

GENERAL CHEMISTRY - III**Time : 3 Hours****Max. Marks : 75****SECTION – A (10 x 2 = 20)****Answer ALL the questions.**

1. Mention the use of Nessler's reagent.
2. Name the elements present in the Boron family.
3. Write the preparation of acetophenone by Friedel - Crafts method.
4. Give any two examples of aromatic hydrocarbons.
5. Write a note on Lederer - Mannasse reaction.
6. How p - hydroxyazobenzene dye is prepared?
7. Define standard entropy.
8. What do you mean by isothermal process?
9. Define chemical potential.
10. Write Gibbs - Duhem equation.

SECTION – B (5 x 5 = 25)**Answer any FIVE of the following questions.**

11. Write notes on Borazole.
12. What is meant by common ion effect? Mention its applications in qualitative analysis.
13. Describe the general mechanism of nitration.
14. What are benzenoid and non - benzenoid compounds? Give examples.
15. Give a brief account on
 - i) Reimer - Tiemann reaction
 - ii) Schotten - Baumann reaction.
16. Discuss the mechanism of S_N1 reaction.
17. Explain the entropy changes in reversible and irreversible process.
18. Derive Gibbs - Helmholtz equation.

SECTION – C (3 x 10 = 30)**Answer ALL the questions.**

19. (a) Write notes on the following spot test reagents.
 - i) Aluminon
 - ii) Cupferon
 - iii) DMG
 - iv) Magneson.

(Or)

- (b) Explain the diagonal relationship between Boron and Silicon and write the anomalous behaviour of boron.

20. (a) Explain the preparation, properties and structure of Naphthalene.

(Or)

(b) Explain S_N1 and E1 reactions with mechanisms.

21. (a) i) What are the limitations of I law of thermodynamics? State the various statements of II law of thermodynamics.

ii) State Carnot's theorem.

(2+5+3)

(Or)

(b) i) Derive Clausius Clapeyron equation.

(7+3)

ii) State Nernst heat theorem.

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