

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086**  
(For candidates admitted during the academic year 2015– 2016 & thereafter)

**SUBJECT CODE: 15BY/PE/BB14**

**M. Sc. DEGREE EXAMINATION, APRIL 2019**  
**SECOND SEMESTER**

**COURSE : ELECTIVE**

**PAPER : BIOPHYSICS AND BIOINSTRUMENTATION**

**TIME : 3 HOURS**

**MAX. MARKS: 100**

**SECTION – A**

**ANSWER ALL THE QUESTIONS**

**(20 x 1 = 20)**

1. Bioenergetics
2. Free – Energy
3. Entropy
4. Enthalpy
5. Beer- Lambert's law
6. ESR
7. Ramachandran plot
8. Nernst equation
9. Membrane potential
10. Glycoproteins
11. RCF
12. HPLC
13. Supercritical Chromatography
14. Radiation units
15. Radio-isotope
16. Autoradiography
17. IEF
18. PFGE
19. TEM
20. Cryo Microscopy

**SECTION – B**

**ANSWER ANY FOUR QUESTIONS IN ABOUT 600 WORDS**

**(4 x 10 = 40)**

21. Explain the principle, working and applications of MALDI-TOF.
22. Write a short note on the structure and dynamics of biological membranes.
23. Describe briefly the principle of centrifugation and its different types.
24. Discuss in briefly about the safety aspects in handling radioactive isotopes.
25. Write a short note on the applications of radioactive isotopes in biological studies.
26. Define electrophoresis and explain briefly about Mobility shift electrophoresis.
27. Discuss in short about the principle, construction and applications of confocal microscopy.

**SECTION – C**

**ANSWER ANY TWO QUESTIONS IN ABOUT 1500 WORDS**

**(2 x 20 = 40)**

28. Write a detailed note on the Methods of Structural Elucidation of Biological Macromolecules.
29. Explain in detail the various chromatographic techniques involved in protein purification.
30. Discuss in detail the methods involved in the Measurement of Radioactivity in Biological Samples.
31. Write an essay on the principle, working and applications of TEM and SEM.

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