

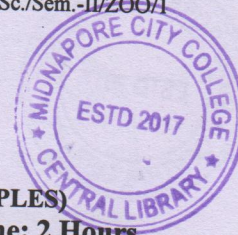
PG (NEW) CBCS  
M.Sc. Semester-II Examination, 2019  
ZOOLOGY

PAPER: ZOO-201

(BIOSYSTEMATICS &amp; ECOLOGICAL PRINCIPLES)

Full Marks: 40

Time: 2 Hours



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

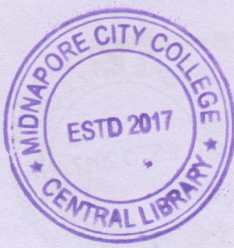
GROUP-A

Biosystematics

Marks-20

1. Answer any two questions of the following:  $2 \times 2 = 4$
- What do you mean by holotype? Give an example.
  - Define taxon with example.
  - What do you mean by cladogram? What does it signify?
  - Define subspecies with an example?
2. Answer any two questions of the following:  $2 \times 4 = 8$
- Write role of systematics in pest control.
  - Define species? Write two drawbacks of biological species concept.
  - Define evolutionary species concept? Differentiate it from biological species concept.
  - Define nomenclature? Write significance of nomenclature in systematics.
3. Answer any one question of the following:  $1 \times 8 = 8$
- a) Write brief note on:-  $4 + 4 = 8$
- Molecular taxonomy.
  - Ecological approach in systematics.
- b) What do you mean by systematics classification and taxonomy? Write down the relationship between systematics and taxonomy.  $4 + 4 = 8$

(Turn over)



(2)

GROUP-B  
Ecological principles

Marks-20

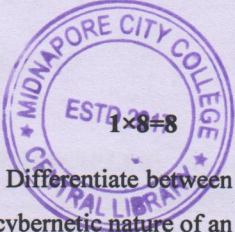
4. Answer any two questions of the following:  $2 \times 2 = 4$
- What do you mean by resistance stability and resilience stability?
  - Differentiate between Realized niche and fundamental niche.
  - What is ecological equivalent exemplify?
  - What do you mean by specialized Species? Give Example.
5. Answer any two questions of the following:  $2 \times 4 = 8$
- State the limitations of inclusive fitness model.
  - As per Lotka – volterra model the prey populations is neither quite destroyed and predator is never completely exterminated, rather both the populations oscillate through time'- Justify the statement using only figure and flow chart.
  - Write a note on Gaia hypothesis.
  - Complete the following life table.

Age (x)	$l_x$	$dx$	$qx$	$L_x$	$T_x$	$Eo_x$
0	100					
1	90					
2	80					
3	75					
4	60					
5	30					
6	0					

(Turn over)

(3)

**6. Answer any one question of the following:**

- 
- a) Briefly describe competitive exclusion principle. Differentiate between keystone and Flagship species. Comment on the cybernetic nature of an Ecosystem.  $1 \times 8 = 8$   
 $3+2+3=8$
- b) State Hamilton's rule. Explain how the coefficient of relatedness  $\mathbb{R}$  is calculated by using a general formula? What should be the r-value in cases of (i) Half-sibs, (ii) Grand parent and grandchild and (iii) parent and offspring?  $2+3+3=8$

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