647510 MSCmolCz1020 Seat No :_____

M.Sc. (Zoology) Semester - 1 (*CBCS*) Examination
Oct/Nov. -2019 - [NEW COURSE]
MOLECULAR BIOLOGY, GENETICS AND EVOLUTION (CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q 1 ANSWER THE FOLLOWING (ANY SEVEN) **14**

1. Define : Pleiotropism and Test Cross
2. What is Sympatric speciation?
3. Define : Divergent and Convergent evolution
4. Draw structures of pyrimidine nitrogen bases.
5. How is gene distance calculated?
6. Discuss the role of topoisomerase II in prokaryotic DNA replication.
7. Define : Trans Splicing and RNA editing
8. What is Diauxie ?
9. Give examples of alkylating agents and intercalating agents.
10. What is Edward's syndrome ?

Q 2 ANSWER THE FOLLOWING (ANY TWO) **14**

1. Explain theories of origin of life and elaborate on Oparin Haldane Hypothesis.
2. Describe the importance of natural selection as evolutionary mechanism and rejection of Lamarckism.
3. Discuss Dihybrid cross in *Pisum sativum* and related laws.

Q 3 ANSWER THE FOLLOWING

A) Discuss forms of DNA **05**

B) Explain C Value Paradox. **05**

C) Describe linkage in sweet pea plant. **04**

OR

Q 3 ANSWER THE FOLLOWING

A) Discuss linkage in Drosophilla. **07**

B) Write a detailed note on DNA replication and post replicative changes. **07**

Q 4 ANSWER THE FOLLOWING (ANY TWO) **14**

1. Explain properties of genetic code and add a note on t RNA.
2. Give a narration of deciphering information of mRNA for making protein.
3. Explain Induction and Repression with suitable diagrams.

Q 5 ANSWER THE FOLLOWING (ANY TWO) **14**

1. Explain various DNA repair mechanisms.
2. Describe types of spontaneous mutations.
3. Explain Extrachromosomal inheritance.
4. Describe structural and numerical errors in chromosomes.

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