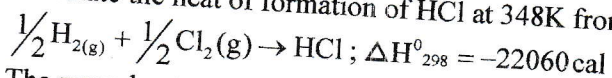


- VII. Calculate the heat of formation of HCl at 348K from the following data. (7½)



The mean heat capacities over this temperature range are

$$\text{H}_{2(g)}; C_p = 6.82 \text{ cal/mole/degree}$$

$$\text{Cl}_{2(g)}; C_p = 7.71 \text{ cal/mol/degree}$$

$$\text{HCl}_{(g)}; C_p = 6.81 \text{ cal/mol/degree}$$

- VIII. Write down the preparation, properties and applications of any three industrial polymers. (7½)

OR

- IX. (a) What are lubricants? List any four properties of lubricants. (4)
(b) Discuss thick-film lubrication mechanism. (3½)
