86. The plot between concentration versus time for a zero order reaction is represented by :

(A)   **(B)**   **(C)**   **(D)**
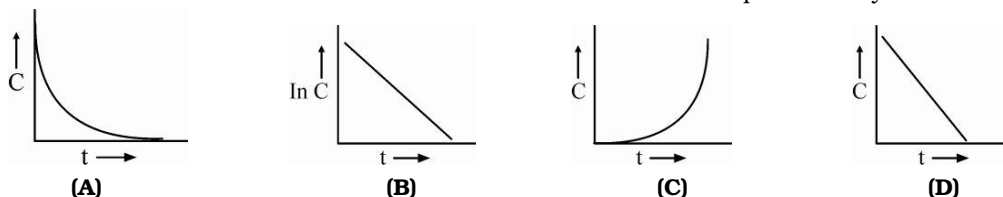
**87.** Under the same reaction conditions, initial concentration of 1.386 mol dm^{-3} of a substance becomes half in 40 s and 20 s through first order and zero order kinetics respectively. Ratio $\left(\dfrac{k_1}{k_o}\right)$ of the rate constants for first order (k_1) and zero order (k_o) of the reaction will be:

(A) $0.5\ mol^{-1}dm^{-3}$ **(B)** $1.0\,mol\ dm^{-3}$

(C) $1.5\,mol\ dm^{-3}$ **(D)** $2.0\,mol^{-1}dm^{3}$

88. For a reaction, $A + 2B \longrightarrow C$, rate is given by $+\dfrac{d[C]}{dt} = k[A][B]$. Hence, the order of the reaction is :
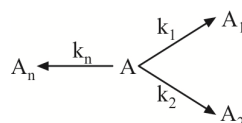
(A)   3   **(B)**   2   **(C)**   1   **(D)**   0

89. Which represents first order reaction out of I, II and III?
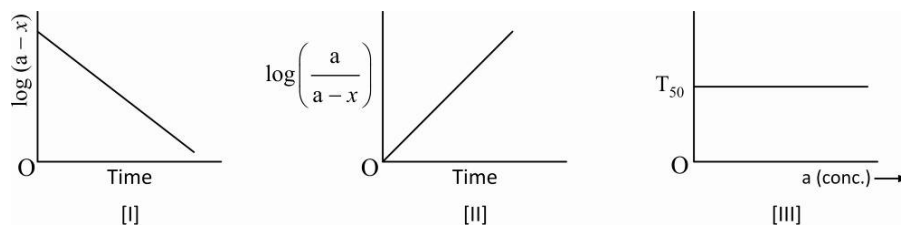
(A)   I, II and III   **(B)**   I and II   **(C)**   II and III   **(D)**   I and III

90. For a 1st order decomposition,

overall k will be given by :

(A) $k = k_1 + k_2 + ... + k_n$ **(B)** $k = (k_1 + k_2 + ... + k_n)\,/\,n$

(C) $k = k_1 \times k_2 \times ... \times k_n$ **(D)**   none of these

91. For a first order reaction with rate constant 'k' and initial concentration 'a', the half-life period is given by:

(A) $\dfrac{\ln 2}{k}$ **(B)** $\dfrac{1}{ka}$ **(C)** $\dfrac{3}{2k \cdot a^2}$ **(D)**   None of these

92. The rate constant of a first order reaction is $6.9 \times 10^{-3}s^{-1}$. How much time will it take to reduce the initial concentration to its $1/8^{th}$ value?

(A)   100 s   **(B)**   200 s   **(C)**   300 s   **(D)**   400 s

93. For the following elementary homogeneous reaction, the unit of rate constant is : $A + B \xrightarrow{k} C$ ▶

    (A) $\text{mol}^{-1}\text{Ls}^{-1}$ **(B)** s^{-1} **(C)** s **(D)** $\text{mol L}^{-1}\text{s}^{-1}$

94. What is the two third life of a first order reaction having $k = 5.48 \times 10^{-14}\,\text{s}^{-1}$?

    (A) $2.01 \times 10^{11}\text{s}$ **(B)** $\sim 2.01 \times 10^{13}\text{s}$ **(C)** $8.08 \times 10^{13}\text{s}$ **(D)** $16.04 \times 10^{11}\text{s}$

95. A first order reaction is 75% complete after 32 min. When was 50% of the reaction completed?

    (A) 16 min   **(B)** 8 min   **(C)** 4 min   **(D)** 32 min