

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

1. Based on VSEPR theory, draw the structure of water.
2. Explain why He is a non existing molecule.
3. Why are the elements of group I called alkali metals?
4. Name any two ores of Lithium.
5. Give the mathematical expression of kinetic gas equation.
6. Name two gases which get warmed up at ordinary temperature in Joule Thomson expansion.
7. What happens when Br<sub>2</sub> is treated with propene?
8. State Markownikoff's rule.
9. Write a note on Wurtz reaction.
10. What is Grignard reagent? What is its importance?

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

11. State and explain Fajan's rule.
12. What is meant by diagonal relationship? In what respect does Li resemble Mg?
13. Explain Joule - Thomson effect and Inversion temperature.
14. Write a note on free radical halogenation of alkanes.
15. Write the equation for the following reactions
  - i. Glycerol on reaction with periodic acid.
  - ii. Reduction of benzene.
16. Predict the product with mechanism



17. Give a brief account of oxides of alkaline earth metals.
18. Derive Charle's law from kinetic gas equation.

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

19. (a) i) Define lattice energy      ii) Explain Born - Haber cycle with example.

(Or)

- (b) Construct the molecular orbital diagram for O<sub>2</sub> and predict the bond order for O<sub>2</sub>, O<sub>2</sub><sup>+</sup> and O<sub>2</sub><sup>-</sup>.

20. (a) How does beryllium occur in nature? How is it extracted from its ore?

(Or)

(b) Distinguish between average velocity, most probable velocity and root mean square velocity. Give the mathematical expression for these.

21. (a) Give mechanism for the following reactions

i. Hydroboration of alkenes    ii. Ozonolysis of alkenes.

(Or)

(b) Give the preparation and properties of allyl alcohol.

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