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**BSCMBC 252**

**Credit Based Fourth Semester B.Sc. Examination, September 2022  
(2019-20 and Earlier Batches)  
MICROBIOLOGY  
Molecular Biology and Biotechnology**

Time : 3 Hours

Max. Marks : 80

**Instructions :** 1) Answer **both** Part 'A' and 'B'.  
2) Draw diagrams **wherever** necessary.

**PART – A**

Answer **any ten** of the following :

**(10×2=20)**

- |                            |                   |
|----------------------------|-------------------|
| 1. a) Transcription        | g) Biosensor      |
| b) Shine Dalgarno sequence | h) Humulin        |
| c) Chaperones              | i) Cosmids        |
| d) Missense mutation       | j) Solvent system |
| e) Auxotroph               | k) Rf value       |
| f) Mutagens.               | l) APS            |

**PART – B**

Answer **all** the questions, choosing **one full** question from **each** Unit.

**Unit – I**

2. a) Write a note on post translational modification of proteins.  
b) Explain the structure of *lac* Operon.  
c) Explain the elongation step of prokaryotic protein synthesis in detail. **(4+4+7=15)**

OR

3. a) Write a short note on central dogma of molecular biology.  
b) Explain the transportation of proteins in living system.  
c) What is genetic code ? Discuss the salient features of genetic code. **(3+5+7=15)**

P.T.O.



**Unit – II**

- 4. a) Write a note on phenotypic variations.
- b) How does base analogue cause mutation ? Explain.
- c) Explain Frame shift mutation in detail. **(4+4+7=15)**

OR

- 5. a) Write a short note on thymine dimer.
- b) Explain the Replica plate technique.
- c) What is mutation ? Discuss the biochemical basis of mutation. **(3+5+7=15)**

**Unit – III**

- 6. a) Explain the Bioindicators.
- b) Comment on hazards of genetic engineering.
- c) Discuss the different steps involved in r-DNA technology. **(4+4+7=15)**

OR

- 7. a) Write a short note on safeguards of Genetic Engineering.
- b) Give an account on gene therapy.
- c) Discuss genetic engineering in the field of agriculture. **(3+5+7=15)**

**Unit – IV**

- 8. a) Explain the basic principle of gel electrophoresis.
- b) Comment on applications of electrophoresis.
- c) Explain the principle and procedure of paper chromatography. **(4+4+7=15)**

OR

- 9. a) What are the applications of TLC ?
  - b) Explain the ascending paper chromatography.
  - c) Explain the principle and procedure of Agarose gel electrophoresis. **(3+5+7=15)**
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