



**JBA-003-1133002**

Seat No. \_\_\_\_\_

**M. Sc. (Biotechnology) (Sem. III) (CBCS)  
(W.E.F. 2016) Examination**

**December - 2019**

**BT - 312 : Molecular Biotechnology - II  
(Core)**

**Faculty Code : 003**

**Subject Code : 1133002**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : **70**

**1** Answer briefly any **seven** of the following : (2 Marks each) **14**

- (a) What is assisted protein folding?
- (b) What is Yeast-3-hybrid system?
- (c) What is the importance of southern hybridization?
- (d) What is marker gene?
- (e) What is the biological function of S1 nuclease?
- (f) Define gene fusion.
- (g) What is EMSA?
- (h) How to design primers from amino acid sequences?
- (i) Enlist chemical cross-linking agents used to study protein-protein interactions.
- (j) What are the consequences of protein-protein interactions?

**2** Answer any **two** of the following : (7 Marks each) **14**

- (a) Give a detailed account on gel mobility shift assay.
- (b) Discuss principles and strategies of protein sequencing.
- (c) What are the differences between PCR and RT-PCR? Highlight the significance of RT-PCR in molecular biology.

**3** Answer the following : (7 Marks each) **14**

- (a) Discuss DNase I foot printing assay and its applications
- (b) What is reporter gene? Discuss the mechanism of chloramphenicol acetyl transferase.

**OR**

**3** Answer the following : (7 Marks each) **14**

- (a) Discuss In-vitro protein folding and its significance.
- (b) Give a detailed account on neomycin phosphoryl transferase II.

**4** Answer the following questions : (7 Marks each) **14**

- (a) What is protein folding? Discuss the role of molecular chaperones in protein folding.
- (b) What is directed evolution? Describe methods and approaches to study directed evolution and gene shuffling.

**5** Answer any **two** of the following questions : **14**  
(7 Marks each)

- (a) Random mutation genesis.
- (b) Significance of luciferase as a reporter protein.
- (c) Western hybridization.
- (d) Rational of protein engineering.

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