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Register Number

Part III — BOTANY

(English Version)

Time Allowed : 3 Hours]   [Maximum Marks : 150

SECTION – A

Note :   i)   Answer *all* the questions.

ii)   Choose and write the correct answer.   30 × 1 = 30

1.   The botanical name of thoodhuvalai is

   a)   Solanum trilobatum
   b)   Withania somnifera

   c)   Datura stramonium
   d)   Atropa belladona.

2.   The binomial of para rubber plant is

   a)   Manihot glaziovii
   b)   Phyllanthus emblica

   c)   Hevea brasiliensis
   d)   Jatropha curcas.

3.   Libriform fibres refer to

   a)   Phloem fibres
   b)   Tracheids

   c)   Sclerenchyma fibres
   d)   Xylem fibres.

4.   The companion cells are present only in

   a)   Gymnosperms
   b)   Pteridophytes

   c)   Angiosperms
   d)   Thalophytes.

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5. Bicollateral vascular bundles are seen in

     a)   Malvaceae   b)   Cucurbitaceae

     c)   Solanaceae   d)   Musaceae.

6. Which of the following is a starting codon ?

     a)   *AUA*   b)   *AUC*

     c)   *AUG*   d)   *UUG.*

7. *Agrobacterium tumefaciens* is a

     a)   *Escherichia coli* bacteria

     b)   Soil inhabiting bacteria

     c)   Parasitic bacteria

     d)   Symbiotic bacteria.

8. Which of the following decreases blood pressure ?

     a)   Interleukin   b)   Insulin

     c)   Renin inhibitors   d)   Interferon.

9. The two protoplasts are fused with a fusogen called

     a)   Polyethylene glycol   b)   Polyvinyl chloride

     c)   Polyethane glycol   d)   Phosphoric ethane.

10. Who discovered that yeast extract could bring about fermentation of grape juice like the living yeast cells ?

     a)   Buchner   b)   Kuhne

     c)   Pasteur   d)   Koshland.

11. Foolish disease in rice is caused by

   a) Auxin
   b) Abscisic acid

   c) Cytokinin
   d) Gibberellin.

12. Which of the following is a long-day plant ?

   a) Wheat
   b) Sunflower

   c) Maize
   d) Tobacco.

13. Duration of patent in India is .... years.

   a) 3
   b) 4

   c) 5
   d) 6.

14. Which pathogen causes Tikka disease of groundnut ?

   a) *Cercospora personata*
   b) *Pyricularia oryzae*

   c) *Xanthomonas citri*
   d) Tungro virus.

15. The binomial of Touch-me-not plant is

   a) *Solanum nigram*
   b) *Mimosa pudica*

   c) *Cissus quadrangularis*
   d) *Aegle marmelos.*

16. Rapinet Herbarium is situated at

   a) Madurai
   b) Coimbatore

   c) Cuddalore
   d) Trichy.

17. The botanist who introduced binomial system is

   a) Carolus Linnaeus
   b) Gaspard Bauhin

   c) Sir Joseph Dalton Hooker
   d) Adolf Engler.

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18. Number of families in sub-class Monochlamydeae is

   a) 46   b) 56

   c) 66   d) 36.

19. Anthers are monothecous in

   a) Solanaceae   b) Euphorbiaceae

   c) Malvaceae   d) Musaceae.

20. *Aeschynomene aspera* is a

   a) hydrophyte   b) mesophyte

   c) xerophyte   d) lithophyte.

21. Protoxylem lacuna is present in the vascular bundles of

   a) Dicot root   b) Monocot root

   c) Dicot stem   d) Monocot stem.

22. The protective layer developed during the secondary growth of stem is called

   a) Epidermis   b) Periderm

   c) Rhizodermis   d) Cortex.

23. Double minutes chromosomes occur in

   a) Epithelial cells   b) Bone cells

   c) AIDS cells   d) Cancer cells.

24. The functional unit of genes is

   a) cistron   b) recon

   c) muton   d) micron.

25. Nullisomy is represented by

a) $2n - 1$ b) $2n + 1$

c) $2n + 2$ d) $2n - 2$.

26. Pepsin is active in

a) alkaline medium   b) neutral medium

c) acidic medium   d) salty medium.

27. Vanda plant is a

a) total parasite   b) epiphyte

c) partial parasite   d) saprophyte.

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

a) Rice   b) Wheat

c) Potato   d) Sugarcane.

29. Who discovered pentose phosphate pathway ?

a) Dickens   b) Calvin

c) Krebs   d) Embden.

30. Complete oxidation of one molecule of glucose yields

a) 36 ATP   b) 38 ATP

c) 35 ATP   d) 2 ATP.

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SECTION – B

Note : Answer any *fifteen* questions. $15 \times 3 = 45$

31. Define tautonym. Give an example.

32. What is vexillum ?

33. Write different types of any three inflorescences seen in Euphorbiaceae. Give example for each.

34. Write the systematic position of Musaceae family.

35. What is an eustele ?

36. Why has 'one gene one enzyme hypothesis' been modified into 'one gene one polypeptide hypothesis' ?

37. Write the chemical mutagenic agents.

38. What is translation ?

39. What is gene gun method of delivery of DNA ?

40. Write the two names of bacteria used for SCP production.

41. What is Holoenzyme ?

42. Define photorespiration.

43. What is photolysis of water ?

44. What is meant by dimorphic chloroplast ?

45. What is oxidative phosphorylation ?

46. What is respiratory quotient ?

47. Define Bolting.

48. What is devernalization ?

49. What is soil reclamation ?

50. What is humulin ?

SECTION – C

Note : i) Answer any *seven* questions including Question No. **54** which is compulsory.

ii) Draw diagrams wherever necessary. 7 × 5 = 35

51. Write any five salient features of ICBN.

52. Write the economic importance of the family Asteraceae.

53. Write short notes on Xylem vessels.

54. Draw the transverse section of monocot root and label the parts.

55. Write short notes on sapwood and heartwood.

56. Draw the structure of Chromosome and label the parts.

57. Write the differences between DNA and RNA.

58. How is DNA cut ?

59. Write any five applications of plant tissue culture.

60. Describe the types of enzymes.

61. Bring out any five physiological effects of auxin.

62. Add a note on plant introduction.

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SECTION – D

Note : i)   Answer any *four* questions.

        ii)   Draw diagrams wherever necessary.   4 × 10 = 40

63. Explain the Bentham and Hooker's classification of plants. (Outline flow-chart *or* explanation)

64. Describe *Ixora coccinea* in technical terms. Draw floral diagram and write the floral formula.

65. Describe the anatomy of a dicot leaf.

66. Describe ribosomal RNA and the structure of transfer RNA.

67. Write an essay on DNA recombinant technology.

68. Write an account on dark reactions of photosynthesis. (Cycle flow-chart *or* explanation).

69. Explain pentose phosphate pathway.

70. What are the aims of plant breeding ?