

C 33005

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Name.....

Reg. No.....

**SECOND SEMESTER M.Sc. DEGREE EXAMINATION
AUGUST 2007**

General Biotechnology

GBT 201 – METABOLISM AND BASIC ENZYMOLOGY

(Regular / Improvement / Supplementary)

Time : Three Hours

Maximum : 80 Marks

Section A

Answer any two questions.

1. Describe the steps in gluconeogenesis.
2. Explain the Urea cycle and indicate how it is related to TCA cycle.
3. Explain any two mechanisms of enzyme action.

(2 x 10 = 20 marks)

Section B

Answer any ten questions.

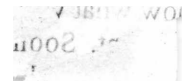
4. Write structures of the following:—
(a) Cyclic GMP ; (b) Phosphoglycerol ; (c) any branched chain amino acid.
(d) Amylopectin ; (e) Fructose - 2, 6 - bisphosphate.
5. How can you prove to what extent glucose is metabolized via glycolysis and pentose phosphate pathway?
6. Explain the role of elongation factors in biosynthesis of proteins.
7. Explain differences between oxidation of saturated fatty acid and unsaturated fatty acid.
8. Explain the reaction and significance of
(a) Carbamoyl phosphate synthetase (b) phosphoribosyl pyrophosphate synthetase.
9. Distinguish among ΔF , ΔG and ΔH .
10. Calculate the energy obtained from the oxidation of saturated C_{20} fatty acid.
11. Explain the principles of affinity chromatography.
12. Distinguish between competitive and uncompetitive enzyme inhibition.
13. Mention electron transport inhibitors indicating their site of action.
14. Explain the mechanism of bisubstrate reactions.
15. Mention the enzymes for which the following vitamins are required :
(a) Vitamin B_{12} ; (b) Vitamin C ; (c) Vitamin B_6 ; (d) Biotin ; (e) Riboflavin.

(10 x 5 = 50 marks)

Turn over

Section C*Answer all questions.*

16. What is the role of fructose-2, 6-bisphosphate?
17. How can isozymes vary in their property?
18. Mention an enzyme characteristic of
(a) Lysosomes ; (b) Peroxisomes ; (c) Golgi bodies ; (d) Endoplasmic reticulum.
19. Explain any *one* ligase type of reaction.
20. Write the first digit of the following enzymes:
(a) Hexokinase ; (b) Aminoacyl tRNA synthetase ; (c) Aldolase ; (d) Peroxidase.



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(5x2=10 marks)