

MAR IVANIOS COLLEGE (AUTONOMOUS) THIRUVANANTHAPURAM

Reg. No. :....

Name :....

Second Semester Career Related B.Sc. Degree Examination, June 2016

First Degree Programme under CBCSS

Foundation Course – II: (for Botany and Biotechnology)

AUBB221: Biophysics and Instrumentation

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer ALL questions in a word or one or two sentences.

- 1. Enthalpy and entropy.
- 2. MALDI TOF.
- 3. Redox potential.
- 4. Molar extinction coefficient.
- 5. Partition Principle in chromatography.
- 6. Absorption spectra.
- 7. Beer Lamberts law.
- 8. Condenser in microscopes.
- 9. Principle of Electrophoresis.
- 10. Radio isotopes.

 $(10 \times 1 = 10 \text{ Marks})$

SECTION – B

Answer any **EIGHT** questions, not exceeding a paragraph.

- 11. Thermodynamic equilibrium.
- 12. Phase contrast microscopy.
- 13. Two dimensional electrophoresis.
- 14. Ultra centrifugation.

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- 15. Mechanism of Vision.
- 16. Chemi osmotic hypothesis.
- 17. Adsorption Chromatography.
- 18. Fluorimetry.
- 19. Mass spectrometry.
- 20. Phosphorescence and its importance.
- 21. Light harvesting pigments in chloroplast.
- 22. Endothermic and exothermic reactions in biological system.

(8 × 2 = 16 Marks)

SECTION – C

Short essay type : Answer any SIX questions.

- 23. Give an outline of mechanism involved in hearing.
- 24. Phase contrast microscopy.
- 25. Differential gradient Centrifugation.
- 26. UV VIS Spectrophotometry.
- 27. Autoradiography.
- 28. Radio isotope tracer techniques.
- 29. Give an outline of energy change in biochemical reactions.
- 30. Photophosphorylation.
- 31. X Ray crystallography.

 $(6 \times 4 = 24 \text{ Marks})$

SECTION – D

Long essay type : Answer any **TWO** questions.

- 32. Give the mechanisms involved in NMR Spectrometry.
- 33. Explain the Principle and process of HPLC in detail.
- 34. Explain SDS PAGE.
- 35. Instrumentation and working Principle of Electron Microscope.

 $(2 \times 15 = 30 \text{ Marks})$