D 31089 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION NOVEMBER 2012

(CCSS)

Biotechnology

BT 3B 01 – BIOCHEMISTRY

Time : Three Hours Maximum : 30 Weightage

I. Objective Type Questions. Answer all *twelve* questions

A. 1. Which of the following statements regarding Vit A is true?

(a) It is not an essential vitamin . (b) It is related to tocoferol.

(c) It is a component of rhodopsin. (d) It is also known as opsin.

2. Panthothenic acid is a constituent of the coenzyme involved in :

(a) Decarboxylation. (b) Acetylation.

(c) Dehydrogenation. (d) Reduction.

3. In adults a severe deficiency of Vit D causes :

(a) Night Blindness. (b) Osteomalacia.

(c) Rickets. (d) Osteogenesis imperfect.

4. Panthothenic acid is important for which of the following steps or pathways ?

(a) Glycolysis. (b) Fatty acid biosynthesis.

(c) Gluconeogenesis. (d) Pyruvate carboxylase.

5. Which of the following compounds serves as a link between the citric acid cycle and the urea cycle?

(a) Malate. (b) Citrate.

(c) Isocitrate. (d) Fumarate.

6. Which of the following occur in non-shivering thermogenesis ?

(a) Glucose is oxidized to lactate. (b) Fatty acids uncouple phosphorylation.

(c) Ethanol is formed. (d) ATP is burned for heat production.

Turn over

B. State whether True *or* False :

7. Porphyria is a clinical condition associated with the malabsorption of iron.
8. Vitamin K is required for the liver synthesis of prothrombin.
9. Flavoprotein receive electron from cytochrome P450 in liver mitochondria.
10. The reaction glucose to glucose-6-phosphate generates ATP.
11. Glyceraldehyde-3-phosphate dehydrogenenase catalyses high energy phosphorylation of substrates during glycolysis.
12. Methionine is a precurosor for cysteine.

(12 x = 3 weightage)

II. Short Answer Type Questions. (Answer all *nine* questions) :

13. What are bufferes? What is buffering action?
14. Write a note on cytochromes.
15. What are uncouplers? Give examples.
16. Give the chemical structure of the tyrosine and tryptophan.
17. What are the characteristics of the peptide bond?
18. What are structural proteins?
19. Explain-Lock and key hypothesis.
20. Clinical importance of LDH.
21. Physiological functions of Vitamin C.

(9 x 1 = 9 weightage)

III. . Short Essay *or* Paragraph questions. (Answer any *five* from seven) :

22. Give the principle of PAG electrophoresis and what is the contribution of SDS in PAGE?
23. Write briefly on the functions of insulin.
24. List the deficiency disorders of the fat and water soluble vitamins.
25. With the chemical structure, elaborate on the functions of lecithin.
26. What are the different interactions that are observed in protein secondary structures?
27. What are the functions of the TCA cycle?
28. Explain essential amino acids.

(5 x 2 = 10 weightage)

IV. Essay Questions. (Answer any *two* from three) :

29. Outline the β-oxidation of a fatty acids with the enzymes, coenzymes and intermediates.
30. Outline the glycolytic pathway with the enzymes, coenzymes and intermediates.
31. What are hormones? Give an overview of phytohormones.

(2 x 4 = 8 weightage)