

- N.B. :** (1) Attempt all questions.  
(2) All questions carry equal marks.  
(3) Draw diagrams wherever necessary.

1. Do as directed:(Any fifteen)

15

- (1) Name the plasmid present in *E. coli*.
- (2) Name any one direct screening method.
- (3) Name the two strains of Streptococcus used by Griffith in his experiment.
- (4) Define Transposition.
- (5) Define Mutation.
- (6) Define Mutagenesis.
- (7) Give one example of commonly used Prokaryote in Genetic Engineering.
- (8) Give one example of intercalating agent.
- (9) State True or False. AT→GC is a Transversion Mutation.
- (10) State True or False. Type II Restriction Endonucleases cut the DNA within the restriction site.
- (11) Fill in the blank. The acronym MCS stands for \_\_\_\_\_.
- (12) In \_\_\_\_\_ model of replication each progeny DNA molecule retains one of the parental strands.
- (13) \_\_\_\_\_ is a pre- existing polynucleotide chain in DNA replication to which new nucleotides can be added.
- (14) Enzyme \_\_\_\_\_ is encoded by pol A gene and consists of one polypeptide.
- (15) In DNA replication \_\_\_\_\_ activity is a proof reading mechanism.
- (16) The \_\_\_\_\_ strand is synthesized in the same direction as the direction of replication fork movement.
- (17) \_\_\_\_\_ when activated by DNA helicase synthesizes a short RNA primer.
- (18) \_\_\_\_\_ are involved in the regulatory events that occur at the check points of cell cycle.
- (19) \_\_\_\_\_ enzyme is involved in base excision repair mechanism.
- (20) Photolyase enzyme involved in photoreactivation can remove UV induced \_\_\_\_\_.

2. (A) Explain how Meselson and Stahl proved Semiconservative mode of DNA replication. 8  
(B) Differentiate between the leading and lagging strands formed during DNA replication. 7
- OR
- (C) Elaborate on the different DNA polymerases in Eukaryotic DNA replication. 8  
(D) With a neat labelled diagram illustrate the Holliday model of recombination. 7
3. (A) Explain the term mutation and discuss the various types of mutations. 8  
(B) Discuss Nucleotide Excision Repair. 7
- OR
- (C) Explain the various types of point mutations. 8  
(D) Discuss the mechanism of mutation induced by Base analog. 7
4. (A) How would you use pBR 322 as a vector to introduce a gene of choice. 8  
(B) Explain the isolation of genomic DNA by a flow diagram. 7
- OR
- (C) Explain the different types of Restriction Endonucleases. 8  
(D) Explain with an example plant vectors. 7
5. Short notes (Any Three):- 15
- (a) Early models of DNA replication.
  - (b) Prokaryotes.
  - (c) Photoreactivation.
  - (d) U.V. radiations as a physical mutagen.
  - (e) pUC Vector.
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