question 8. On monochlorination of 2-methylbutane, the total number of chiral compounds obtained is.

A. 2

B. 4

C. 6

D. 8

Solution: (A)

During the monochlorination of 2 methyl butane, four compounds are possible however only two of them will be chiral in nature. Here, I and III are chiral.

$$\begin{array}{c} \text{CH}_{3} - \text{CH}_{2} - \overset{\star}{\text{CH}} - \text{CH}_{3} \xrightarrow{\text{Cl}_{2}} \\ \text{CH}_{3} & \text{Cl}_{2} \\ \text{CH}_{3} \text{CH}_{2} - \overset{\star}{\text{CH}} - \text{CH}_{2} \text{Cl} + \text{CH}_{3} \text{CH}_{2} - \overset{\star}{\text{C}} - \text{CH}_{3} \\ \text{CH}_{3} & \text{CH}_{3} \\ \text{(II)} & \text{(III)} \\ \end{array}$$