

D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1**SEMESTER EXAMINATIONS****NOVEMBER – 2017****15CCH3A****GENERAL CHEMISTRY - III****Time : 3 Hrs****Max. Marks : 75****SECTION-A (10 x 2 = 20)****Answer ALL questions.**

1. What are p – block elements? Give few examples.
2. What is Nessler's reagent? Give its uses.
3. Define the term "aromaticity".
4. What is Friedel – Craft's alkylation reaction?
5. State saytzeff's rule.
6. Give an example for nitration reaction.
7. State Carnot's theorem.
8. Define entropy.
9. Write the Clausius statement of II law of thermodynamics.
10. How is entropy of a system related to its temperature?

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

11. Discuss the principle involved in the inorganic qualitative analysis.
12. What is meant by diagonal relationship? Explain the diagonal relationship between B and Si.
13. State Huckel's rule and discuss its applications.
14. What are E1 and E2 reactions? Explain the mechanism.
15. Describe unimolecular aromatic nucleophilic substitution reaction.
16. Write notes on need for II law of thermodynamics.
17. Discuss the effect of temperature on chemical potential.
18. Derive Gibbs – Helmholtz equation.

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

19. (a) Explain the uses of the following precipitants.
(a) Aluminon (b) Cupferon (c) DMG and (d) Magneson.
(Or)
(b) Explain the preparation, properties and structure Naphthalene.
20. (a) (i) Explain the mechanism of chlorination of benzene. (ii) Explain Delocalized cloud in benzene. (5+5)
(Or)
(b) Explain the mechanism of Kolbe's reaction, Reimer – Tiemann reaction and Gattermann reaction.
21. (a) (i) Derive Gibbs – Duhem equation (ii) State Nernst heat theorem. (5+5)
(Or)
(b) (i) Discuss the evaluation of absolute entropy from heat capacity measurements. (5+5)
(ii) Write the exception to III law of thermodynamics.