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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. Bio-diesel is extracted from
 - a) *Phyllanthus emblica*
 - b) *Jatropha curcas*
 - c) *Ricinus communis*
 - d) *Hevea brasiliensis*.
2. The term 'bio-systematics' was coined by
 - a) Engler and Prandtl
 - b) Camp and Gily
 - c) Carolus Linnaeus
 - d) Gaspard Bauhin.
3. Open vascular bundles are present in
 - a) dicot root
 - b) dicot stem
 - c) monocot root
 - d) monocot stem.
4. Lateral roots originate from
 - a) Trichoplast
 - b) Endodermis
 - c) Hypodermis
 - d) Pericycle.

[Turn over

5. The secondary protective layer is

- a) Phellogen
- b) Periderm
- c) Phelloderm
- d) Rhizoderm.

6. The stability of terminal part of the chromosome is offered by

- a) satellite
- b) centromere
- c) histones
- d) telomere.

7. The plant that produces bio-degradable plastic is

- a) *Arabidopsis thaliana*
- b) *Beta vulgaris*
- c) mouse eared cress
- d) *Glycine max.*

8. Which one of the following will carry the gene of interest into its new host ?

- a) Vector DNA
- b) Source DNA
- c) Host DNA
- d) Hybrid DNA.

9. Which of the following products helps the cells to resist virus ?

- a) Interferons
- b) Interleukin
- c) Insulin
- d) Renin.

10. The term 'enzyme' was coined by

- a) Fischer
- b) Buchner
- c) Koshland
- d) Kuhne.

11. Photosynthetically more efficient plant is

- a) rice
- b) wheat
- c) potato
- d) sugarcane.

12. Enzyme which consists of a protein and a non-protein components is called
- a) Apoenzyme
 - b) Holoenzyme
 - c) Coenzyme
 - d) Isoenzyme.
13. Polyploidy can be induced by the use of
- a) Polyethylene glycol
 - b) Lycine
 - c) Cellulose
 - d) Colchicine.
14. Blast disease of rice is caused by the fungi
- a) *Pyricularia oryzae*
 - b) *Cercospora personata*
 - c) *Tungro virus*
 - d) *Xanthomonas citri*.
15. The plant which promotes urination is
- a) *Cissus quadrangularis*
 - b) *Arachis hypogea*
 - c) *Aegle marmelos*
 - d) *Solanum nigrum*.
16. Trimerous flowers are seen in
- a) Dicot plants
 - b) Monocot plants
 - c) Pteridophytes
 - d) Gymnosperms.
17. Monothealous anther lobes are found in the family
- a) Malvaceae
 - b) Solanaceae
 - c) Euphorbiaceae
 - d) Asteraceae.

18. 'Kalpa Vriksha' refers to

- a) *Borassus flabellifer*
- b) *Elaeis guinensis*
- c) *Cocos nucifera*
- d) *Corypha umbraculifera*.

19. Quinine is obtained from

- a) *Cinchona officinalis*
- b) *Morinda tinctoria*
- c) *Adina cordifolia*
- d) *Mussaenda frondosa*.

20. Homogamous head inflorescence is found in

- a) *Echinops*
- b) *Launaea*
- c) *Helianthus*
- d) *Tridax*.

21. The chief water conducting element in *Gnetum* is

- a) Sieve tubes
- b) Tracheids
- c) Vessels
- d) Xylem parenchyma.

22. Phloem parenchyma is absent in

- a) Pteridophytes
- b) Gymnosperms
- c) Dicots
- d) Monocots.

23. The genome of *Arabidopsis thaliana* is

- a) 5
- b) 7
- c) 12
- d) 21.

24. The mutation reported in bacteriophage is

- a) substitution
- b) addition
- c) inversion
- d) deletion.

25. The supercoiled part of DNA is released by
- a) Primase
 - b) Helicase
 - c) DNA polymerase
 - d) Topoisomerase.
26. Which of the following is a Saprophyte ?
- a) *Vanda*
 - b) *Drosera*
 - c) *Viscum*
 - d) *Monotropa*.
27. Which is called the powerhouse of the cell ?
- a) Mitochondria
 - b) Chloroplast
 - c) Ribosome
 - d) Nucleus.
28. Which of the following is a common respiratory substrate ?
- a) Protein
 - b) Lipids
 - c) Carbohydrate
 - d) Vitamins.
29. Oxidative phosphorylation occurs in
- a) Glycolysis
 - b) Cyclic photophosphorylation
 - c) Non-cyclic photophosphorylation
 - d) Electron transport chain.
30. The respiratory quotient of malic acid is
- a) 1
 - b) 1.33
 - c) 0.36
 - d) ∞ .

SECTION - B

Note : i) Answer any *fifteen* questions.

ii) Each question carries *three* marks.

15 × 3 = 45

31. Write any three salient features of ICBN.
32. What is epicalyx ? Give an example.
33. What is syngenesious stamen ? Write an example.
34. What is Binomial nomenclature ? Give an example.
35. What is a dorsiventral leaf ? Give example.
36. What are the significances of crossing over ?
37. Define Genome.
38. What is transcription ?
39. What is Bio-remediation ?
40. Mention any three Bio-technology centres.
41. Write the differences between photorespiration and dark respiration.
42. Why is A.T.P. described as energy currency of the cell ?
43. What is respiratory quotient ?
44. Write any three significances of pentose phosphate pathway.
45. What is photolysis of water ?
46. What is vernalization ?

47. What are phytochromes ?
48. What is Richmond-Lang effect ?
49. What is heterosis ?
50. What is humulin ?

SECTION - C

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

ii) Each question carries *five* marks.

iii) Draw diagrams wherever necessary.

7 × 5 = 35

51. Bring out the significance of Herbarium.
52. Write about the economic importance of Malvaceae.
53. Write about Parenchymatous tissue.
54. Draw and label the parts of Dicot root.
55. Explain the different types of meristems based on their position.
56. Write the differences between DNA and RNA.
57. Draw and label the structure of chromosome.
58. Bring out the major events in the making of a hybrid DNA.
59. Give an account of single cell protein.
60. Write the characteristics of enzymes.
61. Explain test tube and funnel experiment.
62. What are the benefits of Bio-fertilizers ?

SECTION - D

Note : i) Answer any four questions.

ii) Each question carries ten marks.

iii) Draw diagrams wherever necessary.

4 × 10 = 40

63. Explain Bentham and Hooker's classification of plants.
 64. Describe *Clitorea ternatea* in technical terms.
 65. Write the anatomical differences between dicot stem and monocot stem.
 66. Write an account on the structure of D.N.A.
 67. What are the applications of plant tissue culture ?
 68. Explain Dark reaction of photosynthesis with flow-chart.
 69. Write about the physiological effects of Auxins and Gibberellins.
 70. Write the economic importances of rice and groundnut.
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