Subject: Chemistry

Class: XI

Time: 3 hours M.M:70

(Long Answer Type Questions) 5 Marks each

Q1. Define hybridization. Explain Sp³ hybridization in detail with example.

OR

State and explain law of multiple proportion with at least two examples.

Q2. Explain the mechanism of electrophilic substitution reaction in benzene.

OR

Explain: 1) Freidal craft alkylation

2) Sulphonation

3) Nitration

- Q3. (a) Boron shows abnormal properties in its group. Give reasons.
 - (a) Complete the reaction CaCo3
 - (b) Give the uses of sodium bicarbonate

OR

Explain preparation of sodium carbonate by ammonia solvay process.

Q4. Explain VSEPR Theory. Give structures of NH₃, H₂O and CH₄ on basis of this theory.

OR

Define conformation and explain conformation of ethane in detail.

(Short Answer Type Questions) 3 Marks each

- Q5. Define the following terms:
 - 1. Hess Law
- 2. Standard Enthalpy of formation
- 3. Entropy
- Q6. Calculate the PH of a solution having $[H_3O]^{\dagger}$ of 10^{-3} .
- Q7. Write three properties of lithium which differ from rest members of group 1.
- Q8. State and explain Heisenberg's Uncertainty Principle.
- Q9. State and explain common ion effect with examples.
- Q10. Define silicates. Explain its types.
- Q11. Draw the molecular orbital diagram N₂ calculate bond order.
- Q12. Convert 1-bromopropane to propene.

(Very Short Answer Type Questions) 2 Marks each

- Q13. Why is the electron gain enthalpy of chlorine more negative than fluorine?
- Q14. Why first ionization enthalpy of nitrogen is more than oxygen?
- Q15. Silicon shown higher covalency than carbon why?
- Q16. Draw the structure of Diborane.
- Q17. Calculate Oxidation no. of Mn in KMNO4.
- Q18. State and explain inductive effect.
- Q19. Explain the isotopes of Hydrogen with diagram.
- Q20. What are the effects of depletion of Ozone layer.

Variation discussed)

(Objective Type Questions/MCQs) 1 Mark each

- Q21. Write electronic configuration of copper.
- Q22. An orbital can have maximum of ______ electrons.
- Q23. Define electronegativity.
- Q24. The system which can exchange energy with surrounding but not matter is called_
- Q25. What are the units of co-efficient of Viscosity.
- Q26. Calculate oxidation number of Mn in KMNO₄.
- Q27. What type of hybridization occurs in carbon atom of Diamond and fullerene?
- Q28. Give one example of intensive property.
- Q29.Diamond is more stable than graphite at room temperature and pressure. (True/False)
- Q30.Which of the following has largest dipole moment.

(a) NH₃

(c)H₂O

(b) Ht

(d) SO₃

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