

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2010 – 11)

SUBJECT CODE: BI/PC/BC14

M. Sc. DEGREE EXAMINATION, NOVEMBER - 2010
BIOINFORMATICS

REG.NO.....

COURSE : CORE
PAPER : BIOCHEMISTRY
TIME : 20 MINUTES

MAX. MARKS: 20

SECTION – A

To be answered on the Question paper.

Answer ALL Questions:

(20x1=20)

I Choose the correct answer.

1. An example of the colligative property of water is
a) Micelle formation b) Osmosis c) High boiling point d) Formation of ice
2. Choose a non protein amino acid from the following
a) Cystine b) Citrulline c) Proline d) Arginine
3. Coenzyme A contains the vitamin
a) Riboflavin b) Lipoic acid c) Pantothenic acid d) Ascorbic acid
4. Biotin is the cofactor for the enzyme
a) Propionyl carboxylase b) Acetyl carboxylase c) Fumarase d) Acyl transferase
5. The ratio of bicarbonate to carbonate in a normal cell is.
a) 19 b) 25 c) 20 d) 10
6. Transamination requires the presence of
a) Niacin b) Pyridoxal phosphate c) pantothenate d) riboflavin

II. State whether True or False:

7. The V_{max} does not change in competitive inhibition
8. Denaturation of proteins involves loss of water
9. Proline is a helix maker
10. Water is heavier than ice at 5 degrees centigrade

III. Fill in the Blanks:

11. The number of ATPs produced by Urea cycle is _____.
12. The positively charged amino acid that is involved in Urea cycle is _____

13. The secondary structure that has intermolecular hydrogen bonds is _____
14. The digested fats are circulated in the blood in the form of _____
15. ATP has _____ number of high energy phosphate bonds
16. The odd one among Greek key, Saddle, Calmodulin, Horse shoe, Barrel is _____

III. Answer the following in one or two lines

17. Isoelectric point
18. Chaperone proteins
19. Glutathione
20. Anomers

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TIME : 2hrs and 40 MINUTES

MAX. MARKS: 80

SECTION – B

Answer any Four Questions.

(4x10=40)

1. Derive Michaelis Menten equation and Line Weaver Burk Plot. Explain its significance differentiating the various types of inhibition
2. Describe the Watson and Crick model of the DNA structure with diagrams
3. a) What is a peptide bond? Describe the Ramachandran plot and give its relevance in deducing the structure of proteins
b) How is lactic acid formed and under which conditions?
4. Describe the β - oxidation of fatty acids using Palmitic acid as an example.
5. Describe the Krebs cycle with energy considerations.
6. Write short notes on
a) Oxidative deamination b) Transamination. c) Urea cycle (3 +3 + 4)
7. Discuss the Glycogen metabolism

SECTION – C

Answer Any TWO Questions.

(2x20=40)

8. Describe the role of water in sustaining life. Describe the various properties of water to substantiate the above.
9. What is signal transduction? Explain using insulin as an example.
10. How does the body synthesize triglycerides from acetyl CoA. Give the detailed pathway with the energy considerations
11. Discuss with appropriate diagrams, the protein structure in detail deliberating on the structure - function relationship.
