



MBT-003-013402 Seat No. _____

**M. Sc. Biotechnology Theory (Sem. IV)
(CBCS) Examination**

April / May - 2018

**BT-420 : Molecular Biotechnology-II (Core-II)
(Old Course)**

**Faculty Code : 003
Subject Code : 013402**

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

[Total Marks : 70

Instructions : All questions are compulsory. Support your answers with suitable illustrations where required.

- 1** Answer ANY SEVEN : (2 Marks each) **14**
- a. What is functional genomics ?
 - b. What is structural genomics ?
 - c. What is directed evolution ?
 - d. What is gene shuffling ?
 - e. Why should we change the protein ?
 - f. Comment on the global gene expression ?
 - g. Comment on the Error prone PCR.
 - h. What is random protein design ?
 - i. Comment on the Gel mobility shift assay ?
 - j. What is site directed mutagenesis ?
- 2** Write detailed comments on ANY TWO of the following : **7×2=14**
- a. Reporter gene systems.
 - b. PCR and its significance.
 - c. DNA-Protein interaction.

- 3 a. Discuss how genes are detected ? Describe methods of gene expression studies.
- b. Describe molecular chaperones in the context of over expression of a gene and protein folding.

OR

- 3 Write detailed comments on the followings : (7 marks each) **14**
- a. Inclusion bodies and over expression of a gene.
- b. *In-vitro* protein folding.
- 4 Write detailed comments on the followings. (7 marks each) **14**
- a. Molecular chaperones and proteins folding in extremophiles.
- b. Directed evolution and evolution of unique combination of features.
- 5 Discuss 'ANY **TWO** of the followings (7 marks each) **14**
- a. Family Shuffling
- b. Rational approaches in protein engineering
- c. Signaling pathways
- d. In-vivo solubilization of the over expressed proteins
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