

2016

M.Sc.

3rd Semester Examination

ZOOLOGY

PAPER—ZOO-301

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Use separate Answer-scripts for Group-A & Group-B

Group-A

(Entomology)

Answer all questions.

1. Answer any *two* of the following : 2×2
- (a) With a labelled diagram, mention different parts of insects wings. 2
- (b) Why insects have become the most successful group of animals in the world ? 2

(Turn Over)

- (c) What roles do the insects filter chamber play ? 2
- (d) Mention the significance of Bioluminescence in insects life. 2

2. Answer any *two* questions of the following : 4×2

- (a) With a labelled diagram, point out different parts of insects' integument. 4
- (b) What are the merits and demerits of biological control of insect pests ? 4
- (c) Give comparative account of different apterygote insects' orders. 4
- (d) What roles do the aquatic insects play in aquatic ecosystem ? 4

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

- (a) What are the relationships that exist between insects' integument, moulting and metamorphosis. How do moulting occur in insects ? Highlight the role of neuro-endocrine system in this process. 3+1+4
- (b) "Insects-Plants interaction is an example of Co-Evolution" — Justify the statement. Briefly discuss on types and causative agents insects' forming galls. 3+5

Group-B**(Animal Physiology)**

Answer all questions.

4. Answer any *two* questions from the following : 2×2
- (a) Define Haemopoiesis. 2
- (b) What causes the long action potential and plateau in a cardiac muscle ? 2
- (c) How do different factors affect standard Oxygen Dissociation curve ? 2
- (d) Schematically represent Vitamin A visual cycle. 2
5. Answer any *two* questions from the following : 4×2
- (a) Draw the structural arrangement of different valves within a heart and add notes on their function. 4
- (b) Define Blood Pressure. Graphically represent the changes in normal blood pressure in different portions of the systemic circulatory system. 1+3
- (c) Name the vitamins involved in carbohydrate metabolism. State the enzymes required to convert each of those vitamins from precursor to active forms. 2+2
- (d) What is Decompression sickness ? Compare total body oxygen stores of diving and non-diving mammals during respiratory response. 2+2

6. Answer any *one* questions from the following : 8×1
- (a) (i) Record the major cardiac changes in relation to heart's electrical activity and indicate them on an ECG. 3
- (ii) Elaborate the Intrinsic and Extrinsic regulation of heart pumping with necessary diagrams. 2+3
- (b) (i) Write down the rich source and RDA of Phosphorus. What minerals-deficiency cause Rickets and Cushing's syndrome respectively ? 2+2
- (ii) State the two theories explained for the operation of set-pointing mechanisms for thermoregulation. 4
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