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Question Paper Code: U3B02

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Third Semester

Biomedical Engineering

21UBM302- BIOCHEMISTRY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Define Biochemistry. CO1-U
2. Can you analyse the mechanism of diffusion and osmosis of drugs in the human body. CO3-Ana
3. Define splitting phase of glycolysis. CO1-U
4. How to analyse ketosis sugars to confirm the given carbohydrate sample? CO1-U
5. What kind of mechanism is involved in the translation process of protein synthesis? CO1-U
6. Give a brief note on plasma protein and their role. CO1-U
7. Apply the saponification approach to confirm the presence of fatty acid? CO2-App
8. Give a short review on enzyme and their properties. CO1-U
9. Why DNA is move towards anode during electrophoresis? Justify your answer CO3-Ana
10. List various types of carcinogens and its impact. CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Paraphrase on bioorganic chemistry and biophysical chemistry. CO1-U (16)
Analyze the functional groups and different structures of biomolecules.

Or

- (b) Give a brief note on biomolecules. Examine the three major biomolecules and their role in the biological system. CO1-U (16)
12. (a) Investigate the glycogen synthesis pathway for energy storage in liver cells and examine the steps involved in the breakdown of glycogen. CO3-Ana (16)
- Or
- (b) Analyze the different pathways of carbohydrate metabolism and the role of transporters for glucose entry into the cell and examine glycolysis and its outcomes in healthy cells. CO3-Ana (16)
13. (a) Describe the different types of protein in brief. Examine the separation of ammonia from blood and the metabolism of amino acids. CO3-Ana (16)
- Or
- (b) Briefly describe DNA. Look at how the Watson and Crick DNA model will be supported by x-ray diffraction and Chargaff's rule. CO3-Ana (16)
14. (a) Brief note on enzyme chemical nature and properties. Review various factors affecting enzyme activity and enzyme role in diagnostic importance. CO1-U (16)
- Or
- (b) Give a note on phospholipids and essential fatty acids. Categorize fatty acids based on their length and analyze its metabolic disorders. CO1-U (16)
15. (a) Illustrate enzyme-linked immunosorbent assay. Explain the mechanism of antigen-antibody interaction to tract the unknown viruses in case of pandemic situations. CO1-U (16)
- Or
- (b) Summarize nitrogen fixation in the environment. Explain nitrogen cycle in the earth and atmosphere with neat diagram. CO1-U (16)