

2017

M.Sc.

1st Semester Examination

MICROBIOLOGY

PAPER—MCB-104

Subject Code—31

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.

Illustrate the answers wherever necessary.

Use separate Answer-scripts for Group-A & Group-B

Group—A

[20 Marks]

Answer any *two* questions.

1. (a) What is Zwitterion ?
- (b) Describe the type of titration curve in case of glutamic acid.

(c) Describe briefly Ramachandran plot with its importance.

(d) How the structure of collagen is stabilized? 1+3+4+2

2. (a) What is redox potential?

(b) Describe the components of electron transport chain and electrons flow through this chain.

(c) What is coenzyme? Cite an example. 2+(3+3)+2

3. Write short notes on (any four): 4×2 $\frac{1}{2}$

(a) Super secondary structure of globular protein;

(b) Molecular chaperons;

(c) Acetylation of protein;

(d) Substrate level phosphorylation;

(e) Target site of cyanogen bromide and trypsin on protein;

(f) Allosteric enzymes.

Group—B

[20 Marks]

Answer any *two* questions.

1. (a) How TCA cycle can be regulated in biological system. 3
- (b) State the importance of Eutuer-Daudoroff pathway. 2
- (c) Schematically state the steps for biosynthesis of PHB in bacteria. 3
- (d) Write the difference between transketolase & transaldolase. 2
2. (a) Schematically describe the process of N_2 -fixation. $3\frac{1}{2}$
- (b) What is nif regular ? 1
- (c) Write the process of incorporation of ammouion in glutomate and glutomaine and subsequently into other aminoacids. $3\frac{1}{2}$
- (d) Write the precursors of different atoms in the denovo biosynthesis of purine nucleotide. 2

3. Write short notes on (any four) :

$4 \times 2 \frac{1}{2}$

- (a) Regulation of phosphofructokinase 1 ;
 - (b) Carnitine shuttle ;
 - (c) Fattyacid synthase complex in *E.Coli* ;
 - (d) Significance of phosphorylated intermediates of EMP pathway ;
 - (e) Metabolic importance of Acetyl CoA ;
 - (f) Bacterial lysine biosynthesis and endospore formation.
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