

Question no. 1 is compulsory.

Attempt any 3 out of remaining questions.

Draw diagrams wherever necessary.

Q1. Write short note on: (ANY 4)

(20)

- a) Renaturation kinetics of DNA
- b) Multiple allelism
- c) Single Nucleotide Polymorphism
- d) International System for Human Chromosome Nomenclature

Fluorescence in situ Hybridization

- e) Catabolite repression

Q2. a) Explain in detail the Law of Independent assortment and Law of Segregation. (10)

b) Describe the Meselson-Stahl experiment, and explain how it showed that DNA replication is semiconservative. (10)

Q3. a) What is genetic code? Discuss the characteristic of genetic code. (8)

b) Explain importance of telomerase in genetic mechanisms. (6)

c) Compare the processes of DNA replication and transcription (6)

Q4. a) Outline the causes of DNA damage and give a brief account of DNA repair system. (10)

b) Why is a primer needed for DNA replication but not RNA transcription? (3)

c) Elucidate different Post transcriptional modifications (7)

Q5. a) Describe the process involved in initiation and elongation in protein synthesis. (10)

b) Differentiate between inducible operon and repressible operon giving example? (10)

Q6. a) Explain Fluorescence in situ Hybridization technique and state its applications. (10)

b) What are mutations? Write a note on types of mutations giving suitable examples. (10)

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