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NBV-003-013402   Seat No. _____

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

April / May - 2017

BT - 420 : Molecular Biotechnology - II

(CORE - II)

Faculty Code : 003

Subject Code : 013402

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions :   (1)   All questions are compulsory.

(2)   Support your answers with suitable illustrations where required.

1   Answer Any **Seven** : (2 Marks each)   **14**

(a)   Define Gene

(b)   Define Genome

(c)   What is difference between structural and functional genomics?

(d)   Enlist the basic objectives of protein engineering.

(e)   Define gene shuffling in context of protein evolution.

(f)   What is error-prone PCR?

(g)   What is microbiome?

(h)   How rationale protein design differs from random mutagenesis?

(i)   Comment on gel mobility shift assay.

(i)   What is the significance of over lapping PCR in chimeric genes?

2   Write detailed comment on Any Two of the following : 7×2=14

(a)   Reporter genes and their significance in molecular biology

(b)   Significance and applications of different kinds of PCR

(c)   Methods to study gene expression

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

   (a)   Discuss various methods to study DNA-Protein interaction

   (b)   What are the cellular functions of molecular chaperones? Discuss their role in molecular biology.

OR

3   Answer the followings : (7 marks each)   **14**

   (a)   Discuss chimeric genes and their applications

   (b)   Discuss concept and applications of Directed evolution

4   Answer the following : (7 marks each)   **14**

   (a)   Discuss the problems associated with the over expression of the gene. What are various in-vivo strategies to address these issues?

   (b)   Discuss how proteins can be denatured and refolded under in-vitro conditions.

5   Write comments on Any **Two** : (7 marks each)   **14**

   (a)   Probing the limits of the extremity

   (b)   Genetic heterogeneity and protein engineering

   (c)   Southern hybridization

   (d)   Significance of protein folding in biotechnology.