POST-GRADUATE COURSE

Term End Examination — June, 2017

ZOOLOGY

Paper - 2A : Ecology, Environmental Biology & Toxicology

Time : 2 Hours   **Full Marks : 50**

(Weightage of Marks : 80%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

1. Answer *two* questions :   9 × 2 = 18

    a) Differentiate between deterministic and stochastic model of population growth. State exponential growth equation and explain how doubling time of population can be determined from this equation.

                                                          5 + 2 + 2

    b) What is ROS ? State its physiological significance. Discuss enzymatic means of protection from ROS in animals.   2 + 2 + 5

    c) Define 'competition' and classify it. What is competitive exclusion principle ? Elaborate with example.   3 + 2 + 4

    d) Contrast resistance with resilience using suitable diagram and example. How do animals counteract temperature extremes ?

                                                          5 + 4

2. Answer *three* questions :   6 × 3 = 18

    a) What do you mean by 'Optimization of energy' ? Differentiate between *r* and *k* selection.   2 + 4

    b) Differentiate between eurythermal and stenothermal animals. Explain the effects of temperature on growth of animals with emphasis on "Bergman's rule" and "Allen's rule".   2 + (2 + 2)

    c) Give an outline concept of niche with special reference to ecological significance.

                                                          6

    d) Discuss conflicts between parents and offsprings.   6

e)   How is drinking water polluted by arsenic in some parts of West Bengal ? Comment on black foot disease.   4 + 2

f)   Write a note on National Environment Policy, 2004.   6

3.   Answer *two* questions :   4 × 2 = 8

a)   Discuss evolution of parental care strategies among animals.   4

b)   Describe fundamental concept of ecological model elucidating any one model studied by you.   4

c)   What is circadian rhythm ? Explain with example.   2 + 2

d)   Draw and describe three basic types of survivorship curve with example.   4

4.   Answer *two* questions :   3 × 2 = 6

a)   Explain different forms of mating system in animal kingdom.   3

b)   What is life table ? Differentiate between static and dynamic life table.   1 + 2

c)   What is photoperiodism ? Discuss its effects on animal.   1 + 2

d)   Discuss molecular basis of combating stress in animals.   3

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