QP Code : P24A017

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER M.Sc. (CBCSS-PG) DEGREE EXAMINATION, November 2024

M.Sc Microbiology

MBG1C02 : Biophysics and Instrumentation

2024 Admission Onwards

Time:3 Hours **Maximum Weightage:30**

Part A

*Short answer type questions: Answer **any four** questions. Weightage **2** for each question*

1. Define zinc finger motif and comment on its importance and function. [BTL2]
2. Explain about Peptide bond. [BTL2]
3. Define the principle of UV -Visible spectroscopy [BTL1]
4. Compare and contrast between HPLC and FPLC. [BTL3]
5. Give aa account on PET and its main uses in disease diagnosis. [BTL3]
6. Analyse the safety aspects associated with Autoradiography. [BTL4]
7. Comment on any two fuel gases used in flame photometry and its mode of action. [BTL3]

(4x2 = 8 Weightage)

Part B

*Short essay-type questions: Answer **any four** questions. Weightage **3** for each question*

8. Describe various physiochemical forces seen in biomolecules. [BTL2]
9. Explain about DNA drug interactions. [BTL2]
10. Compare native electrophoresis and SDS-PAGE for protein analysis and their applications. [BTL3]
11. How various types of pH meters differ in their working priniciple?Comment on their use. [BTL3]
12. Explain in detail on protein mass finger printing using MALDI-TOF. Comment on the common features of result interpretation. [BTL5]
13. Examine why Raman spectroscopy is often more effective than IR focusing on the differences in how each technique interacts with the molecular dipole moment and polarizability. [BTL4]

Turn over

14. Briefly explain the priniciple and applications of Lyophilization. [BTL3]

(4x3 = 12 Weightage)

Part C

*Essay-type questions: Answer **any two** questions. Weightage **5** for each question*

15. Summarize the various DNA protein interactions. [BTL2]

16. Analyse and explain the principle and functioning of Confocal laser scanning microscopy with diagram. [BTL4]

17. Briefly explain about different types of centrifugation processes and their priniciple. [BTL3]

18. Determine the optimal operating conditions for an ultrafiltration process to maximize product recovery and purity. [BTL3]

(2x5 = 10 Weightage)

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