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**Question Paper Code: U3B02**

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

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 Biomolecules. CO1- U
2. Draw a diagram of Central dogma of molecular biology. CO1- U
3. How do you confirm carbohydrate by Molisch's reagent? CO2- App
4. Is Glycolysis pathway maintains hormonal regulation? Justify your answer CO2- App
5. Explain various interactions and bond that can apply for protein structure. CO3- Ana
6. How do you ensure colorless aminoacid in thin layer chromatography? CO3- Ana
7. Draw the overall steps of Lock and Key model. CO1- U
8. List out the chemical properties of fats. CO1- U
9. Write a short note on nitrogen fixation. CO1- U
10. List some techniques for RNA extraction. CO1- U

PART – B (5 x 16= 80Marks)

11. (a) Write a detailed note on bioorganic chemistry. Analyze chromatography and Electrophoresis approaches with their principle and functional mechanism. CO3-Ana (16)  
Or  
(b) Give a short note on Biomolecules. Investigate three main biomolecules and their role in biological system. CO3-Ana (16)

12. (a) Give a short note on carbohydrate. Examine the major pathways of carbohydrate metabolism and its entry mechanism into cell with diagram CO3-Ana (16)
- Or
- (b) Illustrate the pathways of TCA cycle and investigate its metabolic process with neat diagram CO3-Ana (16)
13. (a) Define plasma protein and their components. Give a detail notes on amino acid-structure, properties and metabolism. CO1-U (16)
- Or
- (b) Give a brief note on Nucleic acid. Explain in detail about DNA and RNA as a genetic materials with Watson-crick model. CO1-U (16)
14. (a) Define enzymes and explain how enzymes are different from protein. How do you use enzymes for clinical purpose with an example? CO2- App (16)
- Or
- (b) Explain the physical and chemical properties of Lipids. How do you confirm fatty acid using saponification method and explain its application? CO2- App (16)
15. (a) Define enzyme-linked immunosorbent assay. Explain the mechanism of antigen-antibody interaction to tract the unknown viruses. CO1- U (16)
- Or
- (b) Define nitrogen fixation in the environment. Explain nitrogen cycle in the earth and atmosphere with neat diagram. CO1- U (16)