



(a)

SN – 241

III Semester B.Sc. Examination, November/December 2014
(New Scheme)
(2012-13 & Onwards)
CHEMISTRY – III

Time : 3 Hours

Max. Marks : 70

Instruction : The question paper has **two** Parts. Answer **both** the Parts.

PART – A

Answer **any eight** of the following questions. **Each** question carries **two** marks. (8×2 = 16)

1. Define the term “Energy of activation of a reaction”.
2. Explain Schottky defect.
3. Mention the co-ordination number of Na^+ in sodium chloride and co-ordination number of Zn^{2+} in ZnS .
4. Define the term “Root Mean Square Velocity” of a gas molecule.
5. Define the term “weight average molecular weight” of a polymer.
6. What is Lanthanide Contraction ?
7. Write a note on electrolytic refining of Nickel.
8. What is esterification ? Give an example.
9. Alcohols are less acidic than phenols. Explain.
10. How is Methyl Lithium converted to Methanol ?
11. What are Epoxides ? Give an example.
12. Half life period of a I order reaction is 69.3 mins. Calculate the velocity constant of the reaction.

PART – B

Answer **any nine** of the following questions. **Each** question carries **six** marks.

(9×6=54)

3. a) Derive an expression for the velocity constant of a II order reaction where the initial concentrations of the reactants are same ($a = b$).
b) Define the term “temperature coefficient” of a reaction.

(4+2)

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14. a) Discuss Ostwald's isolation method for the determination of order of a reaction.
b) The half life period of a II order reaction is 40 mins when the initial concentration of the reactant is 0.02 mol dm^{-3} . Calculate the velocity constant of the reaction. (4+2)
15. a) Describe the determination of structure of NaCl by rotating crystal method.
b) Calculate the number of particles per unit cell in a bcc unit cell. (4+2)
16. a) How are liquid crystals classified? Give any two applications of liquid crystals.
b) Sketch the rectangular plane of symmetry in a cubical crystal. (4+1)
17. a) Derive an expression for the most probable velocity from Maxwell's distribution of velocities in a gas.
b) State the Law of corresponding States. (4+2)
18. a) Describe with an example each
i) Addition polymerisation. ii) Condensation polymerisation.
b) Give the uses of Neoprene. (4+2)
19. a) Describe Linde's process of liquefaction of air.
b) What is meant by a Space Lattice? (4+2)
20. a) Discuss the properties of d-block elements with respect to
i) Complex formation. ii) Catalytic activity.
b) How is polyvinyl chloride manufactured? (4+1)
21. a) What are Lanthanides? Explain the consequences of lanthanide contraction.
b) Write the general outer electronic configuration of 4d series of transition elements. (4+2)
22. a) How is uranium extracted from pitch blende?
b) What is an Ellingham diagram? (4+1)
23. a) How are primary alcohols prepared from
i) Alkenes and ii) Aldehydes.
b) How is phenol converted to salol? (4+2)
24. a) How are thiols obtained from alkyl halides? Give the reaction of thiols with sodium metal.
b) How is Glycerol converted to Acrolein? (4+2)
25. a) Explain the mechanism of Reimer-Teimann reaction.
b) How is diethylether converted to ethyl alcohol? (4+2)