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**Attach the question paper with the answer booklet**

**Date: 22 -4-21**

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**B.Sc MICROBIOLOGY- II SEMESTER**

**SEMESTER EXAMINATION- APRIL 2021.**

**MB216- Biophysics, Biochemistry and Microbial Diversity.**

**Time: 2 ½ hrs Max Marks: 70**

This question paper has 1 printed pages and 4 parts.

**I. Answer any FIVE of the following questions:**  **3x5 =15**

1. Define pH. Give its importance.

2. Write the principle of thin layer chromatography.

3. Define: i) base stacking ii) Conjugated proteins iii) Zwitter ion.

4. Temperature is an important abiotic factor affecting the growth of microbes, justify.

5. Comment on the physical properties of Lipids.

6. What are buffers? Write a note on phosphate buffer.

7. Draw a neat and labeled diagram of tRNA.

**II. Answer any FIVE of the following questions:**   **5x5= 25**

8. Write a brief note on the classification of Viruses. Give appropriate examples.

9. The growth of a given fungus negatively influences the growth of a bacterium. Elaborate on

the interaction.

10. Elaborate on the principles and applications of thin layer and Column Chromatography.

11. Describe the structure, properties and solvent potential of water.

12. Differentiate between water soluble and fat soluble vitamins with examples. Add a note on

vitamin A deficiency.

13. Classify the types of enzymes with suitable examples.

14. Describe the experiments which resulted in the elucidation of DNA as the genetic material.

**III. Answer any TWO of the following questions: 10x2 =20**

15. Write a detailed note on the structural organization of proteins.

16. a. Radioactivity is normally the feature of heavier elements, justify. 4

b. Explain amino acid classification based on R- groups 6

17. a. Give the construction, working and applications of a centrifuge. 6

b. Oxygen can function as a boon and a bane in the growth of microbes, explain. 4

**IV. Answer the following: 10x1 = 10**

18. a. Genomic DNA was isolated from a given plant source. Describe the analytical techniques

you would adopt for the visualization of the same. 5

b. How would you analyse bio-molecules using the properties of light? 5