

RAMAKRISHNA MISSION VIDYAMANDIRA
(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2018-21]
B.A./B.Sc. THIRD SEMESTER (July – December) 2019
Mid-Semester Examination, September 2019

Date : 16/09/2019
Time : 1 pm – 3 pm

ZOOLOGY (Honours)
Paper : III

Full Marks : 50

Group : A

1. Answer **any five** questions : [5×2]
- What is NEP (Net Ecosystem Productivity)?
 - Define Shelford's 'Law of Tolerance'.
 - What is metapopulation?
 - Explain in brief the term 'bioventing'.
 - What do you mean by HAB? Explain in short.
 - Write the full form of IUCN and MoEFCC?
 - What do you mean by Tiger Range Countries?
 - Differentiate between National Park and Sanctuary.
 - What is conservative site-specific recombination?
 - What do you mean by selfish DNA?

Group : B

- Answer **any four** questions : [4×10]
- Enumerate why Y-shaped model of energy flow is more practical than the single channel model. Mention three important features of food chain. Explain how partially upright pyramid of number is formed. Define dry weight. How productivity is expressed? [2+3+2+2+1]
 - What are r and R_0 ? Compare between them. Write a note on fecundity table. Compare between logistic and exponential population growth. What is cohort life table? [2+1+4+2+1]
 - Explain alpha, beta and gamma diversity. Describe the threatened categories of Red Data Book. What measures can be taken to prevent man-elephant conflict? [3+4.5+2.5]
 - Write short notes (any two): (a) Megadiversity countries (b) Keystone species (c) Joint forest management in Arabari [5+5]
 - What is the 'Hunger signal' molecule? Mention its role in the regulation of *lac* Operon. Explain the attenuation mechanism involved in *trp* Operon regulation. Depict the process of eutrophication preferably with a flowchart. Mention two ways of eukaryotic gene regulation at the level of post translational modification. [1+2+2+2.5+2.5]

7. What is Holliday junction? Give an account on the role of RecBCD enzyme in homologous recombination. Mention the RecA homolog protein in human. Explain how to resolve a recombination intermediate with two Holliday junctions. [2+4+1+3]
8. Describe the 'cut and paste' mechanism used by DNA transposon. Give an example of each DNA-mediated & RNA-mediated transposon in *Drosophila*. Give an account of genetic organization of a bacterial transposon. Mention the significance of the phenomenon 'Hybrid Dysgenesis'. [3+2+2.5+2.5]

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