

2 0 1 4

BIO-ZOOLOGY

(Theory)

Full Marks : 35

Time : 1½ hours

General Instructions :

- (i) Write all the answers in the Answer-Script.
- (ii) Attempt all parts of a Group serially in one place.
- (iii) *All* questions are compulsory.
- (iv) The figures in the margin indicate full marks for the questions.
- (v) This question paper consists of 5 (five) Groups—A, B, C, D and E.

Group—A consists of 4 questions (multiple-choice type). Each question carries 1 mark.

Group—B consists of 4 questions (very short-answer type). Question Nos. **5** to **8** are of 1 mark each and to be answered in 1 word or 1 sentence each.

Group—C consists of 3 questions (short-answer type—I). Question Nos. **9** to **11** are of 3 marks each with one alternative from the same chapter to be answered in 20–30 words each.

(2)

Group—D consists of 2 questions (short-answer type—II). Question Nos. **12** and **13** are of 4 marks each with one alternative to be answered in 30–40 words each.

Group—E consists of 2 questions (long-answer type). Question Nos. **14** and **15** are of 5 marks each with alternatives to be answered in 60–80 words each.

GROUP—A

Choose and write the correct answer for the following : 1×4=4

1. Acrosome of sperm is found in
 - (a) head
 - (b) neck
 - (c) middle-piece
 - (d) tail

2. The exchange of genetic material between chromatids of paired homologous chromosomes during first meiotic division is called
 - (a) transformation
 - (b) chiasmata
 - (c) crossing-over
 - (d) synapsis

(3)

3. Immunoglobulins are

- (a) antigens
- (b) antibodies
- (c) antiseptics
- (d) antibiotics

4. Which of the following is a cause for loss of biodiversity?

- (a) Habitat degradation
- (b) Invasion of non-native species
- (c) Pollution
- (d) All of the above

GROUP—B

- 5. What is allele? 1
- 6. What is addiction? 1
- 7. In which State is Bharatpur Bird Sanctuary located? 1
- 8. What is transgenic organism? 1

(4)

GROUP—C

9. Where are Leydig cells found? What are their functions? 1+2=3

10. *Either*

(a) Define codominance and incomplete dominance. 3

Or

(b) Differentiate between complete linkage and incomplete linkage.

11. Name the sequence of steps in recombinant DNA technology. 3

GROUP—D

12. *Either*

(a) What are active and passive immunities? Give examples. $1\frac{1}{2}+1\frac{1}{2}+1=4$

Or

(b) Differentiate between B-cells and T-cells. 4

13. What is biodiversity? Explain the methods of biodiversity conservation. 1+3=4

(5)

GROUP—E

14.

Either

- (a) State Mendel's Law of Independent Assortment. Support the law by showing the dihybrid cross between yellow and round seeded plant (YYRR) and green wrinkled seeded (yyrr) plant for two generations. Show the F₂ phenotypic ratio.

1+3+1=5

Or

- (b) A man with blood group A married a woman with blood group B. They have a son with AB blood group and a daughter with blood group O. Work out the cross and show the possibility of such inheritance.

3+2=5

15.

Either

- (a) What is fertilization? In which part of the human female reproductive system does it take place? Explain the significance of fertilization.

1+1+3=5

Or

- (b) What is implantation? Where does it take place? How many days after fertilization does it take place in human? Explain briefly how it occurs.

1+1+1+2=5
