C 48195 **(Pages 2)** **Name.....**

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, AUGUST 2008

General Biotechnology

GBT 201—METABOLISM AND BASIC ENZYMOLOGY

Time : Three Hours Maximum : 80 Marks

Section A

Answer any **two** *questions.*

1. Discuss different ways by which enzymes activity can be regulated.
2. Write any *two* reactions in each of the following pathways : (a) Glycolysis ; (b) Gluconeogenesis ; (c) Glyoxylate cycle ; (d) Pentose phosphate pathway.
3. Explain (a) biosynthesis of any *one* aminoacid ; (b) degradation of any *one* aminoacid.

(2 x 10 = 20 marks)

Section B

Answer any **ten** *questions.*

4. What are gluconeogenic and ketogenic aminoacids ?
5. Calculate the energy and efficiency of glycolysis.
6. Define the Lineweaver-Burk Plot equation.
7. Briefly describe (a) aldol condensation ; (b) nucleophilic reactions.
8. In how many ways you can express enzyme activity ?
9. Explain the reactions catalyzed by the following enzymes : (a) acetyl CoA carboxylase ; (b) Thiolase.
10. Define (a) Standard free energy ; (b) K_m (c) isoenzyme (d) amphibolic pathway ; (e) Prosthetic pathway.
11. Mention any *two* reactions of glycolipid metabolism.
12. Mention any *two* reactions of purine biosynthesis.
13. Mention any *two* reactions of pyramidine biosynthesis.
14. How many enzymes can act on glycogen ?
15. Differentiate between aerobic an aerobic oxidations.

(10 x 5 = 50 marks)

Turn over

Section C

Answer **all** *questions.*

16. What are multienzyme complexes ?

17. What is non-competitive inhibition ?

18. What are phosphagens ?

19. What are the sites at which ATP is synthesized in mitochondrial electron transport ?

20. What are ligases ?

(5_{X} 2 = 10 marks)