LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **ZOOLOGY**

FIRST SEMESTER – **NOVEMBER 2023**

PZO1MC04 – COMMUNITY AND POPULATION ECOLOGY

Date: 08-11-2023   Dept. No.   Max. : 100 Marks
Time: 01:00 PM - 04:00 PM

SECTION A – K1 (CO1)

	Answer ALL the questions	**(5 x 1 = 5)**
1	**Definitions**	
a)	Density-dependent from density independent.	
b)	Allele effect.	
c)	Carrying capacity.	
d)	Formula for Gini –Simpson Index and Shannon –Weiner Index.	
e)	Ecological equivalent.	

SECTION A – K2 (CO1)

	Answer ALL the questions	**(5 x 1 = 5)**
2	**MCQ**	
a)	Competition affects the _____and _____of the species involved a. Growth and survival b. Survival and development c. Development and resources d. Growth and resources	
b)	Which one of the following uses the approach of Spatial ecology? a) Metapopulation ecology b) Aquatic ecology c) Ecosystem ecology d) Forest ecology	
c)	The ability of a population to increase under ideal environmental conditions is called a) Natality b) Carrying capacity c) Biotic potential d) Absolute natality	
d)	In which layer of the forest are Macaws found? a. Understory b. Emergent layer c. Forest floor d. Canopy	
e)	Having bright colours that warn potential predators is called a. Camouflage b. Chemical warfare c. Aposematic colouration d. Aromatic	

SECTION B – K3 (CO2)

	Answer any THREE of the following	**(3 x 10 = 30)**
3	Communities are arranged in different strata forms – Discuss.	
4	Distinguish between r and k selected species.	
5	Exponential and Logistic growth curve- Justify with examples.	
6	Comment on a) Ecotone b) Edge effect c) Edge species	
7	Summarize the types of hosts and parasitism interaction with suitable diagrams	

SECTION C – K4 (CO3)

Answer any TWO of the following (2 x 12.5 = 25)

8	Examine MacArthur and Wilson's Equilibrium Theory.
9	Determine the outcomes of the competitive Lotka Volterra equations and their interpretations.
10	Categorize the types of survivorship curves with examples.
11	A) 180,000 live births in the year 2005 among state residents and the estimated population was 12,300,000. Calculate the CBR? B) 54,000 live births in 2010 among the state resident women who are 30-35 years old and 520,000 state resident women who are 30-35 years old in 2010. Calculate SBR?

SECTION D – K5 (CO4)

Answer any ONE of the following (1 x 15 = 15)

12	Elaborate on the types and applications of metapopulation models with examples.
13	Appraise the importance of characteristics of population dynamics.

SECTION E – K6 (CO5)

Answer any ONE of the following (1 x 20 = 20)

14	Elaborate the outcome of the different species interaction with illustrations
15	Calculate Gini – Simpson index for the following two randomly selected individual belongs to different species $A = 3$, $B = 5$, $C = 16$, $D = 12$, $E = 8$, $F = 2$, $G = 7$, $H = 3$, $I = 6$, $J = 3$.

Species Label	Population
A, B, C, D, E, F, G, H, I, J	3,5,16,12,8,2,7,3,6,3

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