MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No. :…… **Name :……**

Second Semester Career Related Degree Examination, June 2015

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. Give an example of iodine radioisotope used as therapeutic agent.
2. Define isoelectric point.
3. Explain Beer – Lambert law.
4. Which is the primary electron donor in Photosystem I ?
5. Explain van der Waals force.
6. What is the function of condenser lens in a microscope ?
7. What is the function of Iris in human eye ?
8. What is photophosphorylation ?
9. What is an endothermic reaction ?
10. Define pH.

(10 x 1 = 10 Marks)

SECTION – B

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

11. What is Gibbs free energy ?
12. Explain autoradiography.
13. What is phosphorescence ?
14. Draw the absorption spectra of chlorophyll.

15. What is meant by resolving power of microscope ?
16. Explain density gradient centrifugation.
17. Explain chemi – osmotic hypothesis.
18. What are the applications of SDS electrophoresis ?
19. What is astigmatism ?
20. Explain the first law of thermodynamics.
21. What is the biological importance of hydrophobic interactions ?
22. Explain ionizing radiations.

(8 x 2 = 16 Marks)

SECTION – C

*Short essay type : Answer any **SIX** questions.*

23. Explain isoelectric focusing.
24. Explain X – ray crystallography.
25. What are the applications of radioisotopes in biological research ?
26. Explain rocket immunoelectrophoresis.
27. What is the use of phase contrast and fluorescence microscope in biological research ?
28. Write notes on the light harvesting pigments in photosynthesis.
29. Explain atomic absorption spectroscopy.
30. How does a hearing aid work ?
31. How ATP synthesis occur in mitochondria ?

(6 x 4 = 24 Marks)

SECTION – D

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

32. Explain the principle, working and applications of TEM.
33. Write notes on NMR spectroscopy and its application in biological science.
34. Explain ultracentrifugation.
35. Explain Acrylamide gel electrophoresis.

(2 x 15 = 30 Marks)

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