D 53537 **(Pages : 3)** **Name**

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION
JANUARY 2014

(UG–CCSS)

Complementary Course – Biochemistry

BC IC **01— ELEMENTARY BIOCHEMISTRY**

Time : Three Hours Maximum : 30 Weightage

Section A

Answer all questions.

1. Which is not transported by the blood?

   (a) Oxygen. (b) Glucose.

   (c) ATP. (d) Carbon dioxide (CO_2).

2. The liquid part of the blood is the :

   (a) Plasma. (b) Formed elements.

   (c) Blood cells. (d) Tissue fluid.

3. Which solution will change red litmus to blue

   (a) HCl (aq). (b) NaCl (aq).

   (c) CH_3OH (aq). (d) NaOH (aq).

4. An acidic solution could have a **pH** of :

   (a) 7. (b) 10.

   (c) 3. (d) 14.

5. Two isomeric forms of a saturated hydrocarbon :

   (a) Have the same structure.

   (b) Have different compositions of elements.

   (c) Have the same molecular formula.

   (d) Have a different content of the isotopes of hydrogen.

6. Which of the following hydrocarbons does not have isomers?

   (a) C_8H_{14}. (b) C_5H_{10}.

   (c) C_4H_8. (d) C_3H_8.

Turn over

7. In which of the following techniques, proteins can be separated according to their molecular size?

   (a) TLC. (b) HPLC.

   (c) Paper chromatography. (d) Gel filtration

8. Diffusion is the movement of molecules from an area of _____ concentration to the area of _____ concentration.
9. A cell is isotonic to a solution of 0.01 % sugar. A concentration that is hypotonic is _____
10. If an animal cell is placed in hypertonic solution it would _____
11. Cells engaged in the process of actively transporting substances across the membrane expend _____
12. _____ is the sugar present in milk.

(12 x = 3 weightage)

Section B

Answer all the **nine** *questions.*

13. Define molarity of a solution.
14. Write an example for condensation reaction.
15. Write down the principle of chromatography.
16. What are indicators? Give two examples.
17. Differentiate between hydrophobic and hydrophilic compounds giving examples.
18. What is a buffer? Give examples of two biological buffers.
19. What is Tyndall effect?
20. What are emulsions? Give two examples.
21. Differentiate between oxidation and reduction reactions giving suitable examples.

(9 x 1= 9 weightage)

Section C

Answer any **five** *questions.*

22. Define Bronsted's definition of acids and bases. What are the three factors that determine the strength of an acid according to this theory?
23. What are colloids? Explain the properties of colloids.
24. Explain the principle and application of gas chromatography.
25. Explain function and composition of gastric juice.

26. Explain Donnan membrane equilibrium.

27. Explain Radioimmuno assay and its applications.

28. Define Osmosis. Explain its significance in biological systems.

(5 x 2 = 10 weightage)

Section D

Answer any **two** *questions.*

29. What is pH? What is its significance? Derive the Henderson-Hasselbach equation for the pH of a buffer solution.

30. What is the principle of electrophoresis ? Describe the procedure and applications of polyacrylamide gel electrophoresis.

31. Describe the biochemistry of blood clotting.

(2 x 4 = 8 weightage)