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B.Sc. Course (CBCS) Ordinance (Sem-V)

EXAMINATION MAY 2023

Zoology - Molecular Biology & Evolution

[Time: 2 Hours]

[Max. Marks: 80]

- Instructions:** 1) All questions are compulsory.  
2) Figures to the right indicate maximum marks to the question.  
3) Draw diagrams wherever necessary.

Q.I Answer in brief any four of the following: 16 (4×4)

- Explain semi-discontinuous replication of DNA in eukaryotes.
- Describe alternative splicing.
- Comment on inhibitors of protein synthesis in eukaryotes.
- What is the role of the E, P and A sites of prokaryotic ribosome?
- Explain the exceptions to Watson and Crick pairing seen at the third base of the codon.
- Explain gene silencing.

Q.II Write notes on: (any four) 16 (4×4)

- Megaevolution
- Contribution of De Vries to theories of evolution.
- Natural gene mutations.
- Post-adaptations
- Method of finding the age of fossils
- Convergent adaptations

Q.III A) Describe the initiation step of eukaryotic replication. 6

OR

A) Explain the process of synthesis of rRNA in eukaryotes. 6

B) Explain the steps that convert a pre-tRNA into a tRNA. 6

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- Q.IV      A) Comment on the differences between prokaryotic and eukaryotic translation. 6
- OR**
- A) Describe the events and factors involved in elongation and termination of polypeptide chain in eukaryotes. 6
- B) Explain the lac operon and the two modes of control it is subjected to. 6
- Q.V        A) Elaborate on Darwinism. 6
- OR**
- A) Explain the morphological and genetic species concept. 6
- B) Discuss Pre mating isolation mechanisms. 6
- Q.VI      A) Write a note on unusual fossils. 6
- OR**
- A) Write a note on kinds of variations in evolution. 6
- B) State Hardy-Weinberg's law. Explain with the help of a suitable example. 6