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PT-003-019403 Seat No. _____

M. Sc. (Microbiology) (Sem. IV) (CBCS) (W.E.F. 2010) Examination

August - 2020

Micro- 421 : Bimolecular Engineering

(Elective - I) (Old Course)

Faculty Code : 003

Subject Code : 019403

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

Instructions : All questions are compulsory. Provide suitable illustrations where necessary.

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

(a) What are the objectives of protein engineering?

(b) Differentiate tertiary and quaternary structures of the protein.

(c) What are the basic approaches of the protein engineering?

(d) Comment on the insoluble fraction of the enzymes in over expression?

(e) Comment on the inclusion bodies in the recombinant DNA Technology.

(f) How Real Time PCR differs from the rest of the PCR?

(g) How recombinant clones are screened?

(h) What is the significance of transformation in recombinant DNA Technology?

(i) How molecular tagging is significant in cloning?

(j) Comment on the fidelity of the PCR.

2 Write comments on : (Any **Two**) **7×2=14**

(a) Stabilization of various structures of a protein.

(b) Family shuffling.

(c) In-vivo strategies to enhance protein solubility.

3 Write comments : (7 marks each) **14**

(a) Assisted Protein folding in the presence of molecular chaperones.

(b) Different PCR methods and their significance.

OR

3 Comment on : (7 marks each) **14**

(a) Recombinant DNA Technology.

(b) Chimeric genes and protein engineering.

4 Write comments : (7 marks each) **14**

(a) Directed evolution and gene shuffling.

(b) In-vitro strategies of the protein folding.

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

(a) Primer designing

(b) Next Generation DNA sequencing

(c) Metagenomic Library

(d) Error-Prone PCR.