2008

[1st Semester]

MICROBIOLOGY

PAPER—IV

Full Marks : 40

Time : 2 hours

Answer **two** questions from each Group

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

GROUP—A

Answer any *two* questions

1. (*a*) Write the name and chemical structure of a hydroxyl group containing aromatic amino acid.

   (*b*) Discuss briefly the Ramachandan plot. Mention its significance.

(*c*) Write the specific cleavage site of:

(*i*) Trypsine

(*ii*) Cyanogen bromide

(*iii*) Hydroxylamine. 1 + (4 + 2) + 3

2. (*a*) What is uncompetitive inhibition ?

(*b*) What is irreversible covalent modification of enzymatic action ?

(*c*) Describe the reversible reaction proposed by Haldane.

(*d*) Compare the pigment systems and their function in cyanobacteria and green bacteria.
2 + 2 + 3 + 3

3. Write short notes on (any *two*): 5 x 2

(*i*) K & M series allosteric enzyme

(*ii*) PTS transport system

(*iii*) G-protein mediated cell signalling

(*iv*) Catalytic activity of ATPase.

GROUP—B

Answer any *two* questions

4. Write short notes on: $2\frac{1}{2} \times 4$

(*i*) Entner - Doudoroff pathway

(*ii*) Abzyme

(*iii*) Biosynthesis of isoprenoids

(*iv*) Inorganic nitrogen metabolism.

5. (*a*) What is phosphoketolase shunt ?

(*b*) What is peroxisomal β–oxidation ? (Mention the steps.)

(*c*) What is aerobactin. State its importance. 4 + 4 + 2

6. Describe the mechanism of fatty acid biosynthesis in *E.Coli*. How does it differ from eucaryotic system ? What are polyglycans ? 4 + 4 + 2