

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2010

Microbiology

MB2 IT—MICROBIAL METABOLISM

(2005 admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer any fifteen questions.**Each question carries 2 marks.*

1. What is the role of uncoupling agents in biological oxidation ?
2. Distinguish between Competitive and Non-competitive types of enzyme inhibition on the basis of double reciprocal plot.
3. What is bioluminescence ? Write the Biochemistry of bioluminescence.
4. How cyclic AMP is formed ? Write the role of cyclic Amp in **glycogenolysis**.
5. What is **PUFA** ? Mention its significance.
6. Distinguish between Dialysis and **Ultrafiltration**.
7. Write the two characteristic reactions of **glyoxylate** cycle. Mention the significance of this cycle.
8. How **Pyruvic kinase** reaction is reversed in **gluconeogenesis** ?
9. What are the advantages of enzyme immobilization ?
10. What is the significance of **HMP** pathway ?
11. Define Omega oxidation. Mention its significance.
12. Write the two characteristic reactions of alcoholic fermentation.
13. Distinguish between Substrate level **phosphorylation** and Oxidative **phosphorylation**.
14. Write the principle of affinity chromatography:
15. Define free energy and entropy of a system.
16. Distinguish between **lyases** and **ligases**.
17. What is the biochemistry of **methanogenesis** ?
18. How **aspartate transcarbomylase** is regulated ?
19. How epinephrine affects glycogen **synthase** activity ?
20. What is the reaction catalysed by **transketolase** enzyme ? Write the coenzyme involved in this reaction.

(15 x 2 = 30 marks)

Turn over

Section B

Answer any **four** questions.
Each question carries 5 marks.

21. Covalent regulation of enzyme activity.
22. **HMP** pathway.
23. Enzyme active site.
24. Bacterial toxins.
25. Ion-exchange chromatography.
26. Microbial **lipolysis**.

(4 x 5 = 20 marks)

Section C

Answer any **three** questions.
Each question carries 10 marks.

27. Mechanism of oxidative **phosphorylation**.
28. **Peptidoglycan** biosynthesis.
29. Mechanism of enzyme action.
30. **Gluconeogenesis**.
31. Microbial metabolism of **Xenobiotics**.

(3 x 10 = 30 marks)