M.Sc.

2017

2nd Semester Examination

ZOOLOGY

PAPER—ZOO-201

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer *all* questions of the following.

Group–A

(*Biosystematics*)

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

(a) State the characteristic features of phenetics ;

(b) State the demerits of Biological species concept ;

(c) Holotype and its significance ;

(d) Micro taxonomy and Macro taxonomy.

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

(a) Discuss the essential rules of taxonomic Nomenclature as per the (ICZN, 1985) ;

(b) Describe the different approaches of cytotaxonomy ;

(c) State the significance of Biochemical taxonomy ;

(d) Explain the Law of priority with examples.

3. Write *one* question from the following : 1×8

(a) Explain the role of systematics in—

(i) Wild life management ;

(ii) Public health and its importance.

(b) Explain two of the following :

(i) Nominalistic species concept.

(ii) Plesiomorphy and apomorphy.

(iii) Sibling.

(iv) Molecular taxonomy.

Group–B

(*Ecology*)

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

(a) Differentiate species diversity index from species dominance index.

(b) Highlight the significance of Life Table.

(c) Explain 'Ecological Equivalent' with example.

(d) Elucidate the significance of ESS in population ecology.

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

(a) Highlight the roles of Resilience and Resistance stability in ecosystem functioning.

(b) Explain the essence of 'Gaia hypothesis'.

(c) Elaborate the concept of 'Niche Width, Niche Breadth and Niche Overlap.

(d) Mention the differences between Organismic and Individualistic concept of biotic community.

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

(a) Define Metacommunity. Explain Metapopulation dynamics with Levin's Patch Metapopulation Model. Mention its limitation. 2+4+2

(b) (i) 'No two species with similar requirements can co-exist in an ecological niche'—justify the statement with experimental evidence.

(ii) Explain the roles of density dependent and density independant factories in determining population dynamics. 4+4

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