

(6 pages)

Reg. No. :

Code No. : 8561

Sub. Code : HZOE 21

M.Sc. DEGREE EXAMINATION, APRIL 2013.

Second Semester

Zoology

POPULATION ECOLOGY AND ANIMAL
BEHAVIOUR

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A – (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer

1. Population density can only be decreased by _____.
(a) Natality or immigration
(b) Morality or emigration
(c) Crude density
(d) All of these
2. What deals with the groups of different kinds of population in the area?
(a) Ecosystem (b) Environment
(c) Community (d) Pyramid energy

3. What involves vertical rather than horizontal changes within the community?
(a) Profundal zone (b) Littoral zone
(c) Stratification (d) Both A and B
4. "The number of individuals of any species per sampling unit of occurrence" is the definition of _____.
(a) Density (b) Abundance
(c) Frequency (d) Dominance
5. Experiments with *Aplysia* revealed that
(a) Sensitization was innate but habituation was genetically determined
(b) Sensitization was innate but habituation was learned
(c) Repeated stimulation reduced the amount of the neurotransmitter being released and induced the habituation.
(d) Repeated stimulation exhausted the neurotransmitter being released and caused the sensitization.
6. Ethologists
(a) Attempt to study the behaviour of an animal in its natural habitat
(b) Have demonstrated that behavioral traits can be isolated and measured
(c) Have demonstrated that behavioral traits have evolutionary histories
(d) Attempt to study the behavior of an animal in a laboratory environment where all variables can be controlled

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7. An example of social organization is
 - (a) Barnacles attached to a boat bottom
 - (b) A beehive in full activity
 - (c) A cloud of moths attracted to a light
 - (d) A swarm of mosquitoes hovering around a sweaty person
8. The function of territoriality may be
 - (a) To reduce intraspecific fighting
 - (b) To ensure food supply
 - (c) For mating and rearing of young
 - (d) All of the choices are correct
9. The waggle dance helps bees
 - (a) Communicate when they are hungry
 - (b) Perfect the avoidance response
 - (c) Communicate the location of food
 - (d) Sound the alarm to protect the hive when it is invaded
10. Genetics organization of living beings is known as
 - (a) Phenotype
 - (b) Genotype
 - (c) Morphogenesis
 - (d) Heterozygous

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the concepts of migration, emigration and immigration.
Or
(b) What are the main factors that affect the population growth?

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12. (a) What is the relationship between environmental resistance and the population growth according to the biotic potential curve and the real population growth curve?

Or

- (b) Give an example of limiting factors that determine the carrying capacity.
13. (a) Give an example of populations that exceeded the carrying capacity and how this affected population size.

Or

- (b) Distinguish differences between the types of survivorship curves in Animal association. Give characteristics of each.
14. (a) What is the advantage of innate behaviors, compared with learned behaviors?

Or

- (b) Distinguish between the types of animal behaviour, and formulate hypotheses of each type to explain a given behaviour.
15. (a) Describe the aggregation with suitable example.

Or

- (b) Write a short notes on learning behavior and its types.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Describe the factors that affect population structure.

Or

- (b) Explain the population distribution with suitable example

17. (a) How are populations structured? Describe and give examples of : density, distribution, and age structure.

Or

- (b) Write an essay impact of population dispersion and some solutions to try and help the growth of the human population.

18. (a) Describe the habitat and food selection in ecological principle.

Or

- (b) Using an example for each, discuss the following ecological concepts.

- (i) Succession
- (ii) Energy flow between trophic levels
- (iii) Limiting factors
- (iv) Carrying capacity.

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19. (a) Discuss the evolution of human behaviour.

Or

- (b) Describe and give an example of each of the following. Include in your discussion the selection advantage of each.

- (i) Pheromones
- (ii) Mimicry
- (iii) Stereotyped behavior (instinct)

20. (a) Define and explain the role of each of the following in social behavior.

- (i) Territoriality
- (ii) Dominance hierarchies
- (iii) Courtship behavior.

Or

- (b) Living organisms play an important role in the recycling of many elements within an ecosystem. Discuss how various types of organisms and their biochemical reactions contribute to the recycling of either carbon or nitrogen in an ecosystem.

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