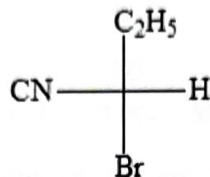
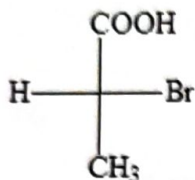


4. Compare the ionization energy of nitrogen (N) and oxygen (O). (3)

5. Predict the products (A and B) with mechanism for the following reaction steps: (3)



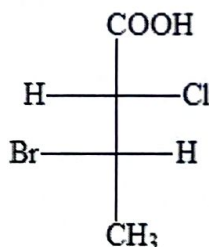
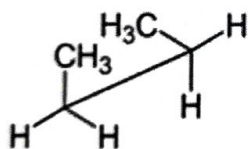
6. (3)



Assign R or S nomenclature to the above compounds.

OR

Diagrammatically represent the following into Newmann projection formulae. (3)



Group-C

(Long Answer Type Questions)

5 x 6=30

7. i) Examine the shift in absorption maxima of the UV-VIS spectra, when phenol is treated with an alkaline solution. (5)
ii) Between 2-butanone and but-3-en-2-one, identify the compound with higher carbonyl stretching frequency in IR radiation. Give an explanation for your answer.
8. Explain why $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ is paramagnetic complex but $[\text{Fe}(\text{CN})_6]^{4-}$ is diamagnetic from the view point of CFT. (5)
9. Prove that $(\delta\text{H}/\delta\text{P})_{\text{T}} = -\text{C}_{\text{p}} \cdot \mu_{\text{JT}}$. Where the terms have their usual meaning. (5)

10. Illustrate the two enantiomers of 2- phenyl 2-bromopropanoic acid through Fisher projection formulae and convert them in Flying wedge projection formula. (5)

11. Comment on the possibility of existence of Be₂ molecule from M.O. theory. (5)

12. 1 mole of an ideal gas, at a temperature 100 K absorbs heat 3710 J. Evaluate the entropy change (5) in the expansion process.

OR

Justify the following statement by deriving a chemical equation----- (5)

"The electrode potential of a Saturated Calomel Electrode (SCE) is reversible only with respect to the concentration of chloride ion in the electrolytic solution".
