

D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1**SEMESTER EXAMINATIONS****NOVEMBER - 2017****15CCH1A****GENERAL CHEMISTRY - I****Time : 3 Hours****Max. Marks : 75****SECTION – A (10 x 2 = 20)****Answer ALL the questions.**

1. Explain Hund's rule of maximum multiplicity.
2. State Aufbau's principle.
3. Mention any two metal ion indicators.
4. What are primary and secondary standard solutions?
5. Define an isolated system.
6. State and explain first law of thermodynamics.
7. State Planck's quantum theory of radiation.
8. What is meant by bond dissociation energy?
9. Indicate the hybridization of carbon atoms in ethylene and give its shape.
10. What is meant by steric effect?

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

11. Derive the de Broglie's equation. Explain the terms involved.
12. Explain the principles of acid - base titrations.
13. Define molarity, molality and mole fraction of a solution.
14. Give the shapes of orbitals.
15. Explain photoelectric effect.
16. Why trichloroacetic acid is more acidic than acetic acid?
17. Write brief notes on a) Isothermal process b) Adiabatic processes.
18. Explain Kirchoff's equation and its significance.

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

19. (a) Define ionisation energy. What are the factors that affect ionisation energy?

(Or)

- (b) i) Explain sp^3 hybridisation with suitable example.
ii) Explain hyperconjugation with an example.

20. (a) i) State and explain Heisenberg's uncertainty principle.

(5+5)

- ii) Write notes on Compton effect.

(Or)

- (b) i) Explain the Mesomeric effect with Phenol as example.
ii) Write state and path functions.

(5+5)

21. (a) Distinguish between the following giving examples

i) Extensive and intensive properties.

ii) Reversible and irreversible processes.

(Or)

(b) i) State exact and inexact differentials.

(4+6)

ii) Derive an expression for the relationship between C_p and C_v .

* * * * *