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SCIENCE (Theory) — Paper II
(Botany and Zoology)

Time Allowed : $2\frac{1}{2}$ Hours]

[Maximum Marks : 100

SECTION – A**BOTANY**

(Marks : 50)

I. Choose and write the correct answer :

5 × 1 = 5

1. Conjugation in bacteria was first observed by

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|------------------|-------------------------|
| a) Griffith | b) Ehrenberg |
| c) Louis Pasteur | d) Lederberg and Tatum. |

2. Calotropis belongs to the group

- | | |
|--------------|-------------------|
| a) Capsule | b) Follicle |
| c) Caryopsis | d) None of these. |

3. The chemical agent that induces mutation is

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|-------------|---------------|
| a) Phenol | b) Auxin |
| c) Ethylene | d) Cytokinin. |

4. The tertiary treatment of waste water does not include

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|-----------------------|-------------------|
| a) Chemical oxidation | b) UV radiation |
| c) Reverse osmosis | d) Sedimentation. |

5. The concept of two pigment system was proposed by

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|-----------|-------------|
| a) Arnon | b) Hill |
| c) Calvin | d) Emerson. |

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II. Fill in the blanks with suitable terms :

 $5 \times 1 = 5$

6. The unpleasant and unwanted sound is called
7. The pungent principle of ginger is
8. The nitrogen fixing aquatic fern is
9. Antibiotics are mostly produced by microbial
10. Cellular is the capacity of living cells to develop into new individuals.

III. Answer any *five* of the following questions in *one* or *two* sentences each : $5 \times 2 = 10$

11. Define algal bloom.
12. Mention any two uses of the rhizome of Turmeric.
13. Mention any four techniques that are used in plant improvement.
14. What is imbibition ?
15. Draw a labelled diagram of Opuntia.
16. Mention the significance of anaerobic respiration.
17. Draw a labelled diagram of Gram Seed.
18. What is bolting ?
19. What are the types of dry fruits ?
20. How does sexual reproduction take place in Penicillium ?.

IV. Write short answers for any *four* of the following questions in 100 words each. Draw diagrams wherever necessary. Question No. 22 is compulsory. $4 \times 5 = 20$

21. Explain the structure of chromosome.
22. Draw the schematic representation of aerobic respiration.
23. Explain Zoochory with examples.
24. Write a note on harmful activities of bacteria.
25. Mention the methods of fresh water management.
26. Write a note on different types of crops.
27. Write a note on significance of mutation.

V. Write a detailed answer for any *one* of the following questions in about 200 words. Draw diagrams wherever necessary. $1 \times 10 = 10$

28. Write a note on Photophosphorylation.
29. Describe epigeal germination with an example.

ZOOLOGY

VI. Choose and write the correct answer :

$$5 \times 1 = 5$$

30. In frog, the common opening for discharging the undigested food and reproductive products is
 - a) Anus
 - b) Oviduct
 - c) Cloaca
 - d) Ovisac.
31. The plasma proteins that control osmotic pressure are .
 - a) Albumin
 - b) Globulin
 - c) Fibrin
 - d) Protein.
32. Nurse cells are also called
 - a) Sperm cells
 - b) Leydig cells
 - c) Sertoli cells
 - d) Gamete cells.
33. Goblet cells are derived from stem cells.
 - a) Haematopoietic
 - b) Bone marrow stromal
 - c) Neural
 - d) Epithelial.
34. The narcotic which causes Hepatitis-B and HIV if it is taken intravenously is
 - a) cocaine
 - b) opiates
 - c) cannabis
 - d) barbitrates.

VII. Fill in the blanks with suitable terms :

$$5 \times 1 = 5$$

35. Saliva contains an enzyme
36. All non-domesticated and non-cultivated biota found in natural habitat are termed as
37. culture means culturing the tissues outside the body of living organisms.
38. Diabetes mellitus is caused due to the deficiency of
39. The transplantation of organs from pig to man is called

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VIII. Answer any *five* of the following questions in *one* or *two* sentences each :

5 × 2 = 10

40. Define the term 'stenosis'.
41. Draw a labelled diagram of lymph.
42. What is cirrhosis ?
43. Define regulative eggs. Give an example.
44. What is called Morula ?
45. Expand GRAIN.
46. Write a note on Project Tiger.
47. What are narcotic drugs ?
48. What is meant by Polyphagia ?
49. Name two cultivable prawns of Tamil Nadu.

IX. Write short answers for any *four* of the following questions in 100 words each. Draw diagrams wherever necessary. Question No. 53 is compulsory.

4 × 5 = 20

50. Write short notes on Pulmonary respiration in frog.
51. Write short notes on any two sense organs of frog.
52. Explain the structure of the tooth.
53. Draw and label the structure of Hen's egg.
54. Write a brief account on Indian Wildlife.
55. Write a short note on obesity.
56. Give an account of procedures followed in ECG.

X. Write detailed answer for any *one* of the following questions in 200 words. Draw diagram wherever necessary.

1 × 10 = 10

57. Describe the steps involved in the process of cloning mammals.
 58. Explain the structure of the heart with labelled sketch.
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