

PG (CBCS)  
M.Sc Semester- II Examination, 2023  
ZOOLOGY  
PAPER: ZOO 201  
(BIOSYSTEMATICS AND ECOLOGICAL PRINCIPLES)

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.  
Write the answer for each unit in separate sheet

**UNIT: ZOO 201.1**  
**BIOSYSTEMATICS**

**GROUP-A**

1. Answer any **TWO** from the following questions: 2×2=4
- What is phenon and taxon? Give examples.
  - Define polytypic and infraspecies citing with proper example.
  - What is the cause behind the rejection of Nominalistic Species Concept?
  - State the different stages of taxonomy.

**GROUP-B**

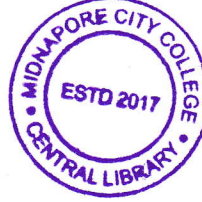
2. Answer any **TWO** from the following questions: 2×4=8
- Discuss the role of systematics in Wildlife Management.
  - Comment on the functions of Biological Species Concept.
  - State the role of immunology in molecular systematics.
  - How are Embryology and Biochemistry are applied to modern systematics?

**GROUP-C**

3. Answer any **ONE** from the following questions: 1×8=8
- Enumerate the main aims and tasks of taxonomists. What are the applications of karyotyping in systematics? 5+3
  - Write short notes on: (**Any two**) 4×2
    - Evolutionary Species Concept
    - Role of systematics in disease detection and public health
    - Different causes of speciation
    - Micromolecular Taxonomy

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(2)



**UNIT: ZOO 201.2**  
**ECOLOGICAL PRINCIPLES**

**GROUP-A**

4. Answer any **TWO** from the following questions: 2×2=4
- a) What is linkage density and connectance?
  - b) Differentiate between ecotone and edge effect.
  - c) What is niche overlap?
  - d) State the difference between semelparity and iteroparity with examples.

**GROUP-B**

5. Answer any **TWO** from the following questions: 2×4=8
- a) Elaborate the differences between  $r$  and  $k$  selection strategies.
  - b) Explain the cybernetic nature of Ecosystems.
  - c) Define ecological guild and ecological equivalent with example.
  - d) What are the limitations of inclusive fitness model? What do you mean by Foundation species? 2+2

**GROUP-C**

6. Answer any **ONE** from the following questions: 1×8=8
- a) Write short notes on: **(Any two)** 4×2
    - i) Bet-Hedging strategy.
    - ii) Competitive Exclusion theory.
    - iii) Gaia hypothesis.
    - iv) Resistance & Resilience stability.
  - b) Mathematically represent Lotka-Volterra model of competition with proper justification. What is keystone species? Define commensalism. 5+2+1

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