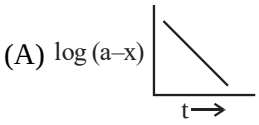
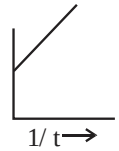
LAKSHYA (JEE)

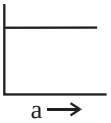
Chemical Kinetics

DPP-06

1. Which of the following curves represents a 1st order reaction:

(A) 

(B) 

(C) 

(D) 1 & 3 both

2. For a first order reaction, the time required for 99.9% of the reaction to take place is nearly:
   (A) 10 times that required for half of the reaction
   (B) 100 times that required for two-third of the reaction
   (C) 10 times that required for one-fourth of the reaction
   (D) 20 times that required for half of the reaction

3. The radioisotope, tritium ($_1{}^3H$) has a half-life of 12.3 years. If the initial amount of tritium is 32 mg, how many milligrams of it would remain after 49.2 years
   (A) 1 mg (B) 2 mg
   (C) 4 mg (D) 8 mg

4. Half-life period for a first order reaction is 20 minutes. How much time is required to change the concentration of the reactants from 0.08 M to 0.01M
   (A) 20 minutes (B) 60 minutes
   (C) 40 minutes (D) 50 minutes

5. In a first order reaction, the concentration of reactant, decreases from 0.8 M to 0.4 M is 15 minutes. The time taken for the concentration to change from 0.1 M to 0.025 M is
   (A) 7.5 min (B) 15 min
   (C) 30 min (D) 60 min

6. The half-life of a radio isotope is four hours. If the initial mass of the isotope was 200 g the mass remaining after 24 hours undecayed is:
   (A) 3.125 g (B) 2.084 g
   (C) 1.042 g (D) 4.167 g

7. For a first order reaction, (A) → products, the concentration of A changes from 0.1 M to 0.025M in 40 minutes. The rate of reaction when the concentration of A is 0.01 M is:
   (A) $1/3 \times 10^{-4}$ M/min
   (B) 1.73×10^{-5} M/min
   (C) 3.47×10^{-4} M/min
   (D) 3.47×10^{-5} M/min

8. A first order reaction is 10% complete in 20 min. The time taken for 19% completion is
   (A) 30 min (B) 40 min
   (C) 50 min (D) 38 min

9. If 60% of a first order reaction was completed in 60 minutes, 50% of the same reaction would be completed in approximately (log 4 = 0.60, log 5 = 0.69)
   (A) 40 minutes (B) 50 minutes
   (C) 45 minutes (D) 60 minutes

10. A reagent undergoes 90% decomposition in 366 min. According to first order reaction it's half-life is:

(A) $366\times100\left(\frac{\ell n\,2}{90}\right)$ (B) $366\left(\frac{\ell n\,2}{\ell n10}\right)$

(C) $\frac{1}{366}$ (D) 183

ANSWERS

1. (D)
2. (A)
3. (B)
4. (B)
5. (C)
6. (A)
7. (C)
8. (B)
9. (C)
10. (B)

Note - If you have any query/issue

Mail us at support@physicswallah.org