Date Planned : __ / __ / __	Daily Tutorial Sheet-12	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration :_____

141. A G.M. counter is used to study the radioactive process of first order. In the absence of radioactive substance A, it counts 3 disintegration per second (dps). When A is placed in the G.M. counter, it records 23 dps at the start and 13 dps after 10 min. It records x dps after next 10 min and A has half-life period y min. x and y are :

(A) 8 dps, 10 min **(B)** 5 dps, 10 min
(C) 5 dps, 20 min **(D)** 5 dps, 5 min

142. If $\left(\frac{dx}{dt}\right) = k[H^+]^n$ and rate becomes 100 times when pH changes from 2 to 1. Hence, order is :

(A) 1 **(B)** 2
(C) 3 **(D)** 0

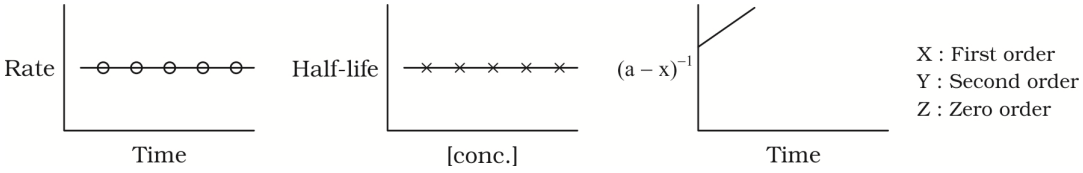
143. In the following simultaneous reaction :

Methyl cyclopropane $\xleftarrow{3.8 \times 10^{-4}\ s^{-1}}$ bicyclohexane $\xrightarrow{1.20 \times 10^{-4}\ s^{-1}}$ cyclohexane,

% of cyclohexane formed is :

(A) 12 % **(B)** 38 %
(C) 50 % **(D)** 24 %

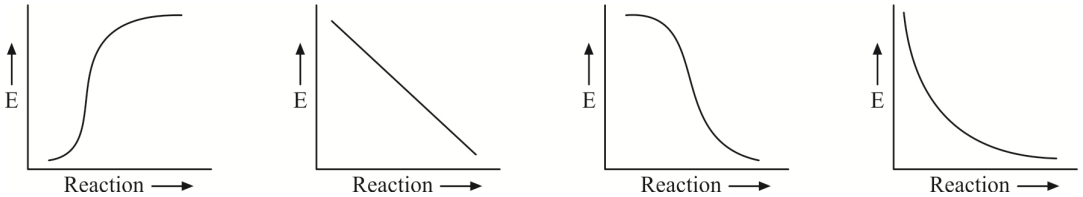
144. Match the graphical study with their order of the reactions :



[I] [II] [III]

	I	II	III		I	II	III
(A)	X	Y	Z	**(B)**	Y	Z	X
(C)	Z	Y	X	**(D)**	Z	X	Y

145. Which graph shows zero activation energy ?



(A) **(B)** **(C)** **(D)**

146. The activation energy of a reaction at a given temperature is found to be 2.303 $RT\,J\,mol^{-1}$. The ratio of rate constant to the Arrhenius factor is :

(A) 0.01 **(B)** 0.1
(C) 0.02 **(D)** 0.001