

Register
Number

--	--	--	--	--	--

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.

iii) Each question carries one mark.

14 × 1 = 14

1. Phloem parenchyma is absent in

- | | |
|-----------------|-------------------|
| a) Dicotyledons | b) Monocotyledons |
| c) Gymnosperms | d) Pteridophytes. |

2. Amphivasal vascular bundles are seen in

- | | |
|--------------|---------------|
| a) Acoris | b) Polypodium |
| c) Cucurbita | d) Vernonia. |

3. In DNA, the internucleotide distance is

- | | |
|----------|------------|
| a) 34 Å | b) 20 Å |
| c) 3.4 Å | d) 20.4 Å. |

[Turn over

4. Which prevents the accumulation of cholesterol in human body ?
- Fat
 - SCP
 - Vitamin
 - Carbohydrate.
5. During cyclic electron transport, which one of the following is produced ?
- NADPH_2 only
 - ATP only
 - NADH_2 only
 - Both ATP and NADPH_2 .
6. Which of the following is widely employed as a successful biofertilizer in Indian rice field ?
- Sesbania rostrata*
 - Acacia nilotica*
 - Indigofera tinifolia*
 - Azolla pinnata*.
7. Exploitation and utilization of bio-resources from a country by several organisations are known as
- Biowar
 - Biological warfare
 - Biofertilizer
 - Biopiracy.
8. 'Origin of Species' had given stimulus for the creation of classification of plants called
- sexual system
 - natural system
 - phylogenetic system
 - artificial system.
9. Most primitive living angiosperms are placed under
- Rosales
 - Unisexuials
 - Calycinae
 - Ranales.
10. In '*Acalypha indica*', the inflorescence is
- raceme
 - panicle
 - catkin
 - solitary.
11. The stability of the terminal part of chromosome is maintained by
- Satellite
 - Centromere
 - Hfstone
 - Telomere.

12. *Pseudomonas putida* is an engineered bacterium that can
- | | |
|---------------------|-----------------------|
| a) produce hormone | b) produce antibiotic |
| c) pollute the soil | d) digest crude oil. |
13. The cytokinin found in the Zeamays is called
- | | |
|------------------|-------------|
| a) Zeatin | b) Ethylene |
| c) Abscisic acid | d) Auxin. |
14. Glycolysis takes place in
- | | |
|------------------|----------------|
| a) Mitochondrion | b) Cytoplasm |
| c) Ribosome | d) Peroxisome. |

SECTION - B

Note : i) Answer any seven questions.

ii) Each question carries three marks.

7 × 3 = 21

15. Write the objectives of classification of plants.
16. What are the different types of inflorescences seen in Euphorbiaceae ? Give example for each.
17. Differentiate Sclereids from Fibres.
18. Draw diagram for angular collenchyma and label its parts.
19. Draw the structure of chromosome and label the parts.
20. Mention the names of any three algae used for SCP production.
21. The respiratory quotient of a carbohydrate molecule is one. How ?
22. Write any three physiological effects of Gibberellin.
23. Differentiate photorespiration from dark respiration.
24. What are edible interferons ?

SECTION - C

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

ii) Draw diagrams wherever necessary.

iii) Each question carries five marks.

4 × 5 = 20

25. Bring out the significance of Herbarium.
26. Explain the structure of Steve elements.
27. Write short notes on gene mutation.
28. How are foreign genes introduced into plants ?
29. Explain the experiment to measure the actual longitudinal growth of plant by lever auxanometer.
30. Write the differences between cyclic photophosphorylation and non-cyclic photophosphorylation.
31. Write a note on plant introduction.

SECTION - D

Note : i) Answer any two questions.

ii) Draw diagrams wherever necessary.

iii) Each question carries ten marks.

2 × 10 = 20

32. Describe 'Allium cepa' in technical terms. Draw the floral diagram and write the floral formula.
33. Write anatomical differences between dicot stem and monocot stem.
34. Write an essay on plant tissue culture.
35. Write an essay on photorespiration or C₂ cycle.

PART - II (ZOOLOGY)

(Marks : 75)

SECTION - A

Note : i) Answer all questions.

ii) Choose and write the correct answer.

iii) Each question carries one mark.

16 × 1 = 16

1. The wall of the stomach is protected against the action of HCl by
 - a) pepsin
 - b) renin
 - c) mucous layer
 - d) lipase.
2. Who developed vaccine for rabies in man first ?
 - a) Robert Koch
 - b) Joseph Lister
 - c) Stanley
 - d) Louis Pasteur.
3. Which one of the following is a protozoan disease ?
 - a) African sleeping sickness
 - b) Measles
 - c) Cholera
 - d) Taeniasis.
4. Y chromosome belongs to
 - a) Group A
 - b) Group D
 - c) Group C
 - d) Group G.
5. Which one of the following organisms plays a vital role in pollination of trees in tropical forest ?
 - a) Mimic moths
 - b) Orchid bees
 - c) Rhinoceros beetles
 - d) Humming birds.

6. The number of hot spots identified from all over the world is

- | | |
|-------|--------|
| a) 25 | b) 26 |
| c) 24 | d) 30. |

7. The fast growing species among the Indian major carps is

- | | |
|-----------------|------------|
| a) Labeo rohita | b) Keluthu |
| c) Catla Catla | d) Mrigal. |

8. The book 'Philosophie Zoologique' was published by

- | | |
|-------------------|------------------------------|
| a) Charles Darwin | b) August Weismann |
| c) McDougall | d) Jean Baptiste de Lamarck. |

9. The granulation of tissues around the site of fracture is called

- | | |
|-------------|------------|
| a) nodule | b) papilla |
| c) rudiment | d) callus. |

10. An oily substance called sebum is secreted by

- | | |
|------------------|--------------------|
| a) sweat gland | b) sebaceous gland |
| c) thyroid gland | d) tear gland. |

11. Hyperglycemic hormone is otherwise known as

- | | |
|-------------|---------------|
| a) insulin | b) adrenalin |
| c) glucagon | d) thyroxine. |

12. In chicken embryo technique of virus culture, the eggs are incubated at the temperature of

- | | |
|---------|----------|
| a) 32°C | b) 36°C |
| c) 30°C | d) 34°C. |

13. Histamine is secreted by

- | | |
|---------------------|---------------|
| a) epithelial cells | b) mast cells |
| c) RBC | d) WBC. |

14. Albinism is due to
- | | |
|------------------------|-------------------------|
| a) absence of melanin | b) absence of vitamins |
| c) presence of melanin | d) absence of hormones. |
15. Which of the following fowls is noted for its pugnacity ?
- | | |
|---------------|---------------|
| a) Chittagong | b) Busrá |
| c) Aseel | d) Karaknath. |
16. Which of the following is a viral disease in cattle ?
- | | |
|-----------------|----------------|
| a) Anthrax | b) Mastitis |
| c) Tuberculosis | d) Rinderpest. |

SECTION - B

Note : 0 Answer any eight questions.

1) Each question carries three marks.

8 × 3 = 24

17. List out the essential amino acids.
18. What are the types of cataracts ?
19. Enumerate the methods of diagnosis of AIDS.
20. Name the secondary lymphoid organs.
21. Distinguish between paratope and epitope.
22. Mention any two uses of Karyotyping.
23. What is DNA Library ?
24. Mention the names of genetic diseases.
25. What are the advantages of solar energy ?
26. What are the precautions and first aid for milk fever ?
27. Mention the advantages of autoanalyser.
28. What is meant by survival of the fittest ?

SECTION - C

Note : i) Answer any *three* questions including Question No. 31 which is compulsory.

ii) Each question carries *five* marks.

$3 \times 5 = 15$

29. Give an account of root-canal treatment.
30. Write short notes on viral diseases in man.
31. What are the symptoms of graft rejection ?
32. Mention the uses of recombinant DNA technology.
33. Explain speciation.

SECTION - D

Note : i) Answer any *two* questions.

ii) Each question carries *ten* marks.

$2 \times 10 = 20$

34. Explain the mechanism of breathing.
 35. Describe the mechanism of urine formation.
 36. Discuss 'Ozone' - a natural sun-block.
 37. Explain the important stages or steps in rearing of chickens.
-