

5556061

Seat No. _____

M. Sc. (Part - II) Examination

April / May – 2003

Biochemistry : Paper - IV

(Molecular Biology & Immunology)

Time : 3 Hours]

[Total Marks : 100

Instruction : All questions carry equal Marks.

1. (a) List any five in-born errors of metabolism and the enzymes associated with the same.
(b) Explain nature and role of phosphorylations in the regulation of cell cycle.
(c) Explain DNA sequencing methods.
OR
(a) Explain the PCR reaction and its use in recombinant DNA techniques.
(b) Explain the applications of southern blotting
(c) Explain silent, neutral, forward and reverse mutations and their significance.
2. Write short note on any THREE of the following :
 - (a) Nature, organization and significance of introns in protein coding genes.
 - (b) Nature and importance of satellite DNA
 - (c) Modification of eukaryotic mRNA
 - (d) Role of rRNA in protein synthesis
 - (e) Replication of F plasmid
 - (f) Mechanisms of Gene conversion
3. (a) Explain the replicative and nonreplicative process of transposition
(b) Explain the nature and formation of preinitiation complex of transcription in eukaryotes.
OR
(a) Explain remodeling of chromatin.
(b) Explain the characteristics of self-splicing introns.
4. (a) Explain the nature and role of granulocytes in defense against pathogens.
(b) Explain the characteristics of lymph nodes.
(c) Explain the characteristics of T cell receptor.
OR
(a) What are dendritic cells ? What is their role in eliciting immune responses?
(b) What is the nature of MHC I and MHC II molecules? What is the role of MHCs in determining the self and nonself?
5. (a) Write briefly about immunofluorescence and its importance in determining the localization of antigens in tissues.
(b) What is the importance of alternate pathway of complement activation?
(c) Explain the structure of IgM molecule
OR
(a) Write different types of ELISA and their importance.
(b) Explain the structure of IgA molecule
(c) Explain the role proteases in the activation of complement system.