B

4339

| Number | Register Number | | jus l | | | (4) | |
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Part III — BIOLOGY

(English Version)

Time Allowed: 3 Hours]

[Maximum Marks: 150

N. B.: Candidates should answer Part - I (Botany) & Part - II (Zoology) in separate answer-books.

PART - I (BOTANY)

(Marks: 75)

SECTION - A

Note: i) Answer all the questions.

ii) Choose and write the correct answer.

 $14 \times 1 = 14$

- 1. The percentage of nucleic acid present in the yeast is
 - a) 6 10%

b) 4 - 6%

c) 4-10%

- d) 8 10%.
- 2. Which of the following is a total parasite?
 - a) Cascuta

b) Viscum

c) Drosera

- d) Monotropa.
- 3. Optimum temperature for C₃ pathway is
 - a) 30°C to 45°C

b) 20°C to 25°C

c) 15°C to 20°C

d) 10°C to 25°C.

| 4. | Pos | sitive geotropism is induced by | | |
|-----|------|-----------------------------------|-------|----------------------|
| | a) | ABA and Auxin | b) | Ethylene and Auxin |
| | c) | Auxin and Gibberellin | d) | Ethylene and ABA. |
| 5. | Infe | erae includes | | |
| | a) | 6 orders | b) | 4 orders |
| | c) | 3 orders | d) | 5 orders. |
| 6. | Ma | lvaceae is placed in the series | | |
| | a) | Thalamiflorae | b) | Inferae |
| | c) | Heteromerae | d) | Disciflorae. |
| 7. | Thr | ree stamens are reduced to stam | inode | es in |
| | a) | Solanum nigrum | b) | Schizanthus pinnatus |
| | c) | Datura stramonium | d) | Petunia hybrida. |
| 8. | Poly | yarch xylem is found in | | |
| | a) | Monocot leaf | b) | Dicot leaf |
| | c) | Dicot stem | d) | Monocot root. |
| 9. | Aca | llypha indica belongs to the fami | ly | |
| | a) | Malvaceae | b) | Euphorbiaceae |
| | c) | Rutaceae | d) | Rubiaceae. |
| 10. | Citr | us canker is caused by | | |
| | a) | Cercospora personata | b) . | Digitaria marginata |
| | c) | Xanthomonas citrii | d) | Acacia nilotica. |
| 11. | Vas | cular bundles of leaf are | | |
| | a) | collateral and closed | b) | collateral and open |
| | c) | radial and closed | d) | radial and open. |

- 12. Which biochemical mutant failed to synthesize certain amino acids?
 - a) Sorghum

b) Neurospora

c) Cicer arietinum

- d) Cicer gigas.
- 13. The four main histones present in DNA are
 - a) H₂A, H₂B, H₃ and H₄
 - b) HA, H₂B, HBC and H₄
 - c) H₂A, H₂B, H₃C and H₄D
 - d) H₂, H₅, H₃ and H₄.
- 14. A toxic protein called delta endotoxin is insecticidal and it is produced by
 - a) E. coli

- b) Streptomyces griseus
- c) Bacillus thuringiensis
- d) Bacillus lactii.

SECTION - B

Note: Answer any seven questions.

 $7 \times 3 = 21$

- 15. What are the three classes of seeded plants?
- 16. Write the botanical names of (a) Tapioca and (b) Castor.
- 17. Define Eustele.
- 18. Draw and label Brachysclereid.
- 19. Draw and label the structure of chromosome.
- 20. What is inoculation?
- 21. What is C 2 cycle?
- 22. What are the three stages of sigmoid curve?
- 23. What is photolysis of water?
- 24. What is Bio-medicine?

SECTION - C

Note: i) Answer any four questions including Question No. 25 which is compulsory.

900 40

ii) Draw diagrams wherever necessary.

 $4 \times 5 = 20$

- 25. Give any 5 importances of Herbarium.
- 26. Explain different types of meristems based on their positions. Draw diagram.
- 27. Explain Frederick Griffith experiment in Diplococcus pneumoniae.
- 28. Give an account of SCP.
- 29. Differentiate between cyclic photophosphorylation and non-cyclic photophosphorylation.
- 30. Describe Kuhne's fermentation experiment with a diagram.
- 31. Write any five aims of plant breeding.

SECTION - D

- Note: i) Answer any two questions.
 - ii) Draw diagrams wherever necessary.

 $2\times10=20$

- 32. Describe Datura metal in technical terms. Draw floral diagram and write the floral formula.
- 33. Explain vascular tissue system with diagrams.
- 34. a) What is the role of Bt-toxin in crop protection against pest?
 - b) Write any five applications of plant tissue culture.
- 35. Explain Calvin's Cycle (explanation or flow-chart).

PART - II (ZOOLOGY)

(Marks : 75)

SECTION - A

Note: i) Answer all questions.

| | | ii) Choose and writ | te the | e correct answer. | 16 × 1 = 16 |
|----|--------------|-----------------------------------|--------|----------------------|---------------|
| 1. | The | autosomal dominant gene cause | es | | dignizing lid |
| | a) | Sickle cell anaemia | b) | Thalassemia | |
| | c) | Agammaglobulinemia | d) | Huntington's Chorea. | iccous (b |
| 2. | The | e cloned sheep was produced by | | | |
| | a) | Barbara Meclintock | b) | Ian Wilmut | |
| | c) | Herbert Bayer | d) | R. Briggs. | Alcano (* |
| 3. | Суа | anides are broken by | | | |
| | a) | Super bug | b) | Gibberella usarium | |
| | c) | E. coli | d) | Rhizobium bacteria. | |
| 4. | Wh | ich one of the following is not a | green | house gas ? | |
| | a) | Methane | b) | Carbon dioxide | |
| | c) | Hydrogen | d) | Nitrous oxide. | |
| 5. | Wh | ich is related with Down's syndr | ome ' | ? docatome is to see | |
| | a) | Amnesia | b) | Alzheimer | |
| | c) | Anaemia | d) | Albinism. | |
| 6. | Нут | poparathyroidism results in | | · an add at the | |
| | a) | Cretinism | b) | Tetany | |
| | c) | Myxedema | d) | Ketosis. | |
| | TOTAL STREET | | | | |

| 7. | The amount of urea excreted in urine in a day is | | | | | | |
|-----|--|----------------------------------|--------|--------------------------|--|--|--|
| | a) | 40 gm | b) | 50 gm | | | |
| | c) | 20 gm | d) | 25 gm. | | | |
| 8. | Calc | cium ion needed for muscle conti | ractio | n is released from | | | |
| | a) | blood | | ul Chaose and ser | | | |
| | b) | protoplasm | | | | | |
| | c) | synovial membrane | | | | | |
| | d) | sarcoplasmic reticulum. | | | | | |
| 9. | Which of the following is an exotic species? | | | | | | |
| | a) | Sindhi | b) | Haryana | | | |
| | c) | Ongole | d) | Ayreshire. | | | |
| 10. | O. Carps with pharyngeal teeth belongs to which order? | | | | | | |
| | a) | Siluriformes | b) | Perciformes | | | |
| | c) | Channiformes | d) | Cypriniformes. | | | |
| 11. | Ins | trument used to count the blood | cells | after proper dilution is | | | |
| | a) | Manometer | b) | Haemocytometer | | | |
| | c) | Sphygmomanometer | d) | Barometer. | | | |
| 12 | . Th | e book 'Process of Organic Evolu | tion' | was written by | | | |
| | a) | Dobzhansky | b) | G. L. Stebbins | | | |
| | c) | Hardy-Weinberg | d) | Hugo de Vries. | | | |
| 13 | . Bla | ack water fever is due to | | A. of Aucel and Soyo | | | |
| | a) | P. vivax | b) | P. malariae | | | |
| | c) | P. ovale | d) | P. falciparum. | | | |
| | | | | | | | |

| 14. | The | disease caused by Treponema | Pallid | um is | | | | |
|-----|--|-----------------------------------|--------|--------------------|------------|--|--|--|
| | a) | Gonorrhea | b) | Syphilis | | | | |
| | c) | Pneumonia | d) | Cholera. | | | | |
| 15. | The Anti-retroviral drug given for AIDS is | | | | | | | |
| | a) | Ampicilin | b) | Anthromycin | | | | |
| | c) | Azidothymidine | d) | Interferon. | | | | |
| 16. | Whi | ch of the following is an auto-im | mune | e disease ? | | | | |
| | a) | SCID | b) | Multiple Sclerosis | | | | |
| | c) | Cancer | d) | Asthma. | | | | |
| | | | | | | | | |
| | | SEC | TION | - B | | | | |
| | | Note: Answer any | eigh | t questions. | 8 × 3 = 24 | | | |
| 17. | Wha | t is Rheumatic arthritis? | | a covera t entit | | | | |
| 18. | Write any three functions of Cerebrospinal fluid. | | | | | | | |
| 19. | What is proteomics? | | | | | | | |
| 20. | What is continuous cell line culture? | | | | | | | |
| 21. | What is anaphylaxis? | | | | | | | |
| 22. | What is phagocytosis? Mention the most important phagocytes. | | | | | | | |
| 23. | Write the symptoms of sickle cell anaemia. | | | | | | | |
| 24. | Write any three uses of Recombinant DNA technology. | | | | | | | |
| 25. | What are ozone depleting substances? | | | | | | | |
| 26. | What is milk fever? What are its symptoms? | | | | | | | |
| 27. | Wha | t is artificial pacemaker? | * | | | | | |
| 28. | How does allopatric species differ from sympatric species ? | | | | | | | |

SECTION - C

Note: Answer any three questions including Question No. 31 which is compulsory. $3 \times 5 = 15$

- 29. Explain the eye defects short sight and long sight.
- 30. Mention the steps involved in the preparation of bacteriological media.
- 31. What are the symptoms of Allograft rejection? Write down the measures adopted in clinical field to prevent graft rejection.
- 32. What is database? What are its types?
- 33. Describe Sewall-Wright effect.

SECTION - D

Note: Answer any two questions.

 $2 \times 10 = 20$

- 34. Write an essay on Vitamins.
- 35. What is meant by Diabetes mellitus? Describe its symptoms, types and causes.
- 36. Give an account on importance of biodiversity conservation, consequences of losing biodiversity and strategies that are adopted to conserve biodiversity.
- 37. Describe P, Q, R, S, T waves.