PG Even Semester Examination, May 2025

LIFE SCIENCE & BIOINFORMATICS

4th Semester

Course No. : LS - 652 (Z)

(Evolution and Behavior)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer all questions)

1. Discuss the characteristics and mechanisms involved in point mutations. Add a note on the role of point mutation in the evolutionary process. [14]

OR

2. Write notes on any two the following: [2x7=14]

   (a) Major postulates of Lamarckism

   (b) Major concepts of Darwin's theory of evolution

3. Describe the process and significance of origin of new genes in a population.

OR

4. Write notes on any two the following: [2x7=14]

   (a) Molecular clock

   (b) Neutral theory of evolution

(Turn Over)

5. What is Hardy-Weinberg Law? Calculate the expected frequencies of homozygous '*AA*', heterozygous '*Aa*' and homozygous '*aa*' individuals in a population at Hardy-Weinberg equilibrium if the frequencies of '*A*' and '*a*' are 0.6 and 0.4 respectively. [10+4=14]

OR

6. Answer the following: [2x7=14]

   (a) Define species. Discuss the allopatric and sympatric mode of speciation

   (b) What is reproductive isolation? Discuss different pre-zygotic isolating mechanisms

7. What is cognition. Explain the different aspects of cognition including the language & speech mental processes and higher-order cognitive capabilities in humans. [14])

OR

8. Write notes on the following: [2x7=14]

   (a) Sleep and arousal

   (b) Approaches and methods in study of behaviour

9. Describe sexual selection and reproductive strategies in animals with examples. [14]

OR

10. Write notes on the following: [2x7=14]

   (a) Social dominance and territoriality

   (b) Altruism and evolution

★★★