

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 53113

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Third Semester

Biomedical Engineering

15UBM303 - BIOCHEMISTRY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Starch is

- | | |
|--------------------|---------------------|
| (a) Disaccharide | (b) Oligosaccharide |
| (c) Polysaccharide | (d) None of these |

2. The hydrolysis products of sucrose are

- | | |
|------------------------|-------------------|
| (a) Maltose | (b) Glucose only |
| (c) Glucose & Fructose | (d) Fructose only |

3. Trimalitin belongs to the category of

- | | |
|--------------|-----------------------|
| (a) Proteins | (b) Lipids |
| (c) Enzymes | (d) None of the above |

4. Nucleotides are condensation products of nucleosides with

- | | |
|---------------------|---------------------|
| (a) Phosphoric acid | (b) Perchloric acid |
| (c) Sulphuric acid | (d) Nitric acid |

5. Which of the following bases is not present in DNA?

- | | |
|-------------|--------------|
| (a) Adenine | (b) Guanine |
| (c) Uracil | (d) Cytosine |

6. α -helix refers to

- | | |
|------------------------------------|--------------------------------------|
| (a) Primary structures of proteins | (b) Secondary structure of proteins |
| (c) Tertiary structure of proteins | (d) Quaternary structure of proteins |

7. Nucleic acids are polymers of
- | | |
|----------------------------|-----------------|
| (a) Nucleotides | (b) Nucleosides |
| (c) Nuclei of heavy metals | (d) Proteins |
8. Invert sugar is
- | | |
|-------------------------------------|--------------------------------------|
| (a) A variety of cane sugar | (b) Optically inactive form of sugar |
| (c) Mixture of glucose and fructose | (d) Mixture of Glucose and Galactose |
9. The non-proteinous substance which certain enzymes require for their activity are called
- | | |
|----------------|----------------|
| (a) Catalysts | (b) Inhibitors |
| (c) Co-Enzymes | (d) Epimers |
10. Which of following is not a glyceride?
- | | |
|-------------------|-----------|
| (a) Lipids | (b) Fats |
| (c) Phosphalipids | (d) Soaps |

PART - B (5 x 2 = 10 Marks)

11. Justify chromatography is a popular tools of Biochemistry?
12. What is an ELISA test?
13. List out the functions of carbohydrates in living bodies.
14. What are α -amino acids? How do they build proteins?
15. Explain the classification of lipids.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain in detail the Chemical reactions in metabolic processes. (8)
- (ii) Write short notes on Bio-organic Chemistry. (8)
- Or
- (b) (i) How do the laws of thermodynamics apply to living systems? (8)
- (ii) Identify the forces that act in biological systems such as covalent bonds and ionic bonds? (8)
17. (a) (i) Explain the biological nitrogen fixation mechanism with flow chart. (8)
- (ii) Justify the uses of colorimetry as an analytical tool in environmental Biochemistry. (8)

Or

(b) (i) What is calvin cycle? And what does it produce. (8)

(ii) Explain detail the applications of mass spectrometry for Environmental analysis. (8)

18. (a) Write notes on: (i) Monosaccharides (ii) Disaccharides (iii) Polysaccharides (iv) Mucopolysaccharides. (16)

Or

(b) What are the major metabolic pathways of glucose? Explain with suitable illustrations. (16)

19. (a) (i) Describe the structure and classification of aminoacids along with their structures. (8)

(ii) Explain the chargoffs rule of DNA composition. (8)

Or

(b) Review the Watson and Crick model of DNA and how it applies to our understanding of genetic material. (16)

20. (a) (i) Explain in detail the “Mechanism of Enzyme action”. (8)

(ii) Describe the structure and functions of phospholipids. (8)

Or

(b) Discuss the saturated and unsaturated fatty acids of biological importance along with their structures. (16)

