**A picture containing text, porcelain, ceramic ware

Description automatically generatedST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

Register no :

Date :28-02-2022

**M.Sc. BIOTECHNOLOGY- I SEM**

**SEMESTER EXAMINATION: OCTOBER 2021**

(Examination conducted in March 2022)

**BT 7121: Biochemistry and Analytical Techniques**

**Time: 2 1/2 hrs Max Marks: 70**

**Note: The question paper has three parts and one printed page**

**PART A**

1. **Answer any ten of the following 10x2=20 marks**
2. What are the functions of chaperone proteins?
3. State the role of histidine in myoglobin stability.
4. State two important functions of phospholipids.
5. What are anaplerotic reactions?
6. What is substrate level phosphorylation?
7. What are receptor tyrosine kinases?
8. What is a cationic exchanger?
9. What is RCF?
10. What is CD spectroscopy? Write one application.
11. What are the components of 2D gel electrophoresis?
12. What is quenching?
13. Abbreviate ICP-OES. Write one application.

**PART B**

1. **Answer any five of the following 5x6=30 marks**
2. Explain the Lineweaver Burk plot with representative diagram.
3. Write the energetics for oxidation of a 16-carbon fatty acid.
4. Explain the de novo pathway of nucleotide synthesis.
5. Describe the carnitine shuttle system in detail.
6. What is affinity chromatography? Explain with a diagram and write applications.
7. What is TEM? Write applications.
8. What is a GM counter? Explain with a diagram, how it is used to monitor the radioactivity in a laboratory.

**PART C**

1. **Answer the following 2x10=20 marks**
2. a. Explain in detail the mechanisms of oxygenation and deoxygenation of

hemoglobin.

**OR**

1. Explain the GroEL/GroES system in detail. What are the implications of accumulation of misfolded proteins within the cell?

1. a. What is flow cytometry? Write about its applications.

**OR**

b. Explain what is ESI-MS and MALDI-TOF. Draw schematics and applications.

**BT7121-A-21**