following enzymes is/are synthesized *de novo* during the germination of lipid-storing seeds?

- (A) Isocitrate lyase
- (B) Malate synthetase
- (C) Both of the above
- (D) None of the above

8. Which of the following plant hormones delay senescence?

- (A) Cytokinins
- (B) Auxins
- (C) Gibberellins
- (D) Ethylene

9. The photosynthetically active radiation (PAR) is

- (A) $< 400 \text{ nm}$
- (B) Between 400 to 700 nm
- (C) $>740, \text{ nm}$

(D) None of the above

10. Sleep movement of beans is an example of:

- (A) Epinasty
- (B) Nyctinasty
- (C) Thigmonasty
- (1) Seismonasty

11. In the hydrological cycle, precipitation exceeds evaporation and transpiration over the:

- (A) Land surfaces
- (B) Oceans
- (C) Both of the above
- (D) None of the above

12. The length of the food chains is limited by :

- (A) Less energy available to support more trophic levels
- (B) Less ecological efficiency of different trophic levels
- (C) Both of the above
- (D) High energy available to disrupt trophic levels

13. The pioneer plants in the secondary succession are usually:

- (A) Lichens
- B) Weeds
- (C) Ferns
- (D) All of the above

14. Aerial roots, vivipary and succulence are the common adaptations of:

- (A) Xerophytes
- (B) Hydrophytes
- (C) Mesophytes
- (D) Halophytes

15. Kashmir Valley falls within the Indian biogeographic region of:

- (A) Trans-Himalaya
- (B) Eastern Himalaya
- (C) Northwestern Himalaya
- (D) Central Himalaya

16. Ecologically, a population is defined as :

- (A) A single group of interbreeding individuals of the same species
- (B) A single group of interbreeding individuals of different species
- (C) A single group of interbreeding individuals of a few species
- (D) A single group. of interbreeding individuals of many species

17. Which of the following genera includes fibre plants?

- A) *Oryza*
- B) *Brassica*

- (C) *Atropa*
- (D) *Gossypium*

18. The drugs extracted from *Podophyllum hexandrum* are

- (A) Anti-carcinogenic
- (B) Sedative
- (C) Diuretic
- (D) Aphrodisiac

19. Which of the following is used as a cloning vector in plants?

- (A) Cosmid
- (B) Phagemid
- (C) Ti Plasmid
- (D) YAC

20. When a mature cell reverts back to meristematic state and forms an undifferentiated callus tissue, the process is termed as

- (A) Postdifferentiation
- (B) Redifferentiation
- (C) Dedifferentiation
- (D) Predifferentiation

21. In diploid organisms, the formation of multivalents at meiosis is due to

- (A) Monosomy
- (B) Inversion
- (C) Duplication
- (D) Reciprocal translocation

22. An anticodon of *tRNA* recognizes more than one codon of *mRNA*. This explains:

- (A) Wobble hypothesis
- (B) Degeneracy of genetic code
- (C) Universality of genetic code
- (D) Triplet nature of genetic code

23. How many Trisomies are possible in an individual with $2n = 20$

- (A) 5
- (B) 10
- (C) 15
- (D) 20

24. A wild allele 'A' after segregation from 'Aa' genotype gives a mutant phenotype; the condition is called as

- (A) Point mutation
- (B) Paramutation
- (C) Frameshift mutation
- (D) Back mutation

25. PBR-322 is :

- (A) An artificially constructed plasmid
- (B) A natural plasmid
- (C) A cosmid
- (D) A phagemid

26. In a DNA molecule with percentage of Guanine as 24, Adenine is expected to be:

- (A) 52%
- (B) 48%
- (C) 26%
- (D) 24%

27. The ~fatty acid tail in a phospholipid molecule is

- (A) Hydrophobic
- (B) Hydrophilic
- (C) Amphipathic
- (D) None of the above

28. Which DNA sequences are functional even at a great distance from either side of the transcriptional initiation site of a gene?

- (A) Response elements
- (B) Promoters
- (C) Enhancers
- (D) Operators

29. Brown eye is dominant over blue eye. A brown-eyed couple has a blue-eyed child. The genotype of the couple would be

- (A) BB x bb
- (B) bb x bb
- (C) BB x Bb
- (D) Bb x Bb

30. Which mutation of the sequence GATCCT is a transition?

- (A) GGTCCT
- (B) GTTCCT
- (C) GTATCCT
- (D) GTCCT

31. A motile flagellated asexual cell is called:

- (A) Sperm
- (B) Zoospore
- (C) Oospore
- (D) Androspore

32. Algae are classified into major groups on the basis of:

- (A) Nature of the reserve food product
- (B) Chemical composition of the cell wall

- (C) The type of pigment
- (D) 'Vegetative characters

33. The conjugating gametangia of *Rhizopus* are
- (A) Physiologically similar but morphologically dissimilar
 - (B) Physiologically dissimilar but morphologically similar
 - (C) Physiologically similar and morphologically similar
 - (D) Physiologically dissimilar and morphologically dissimilar

34. All fungi lack :
- (A) Centrioles
 - (B) Cell wall
 - (C) Rhizoids
 - (D) Haustoria

35. The capsule of the sporophyte in *Polytrichum* lacks:
- (A) Operculum
 - (B) Peristome
 - (C) Columella
 - (D) None of the above

36. *Equisetum* is :
- (A) Incipiently heterosporous
 - (B) Distinctly heterosporous
 - (C) Homosporous
 - (D) Asporous

37. The form genus *Rhynia* was discovered by:
- (A) Kidston and Lang
 - (B) Arnold
 - (C) Birbal Sahni
 - (D) Campbell

38. The simplest known sporophyte among Bryophyta occurs in
- (A) *Funaria*
 - (B) *Anthoceros*
 - (C) *Marchantia*
 - (D) *Riccia*

39. One of the main reasons for including Cyanophyceae in Procaryota is:
- (A) Absence of sexual reproduction
 - (B) Absence of flagellated spores
 - (C) Absence of nuclear membrane
 - (D) Presence of mucilaginous sheath

40. The genome of plant viruses is mostly:

- (A) ssDNA
- (B) ssRNA
- (C) dsDNA
- (D) dsRNA

41. Which of the following is *not* a characteristic feature of *Cycas*?

- (A) Circinate vernation of foliage leaves
- (B) Armed parenchyma
- (C) Motile sperms
- (D) Vessels in the xylem

42. K.R Sporne (1974) has placed ~ the order Cordaitales in the group:

- (A) Coniferopsida
- (B) Cycadopsida
- (C) Gnetopsida
- (D) Cordaitopsida

43. The form genus *Caytonia* represents

- (A) Microsporophyll
- (B) Megasporophyll
- (C) Foliage leaf
- (D) All of the above

44. Which of the following statements is *not* correct?

- (A) All seed plants are heterosporous
- (B) *Selaginella* shows incipient seed habit
- (C) All vascular plants bear seeds
- (D) The seeds have survival value

45. Amongst the following attributes of a flower, which one is considered to be the primitive?

- (A) Floral parts fused
 - (B) Ovary superior
 - (C) Symmetry bilateral
 - (D) Floral parts reduced to less than four
- (A)

46. In tetradynamous condition, the stamens are arranged in two whorls of:

- (A) 2 (short) + 2 (long)
- (B) 2 (long) + 4 (short)
- (C) 4 (short) + 4 (long)
- (D) 4 (long) + 2 (short)

47. In a dichotomous taxonomic key, the statement "Flowers red" would be called:

- (A) A lead
- (B) A couplet
- (C) A triplet

(D) A character

48. The Pome type of fruit occurs in

- A) Pomegranate
- (B) Peach
- (C) Plum
- (D) Pear

49. In a descending order, the correct sequence of the following categories in the taxonomic hierarchy would be :

- (A) Class, Division, Order, Family, Genus, Species
- (B) Order, Division, Class, Family, Genus, Species
- (C) Division, Class, Order, Family, Genus, Species
- (D) Division, Order, Class, Family, Genus, Species

50. Bentham and Hooker's system of classification of plants was published in the

- (A) Genera Plantarum
- (B) Species Plantarum
- (C) Historia Plantarum
- (D) Systema Naturae

51. The first pollinating agents in angiosperms were probably

- (A) Beetles
- (B) Birds
- (C) Bats
- D) Butterflies

52. The Quiescent Center is a reservoir of cells showing

- (A) High meristematic activity
- (B) Occasional meristematic activity
- (C) No meristematic activity
- (D) Annual meristematic activity

53. The companion cells are absent in :

- (A) Halophytes
- (B) Xerophytes
- (C) Monocots
- (D) Gymnosperms

54. Which of the following structures is *not* found in an angiosperm leaf?

- (A) Periderm
- (B) Guard cell
- (C) Chloroplast
- (D) -Phloem

55. The structural arrangement of wood components is called as

- (A) Texture of wood
- (B) Figure of wood
- (C) Grain of wood
- (D) Gravity of wood

56. The annual growth rings are distinct in plants growing in the:

- (A) Tropical regions
- (B) Arctic regions
- (C) Grasslands
- (D) Temperate regions

57. The Tunica and Corpus regions of the shoot apex are usually distinguished by the:

- (A) Numbers of cell division
- (B) Rates of cell division
- (C) Planes of cell division
- (D) None of the above

58. The female gametophyte of a typical dicot at the time of fertilization is

- (A) 8-nucleate, 8-celled
- (B) 8-nucleate, 7-celled
- (C) 7-nucleate, 7-celled
- (D) 7-nucleate, 8-celled

59. The function of the tapetum in an anther is related to:

- (A) Dehiscence
- (B) Division
- (C) Protection
- (D) Nutrition

60. The single cotyledon in grass embryo is called

- (A) Scutellum
- (B) Coleorhiza
- (C) Coleoptile
- (D) Endothelium