

2009

M.Sc.

1st Semester Examination

MICROBIOLOGY

PAPER—IV

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any two questions from each group.

Group—A

[Marks : 20]

Answer any two questions.

1. (a) Write the chemical structure of arachidonic acid
(20 : 4 ; 5, 8, 11, 14 / w 6). 1½
- (b) Why polyunsaturated fatty acids are more health
beneficial than saturated fatty acids? 2½
- (c) Define iodine number of fat / oil and state its
significance. (1+1)
- (d) How fluidity of membrane is determined by fatty acid
composition? 4

(Turn Over)

2. Write short notes on : (any two) 5×2
- (a) Protein folding ;
 - (b) Phosphorylation of enzymes in metabolic regulation ;
 - (c) Inositol tri-phosphate as a second messenger ;
 - (d) Flow of electrons in ETC.
3. (a) What is K_{cat} ?
- (b) Why linear transformation enzyme kinetics is needed ?
 - (c) State the limitations of L - B plot.
 - (d) Write three medical applications of enzyme inhibitors. 2+2+3+3

Group—B

[Marks : 20]

Answer any two questions.

4. What is cord factor? Describe the mechanism of biosynthesis of phospholipid in bacteria. How does it differ from eukaryotic system? 2+5+3
5. (a) Describe the role of Cra in regulation of carbohydrate metabolism.
- (b) What is glyoxylate cycle? Mention how it is related with anapleurosis & gluconeogenesis. 3+(3+4)
6. (a) Describe the biochemical regulation of inorganic nitrogen metabolism.
- (b) Bacteria and fungi use two distinct pathway for lysine biosynthesis but each pathway has special importance — explain it.
- (c) Indicate major differences between EMP and Entner-Doudoroff pathways. 4+3+3