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3 (Sem–3/CBCS) ZOO HC 3

2023

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ZOOLOGY

(Honours Core)

Paper : ZOO–HC–3036

(Fundamentals of Biochemistry)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7

   (a) Which bond stabilize the secondary structure of protein ?

   (i) Covalent bond

   (ii) Hydrogen bond

   (iii) Hydrophobic bond

   (iv) van der Waals forces

   (b) Which of the following amino acid carries a net positive charge at the physiological pH ?

   (i) Valine

   (ii) Isoleucine

   (iii) Lysine

   (iv) None of the above

Contd.

(c) The protein part of the enzyme is known as
   (i) Apoenzyme
   (ii) Holoenzyme
   (iii) Isoengyme
   (iv) Cofactor

(d) Which of the following statement is true about *tm* ?
   (i) The higher the content of *G≡ Cbp*, the lower the *tm*.
   (ii) The higher the content of *G≡ Cbp*, the higher the *tm*.
   (iii) The higher the content of *A = Tbp*, the higher the *tm*.
   (iv) It is termed as renaturation temperature.

(e) The disaccharide lactose is composed of
   (i) glucose and sucrose
   (ii) glucose and ribose
   (iii) glucose and fructose
   (iv) glucose and galactose

(f) Which of the following is the example of derived lipids ?
   (i) Terpenes
   (ii) Steriods

   (iii) Carotenoids
   (iv) All of the above

(g) Antibodies recognize antigens
   (i) by neutralizing pathogens within host cells
   (ii) by covalent binding to specific epitopes
   (iii) by their hypervariable regions
   (iv) All of the above

2. Answer the following questions : 2×4=8
   (a) Write the difference between nucleosides and nucleotides.
   (b) Write the significance of k_m
   (c) What is protein denaturation ?
   (d) What is reducing sugar ? Give *one* example.

3. Answer the following questions : ***(any three)*** 5×3=15
   (a) What are glycoconjugates ? Write its biological significance. 2+3=5
   (b) Draw and briefly state the structure of immunoglobin molecule. 2+3=5
   (c) What is cot curves ? State its significance. 1+4=5

(d) What is enzyme inhibition ? Write briefly about different types of enzyme inhibition. 1+4=5

(e) Write the difference between simple protein and conjugate protein.

4. (a) Derive Michaelis-Menten equation for single substrate enzyme catalyzed reaction. 10

Or

(b) Discuss the different classes of carbohydrate with example and mention its biological significance.

5. (a) What are terpenes ? Discuss the biological importance of different types of terpenes with suitable example. 2+8=10

Or

(b) Describe the classification of amino acid. Write the difference between essential and non-essential amino acid. 7+3=10

6. (a) What are the bonds involved in stabilizing the protein structure ? Discuss the various level of organization of protein. 3+7=10

Or

(b) Describe the various classes of immunoglobulin and state its function. 10