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21BSC3C3CHL

B.Sc. III Semester Degree Examination, April/May - 2024

CHEMISTRY

03 : Analytical and Organic Chemistry

(NEP)

Time : 2 Hours Maximum Marks : 60

Note : *Answer* ***all*** *questions.*

SECTION - A

1. Answer the following sub-questions. Each sub-question carries **one** mark. **10x1=10**

(a) Define wavelength and write its SI unit.
(b) What is mobile phase ?
(c) What is Distribution ratio ?
(d) Write any two applications of TLC.
(e) Define extraction efficiency.
(f) Define R_f - value.
(g) What are Carbenes ?
(h) What is Centre of Symmetry ?
(i) What is E α Z configuration ?
(j) Define Stereochemistry.

SECTION - B

Answer **any four** of the following questions. Each question carries **five** marks. **4x5=20**

2. What is single beam Spectrometer ? Explain its working.

3. Explain the instrumentation of turbidimetry.

4. How TLC plates are prepared ?

5. Explain mechanism of Sandmeyer's reaction.

6. How Kinetics studies are useful in predicting the mechanism of reaction ?

7. Explain Geometrical isomerism with an example.

P.T.O.

SECTION - C

Answer **any three** of the following questions. Each question carries **ten** marks. **3x10=30**

8. (a) State Lambert's Law and Derive expression for Beer's-Lambertz Law. **6**

(b) Write the difference between Nephelometry and Turbidimetry. **4**

9. (a) State and derive Nernst Distribution Law. **6**

(b) Explain application of ion exchange chromatography in softening of hard water. **4**

10. (a) Define chromatography. What are factors affecting on Coloumn efficiency ? **6**

(b) Explain pinacol-pinacolone rearrangement with an example. **4**

11. (a) How are free radicals stabilised by : **6**

(i) Inductive effect

(ii) Resonance effect

(b) Discuss the effect of catalyst on reaction mechanism. **4**

12. (a) Explain inter-conversion of : **6**

(i) Fischer projection to Newman projection

(ii) Sawhorse to Fischer projection

(b) Explain syn and anti isomerism with example. **4**

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