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Question Paper Code : 80044

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Second Semester

Biomedical Engineering

BM 8201 — FUNDAMENTALS OF BIO CHEMISTRY

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Distinguish any two physiological buffers of living systems.
2. Identify and write any two clinical applications of radioisotopes.
3. Why is the sucrose a non reducing sugar? Give its structure.
4. Comment on the mechanism of ATP production in oxidative phosphorylation.
5. Enumerate few disorder of lipids.
6. Define Ketogenesis. Give its implications.
7. Give an example for DNA nucleotide with structure.
8. What is meant by albinism?
9. Appraise the apoenzyme with an example.
10. Interpret the units of enzyme activity.

PART B — (5 × 13 = 65 marks)

11. (a) Justify the role of water as a biological solvent and give the properties of water.

Or

- (b) Derive the Handerson- Hasselbalch equation and list out its applications.

12. (a) Classify the carbohydrates and detail the properties of monosaccharides.

Or

- (b) Describe the process of glycogenolysis and comment on the glycogen storage diseases.

13. (a) How is a triglyceride formed? Comment on the physical and chemical properties of it.

Or

- (b) Explain the process of beta oxidation of fatty acid and its energetic with an example.

14. (a) List the Chargaff's rule and elaborate the DNA structure with their stabilizing forces.

Or

- (b) Illustrate the structural organization of proteins with suitable examples.

15. (a) Classify the enzymes and distinguish the coenzymes from cofactor with examples.

Or

- (b) Define enzyme kinetics. Discuss about the various factors that affect the rate of an enzymatic reaction.

PART C — (1 × 15 = 15 marks)

16. (a) Analyze the energy obtained from oxidation of one molecule of glucose via Glycolysis, TCA cycle and ETC with illustration of pathways.

Or

- (b) What are the different isomers of monosaccharide? Explain all with examples.