

**M.Sc. 2nd Semester Examination, 2010**

**ZOOLOGY**

PAPER—Z-201

*Full Marks : 40*

*Time : 2 hours*

*The figures in the right-hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

*Illustrate the answers wherever necessary*

**Write the answers to questions of each Group in separate books**

**GROUP—A**

*(Entomology)*

**1. Answer *two* questions from the following :  $2 \times 2$**

**(a) Mention the attributes which have made insects the most successful group of animals in terms of diversity and density.**

(b) With example differentiate a carrier from a vector.

(c) Define diapause. How does it differ from hibernation ?

(d) What is the importance of bioluminescence in insect's life ?

2. Answer *two* questions from the following : 4 × 2

(a) With the help of a labelled diagram point of different parts of insect integument. 4

(b) What is pheromone ? Differentiate semiochemicals from allelochemicals. 4

(c) Why midgut is considered as the most important part of insect's digestive system ? 4

(d) Enlist major groups of aquatic insects. Add a note on their role in environmental monitoring. 2+2

3. Answer any *one* of the following : 8 × 1

(a) What are the major components of the neuroendocrine system of insect ? Briefly discuss the neuroendocrine integration and roles of neurohormone in metamorphosis of insect. 3+5

(b) Justify the statement that insect-plant interaction is the result of coevolution. Briefly discuss various types of galls formed by insects along with their characteristics. 3+5

GROUP-B

(*Ethology*)

4. Answer *two* questions from the following : 2 × 2

(a) What are sign stimulus and releaser ?

(b) Distinguish between taxis and kinesis.

(c) What is 'Modal action pattern' ?

(d) What is inclusive fitness ?

5. Answer *two* of the following : 4 × 2

- (a) Differentiate between home range and territory.
- (b) Differentiate between vertical and oblique learning.
- (c) Write a note on the ensociality in mammals.
- (d) Compare the processes underlying classical and operant conditioning.

6. Answer any *one* of the following : 8 × 1

- (a) Discuss kin selection in the light of Hamilton's rule. Calculate coefficient of relatedness between first cousins. What is reciprocal altruism ? 3+2+3
- (b) (i) What is imprinting ?
- (ii) What is critical period ?
- (iii) What is following response ?
- (iv) Name types of imprinting with example. 2+2+2+2