Avinashilingam Institute for Home Science and Higher Education for Women

Coimbatore-641 043

Master's Degree Examination-November 2017

Class: I PG **Max.Marks: 60**
Major: Biotechnology **Time: 3 Hours**

17MBTC01-Biochemical Concepts for Biotechnology

PART-A **10X 1/2= 5**

Choose the Correct Answer

1. The H-O-H bond angle in water molecule is

a.104.0° b.104.5° c.105.5° d.103.5°

2. Mixtures of water and non-dissolved material are called _____.
a. ionic solutions b. covalent solutions c. suspensions d. covalent mixtures

3. The energy can neither be created nor destroyed is stated in which of the following?

a. First law of thermodynamics b.Second law of thermodynamics

c. Law of free energy change d.Law of coupled reactions.

4. A ---------- is an enzyme that transfers phosphoryl group between ATP and a metabolite.

a. Pyruvate dehydrogenase b. Pyruvate decarboxylase

c.Pyruvate carboxykinase d. α – ketoglutarate dehydrogenase complex

5. The formation of beta pleated sheets mainly depends on intramolecular

a. peptide bond b. hydrogen bond c. covalent bond d. all the above

6. The N-C α bond is designed by

a. ϕ b. δ c. $\varnothing$ d. ι

7. The rate – limiting enzyme in the biosynthesis of cholesterol is

a.HmG CoA reductase b. HmG CoA synthase c. Squalene synthase d. Mevalonate kinase.

8. Oxidation of fatty acids occurs

a. in the cytosol b. in the matrix of mitochondria

c. on inner mitochondrial membrane d. on the microsomes

9. Acyl Carrier Protein contains the vitamin:
a. Biotin b.Lipoic acid c. Pantothenic acid d. Folic acid

10. The nitrogenous base is linked to the sugars to form nucleosides by _____ linkage.
a. Glycosidic b. Peptide c. 3'-5' phosphodiester d.Ether

Part-B **(5X4=20Marks)**

Answer ALL questions

Each answer should not exceed 200 words or one page

11. a. Give an account on types of buffers.

(OR)

b. Explain the laws of thermodynamics.

12. a. Explain the structure and function of monosaccharides.

(OR)

b. How glycogen is synthesized?

13. a. How are aminoacids classified?

(OR)

b. Describe positive and negative nitrogen balance.

14. a. Classify lipids.

(OR)

b. Explain sphingolipids.

15. a. Explain Nucleosides and nucleotides.

(OR)

b. Enumerate the major differences of DNA & RNA.

Part-C **(5X7=35 Marks)**

Answer ALL questions

Each answer should not exceed 600 words or three pages

16. a. Describe biological buffer system.

(OR)

b. Explain about physical interactions of water molecule.

17. a. Mention the reactions of glycolysis.

(OR)

b. Explain the structure and function of polysaccharides.

18. a. How are peptides formed? Explain biologically important peptides.

(OR)

b. Explain the primary structure of proteins.

19. a. How are carbohydrates, proteins and lipids interrelated?

(OR)

b. Explain the β- oxidation of fatty acids.

20.a. Mention the properties of DNA.

(OR)

b. Explain water soluble vitamins.