



MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No. :.....

Name :.....

Fourth Semester B.Sc. Degree Examination, June 2016

First Degree Programme under CBCSS

Complementary Course: Chemistry – IV (for Zoology)

AUCH431.2e: Organic and Biophysical Chemistry II

Time: 3 Hours

Max. Marks: 80

SECTION – A

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

1. Which is an optically inactive amino acid ?
2. Draw the structure of tryptophan.
3. What is iodine value ?
4. What are isotonic solutions ?
5. What are phospholipids ?
6. The monomer of synthetic rubber is _____.
7. What is retention factor ?
8. Are elastomers and fibers same ? Explain.
9. What is electrophoresis ?
10. Mention one use of paper chromatography.

(10 × 1 = 10 Marks)

SECTION – B

Answer any EIGHT questions, not exceeding a paragraph.

11. Explain peptide linkage with an example.
12. How are proteins tested ?
13. Explain the differences between DNA and RNA.
14. Explain the hydrolysis of nucleoproteins.
15. What is isoprene rule ?
16. What are the factors influencing adsorption ?

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17. Mention any four applications of colloids.
18. What are protective colloids ?
19. Explain reverse osmosis.
20. What is gold number ? What is it used for ?
21. Explain in brief the biological role of DNA.
22. Mention the factors that affect R_f value.

(8 × 2 = 16 Marks)

SECTION – C

Short essay type / Problems : Answer any SIX questions.

23. How are glycine and alanine synthesized ?
24. Explain in detail Michaleis – Menton Theory of enzyme catalysis.
25. What is saponification value ? How is it determined ?
26. How are lipids classified ?
27. Explain the differences between condensation and addition polymerisation with suitable examples.
28. What are the factors affecting the column efficiency in column chromatography ?
29. Write a note on the emulsifying and cleansing action of soap.
30. Explain Langmuir theory of adsorption.
31. Write a note on Tyndal effect and Brownian motion.

(6 × 4 = 24 Marks)

SECTION – D

Long essay type : Answer any TWO questions.

32. i). Write a note on structure of proteins. **8 Marks**
ii). Give an account of the structure of DNA and RNA. **7 Marks**
33. i). Give a detailed account of TLC. **12 Marks**
ii). What is osmotic pressure ? How is it used to determine molecular mass of an unknown sample ? **3 Marks**
34. Discuss hydrolysis, hydrogenation, hydrogenolysis, drying and rancidification of oils and fats.
35. i). What are Rubbers ? How are they classified ? **2 Marks**
ii) Explain the synthesis of any two synthetic rubbers. **5 Marks**
iii).What is Hardy Schultz rule ? **3 Marks**
iv).Explain the types and applications of adsorption. **5 Marks**

(2 × 15 = 30 Marks)

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