M.Sc. 2nd Semester Examination, 2023

ZOOLOGY

PAPER – ZOO-201.1 & 201.2

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

Paper : ZOO-201.1

(*Biosystematics*)

[*Marks* : 20]

1. Answer any *two* questions : 2×2

(*a*) Define lectotype with example. 1 + 1

(*b*) What is sibling species ? Cite an example. 1 + 1

(*c*) What do you mean by Allozyme finger-printing ? 2

(*d*) Which sequencing method is applied for bacterial molecular taxonomy. 2

2. Answer any *two* questions : 4×2

(*a*) Briefly describe problems of gene mutations in molecular taxonomy. 4

(*b*) How do systematics play important roles helpful in mineral prospecting and public health management ? $2 + 2$

(*c*) Differentiate between sympatric, allopatric and parapatric speciation. 4

(*d*) What do you mean by α, β and γ taxonomy ? What are clade and caldogram ? $3 + 1$

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

(*a*) Enlist the different species concept. Discuss

the merits and demerits of biological species concepts. Mention the significance of evolutionary species concept ? 3 + 3 + 2

(*b*) What do you mean by neo systematics ? Discuss the different approaches of neo systematics. 2 + 6

Paper : ZOO-201.2

(*Ecological Principles*)

[*Marks* : 20]

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

(*a*) What is ecological equivalent ? Give an example. 1 + 1

(*b*) Explain law of Tolerance. 2

(*c*) Differentiate Species Diversity Index from Species Dominance Index. 2

(*d*) Mention the difference between r-selected species from k-selected species. 2

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

(*a*) Schematically highlight on links, nodes and connectances within a food-web. 4

(*b*) Enlist different density dependent and independent factors determining the population growth. 4

(*c*) Mention the relationship between taxon, ecological guilds and biotic community. 4

(*d*) Describe the concepts of resistance stability and resilience stability. 1 + 3

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

(*a*) Mention the difference between Habitat and Ecological niche. Briefly explain major types of Ecological Niche. Elaborate the concept of Ecological niche complementation and Resource partitioning. 1 + 4 + 3

(*b*) Write short notes on : 2×4

(*i*) Ecotone

(*ii*) Edge effect

(*iii*) Concept of community

(*iv*) Keystone species.