A

3545

Register Number

Part III — BOTANY

(English Version)

Time Allowed : 3 Hours] [Maximum Marks : 150

SECTION – A

Note : i) Answer *all* questions.

ii) Choose and write the correct answer.

iii) Each question carries *one* mark. 30 × 1 = 30

1. An example of cladode is

a) *Phyllanthus emblica* b) *Riccinus communis*

c) *Jatropha curcus* d) *Euphorbia tirucalli.*

2. The total number of herbarium specimens preserved in Presidency College, Chennai is more than

a) 10,000 b) 12,000

c) 1,90,000 d) 10,00,000.

3. The main function of aerenchyma is

a) storage b) absorption

c) buoyancy d) conduction.

4. The age of old *Sequoia dendron* is

a) 4500 years b) 4000 years

c) 3500 years d) 3700 years.

[Turn over

5. The pores in the sieve plate are blocked by

a) cellulose b) pectin

c) lignin d) callose.

6. The width of DNA molecule is

a) 18 Å b) 34 Å

c) 20 Å d) 35 Å.

7. The small circles of DNA found in *Escherichia coli* are called

a) source DNAs b) recombinant DNAs

c) plasmids d) host DNAs.

8. Callus is a mass of

a) permanent tissues b) meristematic tissues

c) undifferentiated tissues d) complex tissues.

9. Somatic hybrids are produced through

a) asexual fusion b) protoplasmic fusion

c) vegetative propagation d) grafting.

10. ..... is the universal pigment in plants, which utilizes water for Photosynthesis.

a) Chlorophyll '*a*' b) Chlorophyll '*b*'

c) Carotenoid d) Xanthophyll.

11. Ethylene is involved in

a) stem elongation b) bolting

c) apical dominance d) ripening of fruits.

12. The vernacular name of *Acalypha indica* in Tamil is

a) Kuppaimeni b) Vilvam

c) Pirandai d) Katrazhai.

13. The causative organism of Tungro disease of rice is

a) bacteria b) fungus

c) virus d) cyanobacteria.

14. The energy currency of the cell is

a) ATP

b) NADP

c) FAM

d) FAD.

15. A toxin called endotoxin in crystallized form is produced by

a) *Escherichia coli*

b) *Streptomyces griseus*

c) *Bacillus thuringiensis*

d) *Bacillus lactii.*

16. The binomial system of nomenclature was introduced by

a) Carolus Linnaeus b) Gaspard Bauhin

c) Sir Joseph Dalton Hooker d) Adolf Engler.

17. In India, herbarium of Indian Botanical Garden is located at

a) Chennai b) Trichy

c) Kolkata d) Coimbatore.

18. The binomial name of the Kalpa Vriksha is

a) *Cocos nucifera* b) *Nipa fruticans*

c) *Phoenix sylvestris* d) *Borassus flabellifer.*

19. *Aeschynomene aspera* is a

a) xerophyte b) hydrophyte

c) mesophyte d) lithophyte.

20. Homogamous head inflorescence is found in

a) *Echinops* b) *Launaea*

c) *Helianthus* d) *Tridax.*

21. Root hairs are produced from

a) trichoblasts b) trichomes

c) guard cells d) pericycle.

22. Polyarch condition is found in

a) monocot leaf b) dicot leaf

c) dicot stem d) monocot root.

23. Salivary glands of Drosophila contain special type of chromosome called

a) Polytene chromosome b) Double minutes

c) Lamp brush chromosome d) B-chromosome.

24. Biochemical mutants of ..... failed to synthesize certain amino acids,

a) Sorghum b) Neurospora

c) *Cicer arietinum* d) *Cicer gigas.*

25. The coupling test cross ratio is

a) 1 : 7 : 7 : 1 b) 7 : 1 : 1 : 7

c) 1 : 1 : 1 : 1 d) 9 : 3 : 3 : 1.

26. An example for saprophytic angiosperms is

a) *Drosera* b) *Vanda*

c) *Monotropa* d) *Cuscuta.*

27. Apical dominance is due to

a) Auxin b) Gibberellin

c) Cytokinin d) Abscisic acid.

28. An example for long day plant is

a) tobacco b) sunflower

c) oats d) maize.

29. Which one of the following is a C_4 plant ?

a) Rice

b) Wheat

c) Sugarcane

d) Potato.

30. One molecule of $FADH_2$ on oxidation yields

a) one ATP b) two ATPs

c) three ATPs d) four ATPs.

SECTION – B

Note : i) Answer any *fifteen* questions.

ii) Each question carries *three* marks. $15 \times 3 = 45$

31. What is called author citation ?

32. Write the systematic position of solanaceae.

33. What is pyrethrum ?

34. What are the three classes of Phanerogams ?

35. What is aerenchyma ?

36. Define mutation. In which plant is it first observed ?

37. Define Crossing over.

38. Write short notes on Somatic hybridization.

39. Define Totipotency.

40. Write the conditions under which cyclic photophosphorylation takes place.

41. What are called total parasites ? Give an example.

42. What is the function of aldolase in the process of glycolysis ?

43. Write a short note on *Drosera*.

44. What are B-chromosomes ?

45. The respiratory quotient for anaerobic respiration is infinity. Give reasons.

46. What are called phytochromes ?

47. Define Biomedicine.

48. Write the symptoms of Tikka disease of groundnut.

49. Differentiate between cyclic photophosphorylation and non-cyclic photophosphorylation. Give any three differences.

50. What are called haustoria ?

SECTION – C

Note : i) Answer any *seven* questions including Question No. **53** which is compulsory.

ii) Each question carries *five* marks.

iii) Draw diagrams wherever necessary. $7 \times 5 = 35$

51. Bring out the merits of Bentham and Hooker's classification of plants.

52. Write an account on economic importance of family Musaceae.

53. Draw and label the parts of transverse section of dicot root.

54. Bring out the characters of meristematic cells.

55. Give an account of sclereids.

56. Draw and label the structures of polytene chromosome and lamp brush chromosome.

57. What is mutagenic agent ? Write a short note on the types of mutagenic agent.

58. State about the benefits of genetically modified micro-organisms released in the environment.

59. Write an account on SCP.

60. Describe the structure of chloroplast.

61. Explain Ganong's respiroscope experiment.

62. Write a brief account on the economic importance of rice.

SECTION – D

Note : i) Answer any *four* questions.

ii) Each question carries *ten* marks.

iii) Draw diagrams wherever necessary. $4 \times 10 = 40$

63. a) Write any five salient features of ICBN.

b) Write any five importances of herbarium.

64. Describe *Hibiscus rosa sinensis* in botanical terms. Draw floral diagram and write the floral formula.

65. Describe the primary structure of a monocot stem with diagram.

66. a) Write an account on the structure of tRNA

b) Write any five significances of mutation.

67. Write an essay on C_2 cycle.

68. Describe the reactions of Glycolysis with flowchart or explanation.

69. Write an essay on basic techniques of plant tissue culture.

70. Give a short account on the following :

a) *Cissus quadrangularis*

b) *Citrus canker.*