

B.Sc. Semester - 5 (CBCS) Examination
Oct/Nov - 2021 (NEW COURSE)
Molecular Biology and Bio-Engineering(Core)

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

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

- Q.1(A) **Answer the following questions.** (04)
1. What is replication fork.
 2. Define: DNA polymerases.
 3. Distinguish between Purine and pyrimidine bases.
 4. What is Replisome?
- Q.1(B) **Answer in Brief. (Any One Out of Two)** (03)
1. Morgan's experiments on drosophila.
 2. Composition and structure of DNA.
- Q.1(C) **Write a note on. (Any One Out of Two)** (07)
1. Griffith's Transformation Experiments.
 2. Discuss in detail on Replication Machinery.
- Q.2(A) **Answer the following questions.** (04)
1. Define: Wobble
 2. What is polycistronic mRNA?
 3. What is promoter sequence?
 4. Define the process amino acid activation. Which enzyme is require for that process?
- Q.2(B) **Answer in Brief. (Any One Out of Two)** (03)
1. Enzymatic synthesis of RNA.
 2. Bacterial Ribosome Structure.
- Q.2(C) **Write a note on. (Any One Out of Two)** (07)
1. Discuss in detail about Regulation of lac operon.
 2. Write in detail on various steps Translation.
- Q.3(A) **Answer the following questions.** (04)
1. What is competent cell.
 2. what are Transposons?
 3. Who studied U-tube experiment to study mechanism of genetic variation?
 4. Define Homologous recombination.
- Q.3(B) **Answer in Brief. (Any One Out of Two)** (03)
1. Generalized Vs Specialized transduction.
 2. Factor-Mediated Conjugation.
- Q.3(C) **Write a note on. (Any One Out of Two)** (07)
1. Explain in detail Bacterial Transformation in *S. pneumonia*.
 2. What is transposition? Give a detail note on simple and replicative transposition?

- Q.4(A) **Answer the following questions.** (04)
1. Distinguish between induced mutation and spontaneous mutation.
 2. Define: Phenotype and Genotype.
 3. Give the two names of Chemical Mutagen.
 4. Define SOS response system.
- Q.4(B) **Answer in Brief. (Any One Out of Two)** (03)
1. Ames's test
 2. Various types of Mutation.
- Q.4(C) **Write a note on. (Any One Out of Two)** (07)
1. Write in detail: DNA repair mechanisms.
 2. Discuss in detail about Mutagenesis appropriate example.
- Q.5(A) **Answer the following questions.** (04)
1. Give full form of YAC and BAC.
 2. Mention any two salient features of ideal vector.
 3. Write a function of DNA ligase in genetic engineering.
 4. Define Colony hybridization.
- Q.5(B) **Answer in Brief. (Any One Out of Two)** (03)
1. c-DNA library preparation.
 2. Blue-White colony screening method.
- Q.5(C) **Write a note on. (Any One Out of Two)** (07)
1. Explain in detail about plasmids vectors used in genetic engineering.
 2. Give detail note on Restriction endonucleases.
