

B.Sc. (Part-II) Semester-IV Examination
4S : BIOTECHNOLOGY
(Genetic Engineering and Microbial Biotechnology)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

- (i) Transfer of DNA on Nitrocellulose membrane is called _____. ½
- (ii) _____ is used as Antidiabetic protein. ½
- (iii) Extraction of Metal ions with the help of Micro-organisms is called _____. ½
- (iv) Lac Z gene of Lac Operon codes for _____. ½

(B) Choose the correct alternative :

- (i) Which one is not a termination codon ? ½
 - (a) UAA
 - (b) UAG
 - (c) AUG
 - (d) UGA
- (ii) PCR was invented by : ½
 - (a) Watson & Crick
 - (b) Kary Mullis
 - (c) Jacob & Monad
 - (d) Willkins
- (iii) Which is the main component of Biogas ? ½
 - (a) CO₂
 - (b) H₂
 - (c) H₂S
 - (d) CH₄
- (iv) Which among these is not a biofertilizer ? ½
 - (a) Rhizobium
 - (b) Agrobacterium
 - (c) Azospirillum
 - (d) Azotobacter

(C) Answer in one sentence each :

- (i) What is Transposon ? 1
- (ii) Give long form of CSTR. 1
- (iii) Define fermentation 1
- (iv) What are bacteriophages ? 1

 2. Describe Watson & Crick double helical model of DNA. 12

OR

 What is Replication ? Describe the mechanism of DNA replication in Eukaryotes. 12

3. Explain :

- (a) Components of Lac operon 4
- (b) Transcriptional Bubble 4
- (c) Britton & Davidson model. 4

OR

(d) Inducer & Repressor of Lac	www.FirstRanker.com	www.FirstRanker.com
(e) Structure of mRNA		4
(f) Post translational modification of protein.		4
4. Describe :		
(a) Southern Blotting		4
(b) Plasmid		4
(c) DNA manipulating enzymes		4
	OR	
(d) Bacteriophage		4
(e) Genomic DNA library		4
(f) PCR.		4
5. Describe :		
(a) Insulin		4
(b) Recombinant vaccines		4
(c) Amino acids.		4
	OR	
(d) Interferon		4
(e) Dextran		4
(f) Erythropoietin.		4
6. Explain :		
(a) CSTR Bioreactor		6
(b) Alcohol fermentation		6
	OR	
(c) Batch & continuous fermentation		6
(d) Penicillin fermentation		6
7. Describe :		
(a) Biogas		4
(b) Rhizobium as biofertilizer		4
(c) Bioremediation.		4
	OR	
(d) Bioleaching		4
(e) Biopesticide		4
(f) Xenobiotic compounds.		4