

B.Sc. Semester - 5 (Remedial) (CBCS) Examination**March/April-2023 (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) Objective type questions (04)

1. What is co-dominance?
2. Contribution of George Beadle & T.H. Morgan.
3. Write role of topoisomerase in DNA replication.
4. What are Okazaki fragments?

Q-1(B) Answer in Brief (Any one out of two) (03)

1. Describe the Morgan's experiment on drosophila.
2. Write a note on gene structure and Regulation.

Q-1(C) Write a note on (Any one out of two) (07)

1. Describe in detail process of DNA replication in bacteria.
2. Explain DNA is a universal genetic Material.

Q-2(A) Objective type questions (04)

1. Transcription by *E. coli* polymerase occurs in _____.
2. The major function of RNA polymerase's sigma factor is _____.
3. Initiation codon for protein synthesis are _____.
4. What is the usual sequence of a Pribnow box?

Q-2(B) Answer in Brief (Any one out of two) (03)

1. The lac operon is an inducible operon. Why and what does this mean?
2. Explain Gene Regulatory protein.

Q-2(C) Write a note on (Any one out of two) (07)

1. Explain in detail process of transcription in prokaryotes.
2. Write note on translation in prokaryotes.

Q-3(A) Objective type questions (04)

1. Genetic information transferred from one bacteria to another using a pilus is known as _____.
2. In _____ transduction, only genes near the prophage are transferred to another bacterium.
3. Transformation was discovered by _____.
4. Who discovered transposable DNA elements?

Q-3(B) Answer in Brief (Any one out of two) (03)

1. Enlist types of transduction and explain any two.
2. Describe Transposable elements.

Q-3(C) Write a note on (Any one out of two) (07)

1. Describe recombination.
2. Write a detail note on Conjugation in Gram Positive Bacteria.

Q-4(A) Objective type questions (04)

1. What is Induced mutation?
2. Define Mutagenesis.
3. Give one example of Physical mutagen.
4. Write the function of photolyase.

Q-4(B) Answer in Brief (Any one out of two) (03)

1. Explain the mechanism of SOS repair.
2. Explain Ames test.

Q-4(C) Write a note on (Any one out of two) (07)

1. Describe DNA Repair Mechanism in detail any two.
2. Write a detail note in Physical Chemical and Biological Mutagenesis.

Q-5(A) Objective type questions (04)

1. Give disadvantage of Cosmid.
2. Define Adaptor and linker.
3. What is c-DNA Library?
4. What is shuttle vector?

Q-5(B) Answer in Brief (Any one out of two) (03)

1. What are the silent feature of ideal vector?
2. Write note on restriction Enzymes.

Q-5(C) Write a note on (Any one out of two) (07)

1. Write detailed note on detection methods of recombinant molecules.
2. Isolation of DNA in prokaryotes.
