Reg. No. : .....

(6 pages)

Code No. : 6398 **Sub. Code : HBOM 31**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2013.

Third Semester

Botany

BIOCHEMISTRY AND BIOPHYSICS

(For those who joined in July 2012 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Simple sugars containing 3 to 10 carbon atoms are

(a) disaccharide (b) monosaccharide

(c) oligosaccharide (d) polysaccharide.

2. Primary structural component of cell walls of a plant is

(a) starch (b) glucose

(c) sucrose (d) cellulose.

3. Break down of proteins due to chemical and physical factor is due to

(a) construction (b) synthesis

(c) maturation (d) denaturation.

4. A bond between carboxyl group of one amino acid and amino group of another amino acid is

(a) hydrogen bond (b) hydroxyl bond

(c) peptide bond (d) glycosidic bond.

5. Organic compounds insoluble in water are

(a) lipids (b) vitamins

(c) glucose (d) sucrose.

6. The compound in which a sugar molecule binds with the functional group with glycoside bond is

(a) alkaloid (b) terpenoids

(c) steroids (d) glycoside.

7. The catalysts responsible for chemical reactions in biological system is

(a) sugars (b) fatty acids

(c) enzymes (d) minerals.

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8. In an enzymatic reaction, E-S complex refers to

(a) Emil Fisher-substrate

(b) electron-substance

(c) enzyme-steady state

(d) enzyme-substrate.

9. Oxidation of substrate due to chemiluminescent reaction in living organisms refers to

(a) fluorescence (b) bioluminescence

(c) emission (d) phosphorescence.

10. An enzyme catalyzed oxidation-reduction reaction is

(a) redox (b) oxidation

(c) oxred (d) reduction.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write short notes on starch.

Or

(b) Draw and explain the structure of any hexose sugar.

12. (a) Brief the physical properties of protein.

Or

(b) Describe the steps involved in purification of proteins.

13. (a) Explain the basic structure of DNA and RNA.

Or

(b) Write short notes on steroids.

14. (a) Brief the nomenclature and classification of enzymes.

Or

(b) Write notes on specificity of enzymes.

15. (a) What is bioluminescence? Explain its physical character.

Or

(b) Mention the significance of high energy compounds.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Carbohydrates are one of the most abundant constituents of the cell -Explain.

Or

(b) Write an essay on polysaccharides.

17. (a) Write an essay on proteins and explain its importance as biomolecules of any organisms.

Or

(b) Explain in detail about the biologically important peptides.

18. (a) Write an essay on lipids.

Or

(b) What are secondary metabolites? And highlight alkaloids and glycosides.

19. (a) Explain the mechanism of enzyme action through Fischer's and Koshland's model.

Or

(b) Write an essay on enzyme regulation.

20. (a) Write notes of the following with suitable example emission, excitation and radiation.

Or

(b) Write an essay on Redox potential with relevant example.

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