

B.Sc. Semester - 5 (CBCS) Examination**Oct/Nov. - 2022(Old 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) Write a note on (Any one out of two)	07
1) Explain in detail experiment of DNA is a universal genetic material (Fredric Griffith's Experiment, Avery, Mccarty and Macleod). 2) Explain in Detail DNA Replication in E.coli	
Q-1(B) Objective type questions	04
1) Define Genotypes and Phenotypes. 2) What is Cistron? 3) Define Codominance. 4) Define Genetic code.	
Q-1(C) Answer in Brief (Any one out of two)	03
1) Write a note on Incomplete Dominance 2) Give the difference between Prokaryotes and Eukaryotes DNA Replication process.	
Q-2(A) Write a note on (Any one out of two)	07
1) Write a note on Translation and post translation modification. 2) Write a detail note on lac operon utilization and regulation of lactose.	
Q-2(B) Objective type questions	04
1) Which subunit ensure the stable binding of RNA polymerase at the promoter site? 2) Which _____ codons is the mRNA start codon that initiates translation in eukaryotes and prokaryotes? 3) Define Molecular chaperone. 4) What is inducible and repressible operon?	
Q-2(C) Answer in Brief (Any one out of two)	03
1) Give types and levels of gene regulation. 2) Discus regulation of trp operone in which tryptophan is absent.	
Q-3(A) Write a note on (Any one out of two)	07
1) Discuss the process of conjugation in gram positive and gram Negative Bacteria. 2) Discuss in detail Transduction and its type.	
Q-3(B) Objective type questions	04
1) The transfer of genes from one cell to another by a bacteriophage is known as _____. 2) Bacterial recombination causes transformation of the recipient cell to _____. 3) Define Homologues recombination. 4) Define Jumping gene.	
Q-3(C) Answer in Brief (Any one out of two)	03
1) Write a note on electroporation. 2) Discuss Hfr Conjugation.	
Q-4(A) Write a note on (Any one out of two)	07
1) Write a detail note on Reversion and Ames test. 2) Write a detail note on DNA repair Mechanism.	

Q-4(B) Objective type questions	04
1) Define Mutagenesis.	
2) Define Spontaneous mutation.	
3) What is SOS responses?	
4) Define Mutation Rate.	
Q-4(C) Answer in Brief (Any one out of two)	03
1) What is phenotypic and phenomic lag?	
2) Explain excision repair.	
Q-5(A) Write a note on (Any one out of two)	07
1) Site directed mutagenesis	
2) Explain in detail isolation of DNA.	
Q-5(B) Objective type questions	04
1) Define Cosmid.	
2) What is shuttle vector and give its example.	
3) What is the full form of BACs and YACs?	
4) Define Recombinant DNA vector.	
Q-5(C) Answer in Brief (Any one out of two)	03
1) Write a note on colony hybridization.	
2) Write a note on YACs	
