



# Solution of Full Syllabus Examination

## SET- 3

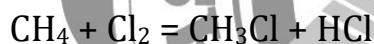
In this SET, most of the questions are from previous years CU papers.

2. (b)

$$\text{Given } \sigma = 1.28 \text{ \AA}$$

$$\text{Ans: mean free path } \lambda = 8.48 \times 10^{-5} \text{ cm}$$

7. (b)



$$\begin{aligned} \Delta H &= \sum H_{\text{pdt}} - \sum H_{\text{reactant}} \\ &= \{(3 \times \text{C-H} + \text{C-Cl}) + (\text{H-Cl})\} - \{(4 \times \text{C-H}) + (\text{Cl-Cl})\} \\ &= \{(3 \times 415.8) + 327.6\} - \{(4 \times 415.8) + 243.6\} \\ &= 1575 - 1906.8 \\ &= -331.8 \text{ KJ} \end{aligned}$$

10. (b)

$$\begin{aligned} \Delta G &= nRT \ln \left( \frac{P_2}{P_1} \right) \\ &= (1 \text{ mol})(8.314 \text{ J/K/mol})(330\text{K}) \ln \left( \frac{50}{5} \right) \end{aligned}$$



$$= 6317.41 \text{ J}$$

13. (b)

$$\epsilon = \frac{T_c}{T_h - T_c} = \frac{278}{298 - 278} = 13.9$$

For 1gm  $\rightarrow$  80 cal

$$\frac{Q}{W} = 13.9$$

1 kg  $\rightarrow$  80,000 cal

$$W = \frac{Q}{13.9} = \frac{80,000 \text{ cal}}{13.9} = 5755.39 \text{ cal}$$

