LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **BIOTECHNOLOGY**

FIRSTSEMESTER – APRIL 2018

17PBT1MC02- BIOCHEMISTRY

Date: 02-05-2018 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

PART – A
Answer ALL the Questions

I. Choose the correct answer **(5 x 1 = 5 Marks)**

1. What is the pH of 0.1M HCl?
   a) 0 b) 1 c) 7 d) 14
2. Which of the following chromatographic techniques is used to separate based on charge?
   a) Ion exchange b) Affinity chromatography
   c) Gel filtration d) Size exclusion chromatography
3. The enzyme that converts phosophoenol pyruvate to pyruvate is
   a) Aldolase b)Enolase c)Pyruvate kinase d) Hexokinase
4. Which among the following is a membrane bound enzyme?
   a)Citric acid synthase b) Aconitase
   c)Succinate dehydrogenase d)Fumarase
5. Pick the substrate that acts as a competitive inhibitor for methanol poisoning?
   a) Butanol b) Isopropanol c) Malic acid d) Ethanol

II. State whether the following are True or False. **(5x1=5 Marks)**

6. Ethanol is not soluble in water.
7. The peptide bond has a partial double bond character.
8. Oxygen is the final electron acceptor in electron transport chain.
9. Mevelonate is an intermediate in cholesterol synthesis pathway.
10. Arabidopsis thaliana has a very short lifecycle.

III. Complete the following **(5 x 1= 5 Marks)**

11. The molarity of pure water is _____.

12. _____is the simplest amino acid.

13. Glycolysis yields _____ ATP.

14. The proteins to be degraded are attached to _____.

15. _____ are enzymes that transfer of specific groups from one substrate to the other.

IV. Answer the following within 50 words **(5 x 1 = 5 Marks)**

16. What is proton hopping?

17. Give an example for an unsaturated fatty acid?

18. Define oxidation.

19. Mention the two pathways for nucleotide synthesis.

20. Give an example for cofactor.

PART B

Answer the following each within 500 words. (5 x 8 = 40 marks)
Draw diagrams wherever necessary

21. (a)Mention any four properties of water.

OR

(b) Derive the Henderson Hasselbalch equation.

22. (a) Classify carbohydrates with one example each.

OR

(b)Discuss the structural hierarchy of proteins.

23. (a) Outline the steps involved in Glycolysis.

OR

(b) Comment on any two factors affecting hydrolysis of ATP.

24. (a) Explain protein degradation pathway.

OR

(b) Write notes on transamination and deamination reactions.

25. (a) Mention any four classes of enzymes and their function.

OR

(b) Explain competitive inhibition with a suitable example.

PART – C

Answer any TWO of the following, each within 1500 words. (2 x 20 = 40 Marks)
Draw diagrams wherever necessary.

26. Describe the principle and working of pH meter.

27. Elaborate on Ion exchange chromatography and affinity chromatography.

28. Write in detail about electron transport chain.

29. Explain synthesis and degradation of fatty acid.

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