C. ABDUL HAKEEM COLLEGE (AUTONOMOUS),
MELVISHARAM - 632 509.
SEMESTER EXAMINATIONS, NOVEMBER - 2018

B.Sc., CHEMISTRY **SEMESTER I**

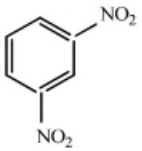
U18MCH101 – GENERAL CHEMISTRY - I

Time: Three Hours Maximum: 75 Marks

SECTION - A (10 X 2 = 20 Marks)

Answer **ALL** Questions.

1. State Hund's rule of maximum multiplicity.
2. Define electron affinity.
3. What is the geometry of BF_3 and PCl_5 molecule according to VSEPR theory?
4. Schematically explain s-p overlap of atomic orbitals.
5. Give the IUPAC name of the following compound.



6. Define hyperconjugation.
7. The root mean square velocity of CO_2 molecule at 1000^0 C is 849.85 m sec^{-1}. Calculate its average velocity.
8. Define Surface tension.
9. Define molarity.
10. Define equivalent weight of base. What is the equivalent weight of KOH? (Molecular weight of KOH = 56).

SECTION - B (5 X 5 = 25 Marks)

Answer **ALL** Questions.

11. a) Explain the general characteristics of p-block elements.

(Or)

b) Discuss the following i) Aufbau principle ii) Ionization principle.

12. a) State and explain Fajan's rule.

(Or)

b) Explain the geometry of NH_3 and H_2O molecule on the basis of VSEPR theory.

13. a) Enumerate the following electron displacement effect resonance.

(Or)

b) Discuss the structure and stability of carboanion.

14. a) Derive gas laws from kinetic gas equation.

(Or)

b) Account for Maxwell's distribution of molecular velocities.

15. a) Explain the theory of redox titration.

(Or)

b) Define primary and secondary standards with two examples each.

SECTION - C (3 X10 = 30 Marks)

Answer **ANY THREE** Questions.

16. Discuss the atomic structure of atoms on the basis of four quantum numbers.

17. i) Draw the molecular orbital diagram of CO molecule and calculate its bond order.

    ii) Compare VB and MO theory.

18. Explain the methods for determining reaction mechanism.

19. Define viscosity. What is the effect of temperature and pressure on it?

20. Write detailed notes on theories of indicators.

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