2015

M.Sc.

2nd Semester Examination

BIOCHEMISTRY

PAPER—BIC-202

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

1. Answer any *five* questions from the following :   5×2

   (a) Name two transition metals with function that are important in human nutrition.

   (b) In which class of enzyme phosphorylase belong to and why ? Explain with suitable example.

(c) Define catalytic efficiency ($\in$) of an enzyme. How does the value of $\in$ depend upon the value of Michaelis constant ?

(d) How and when does the rate of product formation of an enzymatic reaction reach at its maximum value ? State the mathematical expression of Vmax.

(e) Name one disease arising due to vitamin-D deficiency. Why selenium is referred to as an antioxidant ?

(f) Define BMR and mention its values in males and females.

(g) How will you distinguish a carrier and channel in membrane transport system ?

(h) Write the name of two co-enzyme forms in Niacin and mention their role in hormone synthesis.

Group—B

Answer any *two* questions from the following :   2×5

2. Briefly describe the transport of glucose across biological membrane through an energy driven process.

3. Name different ATPase transporters and state the mechanism of one such transporters. 2+3

4. Write short notes on general acid-base, catalysis and covalent catalysis.

5. Name the allosteric enzymes present in glycolytic pathway. Allosteric enzymes are usually located either at the beginning or at the terminal point of a metabolic pathway. — Justify.

Group—C

Answer any *two* questions from the following : 2×10

6. Discuss the function of L-Glutamate and gamma amino butyric acid in relation to nutritional status.

7. Briefly state the function of 'Vitamin E' focussing on its role as an effective biological antioxidant. What do you mean by antivitamins ? Give example. 5+(3+2)

8. Derive Michaelis-Menten equation for enzyme substrate reaction. State the limitations of Michaelis-Menten curve and mention the importance of Lineweaver Burk Plot.

5+5

9. Write what do you know about allosteric modulation of enzymes with suitable examples. Why the location of hexokinase should be close to the inner side of the cell membrane ?

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