DPP
DAILY PRACTICE PROBLEMS

Class : XIIth **Subject : CHEMISTRY**
Date : **DPP No. : 6**

Topic :- Chemical Kinetics

1. The rate of chemical reaction (except zero order):
   a) Decreases from moment to moment
   b) Remains constant throughout
   c) Is independent of the order of reaction
   d) None of the above

2. For a zero order reaction
   a) $t_{1/2} \propto R_0$ b) $t_{1/2} \propto 1/R_0$ c) $t_{1/2} \propto R_0^2$ d) $t_{1/2} \propto 1/R_0^2$

3. Effect of temperature on reaction rate is given by
   a) Claisen-Clapeyron equation b) Arrhenius equation
   c) Gibbs Helmholtz equation d) Kirchoff's equation

4. The Arrhenius equation expressing the effect of temperature on the rate constant of reaction is:
   a) $K = \frac{E_a}{RT}$ b) $K = Ae^{-E_a/RT}$ c) $K = \log_e \frac{E_a}{RT}$ d) $K = e^{-Ea/RT}$

5. Find the two third life $(t_{1/2})$of a first order reaction in which $k = 5.48 \times 10^{-14}$per second
   a) $201 \times 10^{13} s$ b) $2.01 \times 10^{13} s$ c) $201 \times 10^{20} s$ d) $0.201 \times 10^{10} s$

6. $A + B \rightarrow$Product
   If concentration of A is doubled, rate increases 4 times. If concentration of A and B are doubled, rate increases 8 times. The differential rate equation of the reaction will be
   a) $\frac{dC}{dt} = kC_A \times C_B$ b) $\frac{dC}{dt} = kC_A^2 \times C_B^3$ c) $\frac{dC}{dt} = kC_A^2 \times C_B$ d) $\frac{dC}{dt} = kC_A^2 \times C_B^2$

7. For the reaction $A \rightarrow B$, the rate expression is $r = k[A]^n$. When the concentration of A is doubled, the rate of reaction is quadrupled. The value of n is
   a) 1 b) Zero c) 3 d) 2

8. The rate constant for the first order reaction is 60 s^{-1}. How much time will it take to reduce the concentration of the reaction to 1/16 M value ?
   a) $4.6 \times 10^{-2} s$ b) $4.6 \times 10^{4} s$ c) $4.6 \times 10^{2} s$ d) $4.6 \times 10^{-4} s$

9. In the reaction,
$2N_2O_5 \rightarrow 4NO_2 + O_2$ initial pressure is 500 atm and rate constant k is $3.38 \times 10^{-5} s^{-1}$ after 10 min the final pressure of N_2O_5 is
a) 490 atm b) 250 atm c) 480 atm d) 420 atm

10. For a chemical reaction, ... can never to a fraction
a) Order b) Half life c) Rate constant d) Molecularity

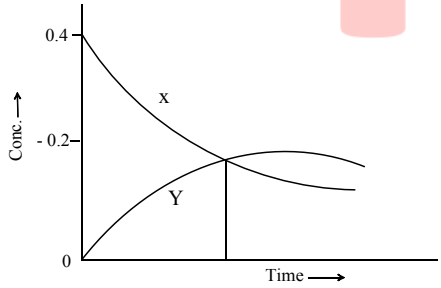
11. The time taken for the completion of 3/4 of a first order reaction is
a) $(2.303/k)\log 3/4$ b) $(2.303/k)\log 4$ c) $(2.303/k)\log 1/4$ d) $(2.303/0.75)\log k$

12. $2N_2O_5(g) \rightarrow 4NO_2(g) + O_2(g)$
What is the ratio of the rate of decomposition of N_2O_5 to rate of formation of O_2 ?
a) 1:2 b) 2:1 c) 1:4 d) 4:1

13. 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

14. For a reaction, $A + 2B \rightarrow C$, rate is given by $+\frac{d[C]}{dt} = k[A][B]$,hence, the order of the reaction is
a) 3 b) 2 c) 1 d) 0

15. The accompanying figure depicts the change in concentration of species X and Y for the reaction $X \longrightarrow Y$, as a function of time. The point of intersection of the two curves represents:



a) $t_{1/2}$
b) $t_{3/4}$
c) $t_{2/3}$
d) Data is insufficient to predict

16. The rate constant of a reaction at temperature 200 K is 10 times less than the rate constant at 400 K. What is the activation energy (E_a) of the reaction?
a) 1842.4 R b) 921.2 R c) 460.6 R d) 230.3 R

17. A zero order reaction is one:
    a) In which reactants do not react
    b) In which one of the reactants is in large excess
    c) Whose rate does not change with time
    d) Whose rate increases with time

18. In a first order reaction the $a/(a-x)$ was found to be 8 after 10 minute. The rate constant is:
    a) $(2.303 \times 3 \log 2)/10$ b) $(2.303 \times 2 \log 3)/10$ c) $10 \times 2.303 \times 2 \log 3$ d) $10 \times 2.303 \times 3 \log 2$

19. If the rate of reaction A$\rightarrow B$ doubles on increasing the concentration of A by 4 times, the order of the reaction is
    a) 2 b) 1 c) $\frac{1}{2}$ d) 4

20. The rate of chemical reaction
    a) Increase as the reaction proceeds
    b) Decrease the reaction proceeds
    c) May increase or decrease during reaction
    d) Remains constant as the reaction proceeds