Date Planned : __ / __ / __	Daily Tutorial Sheet-5	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-1	Exact Duration :_____

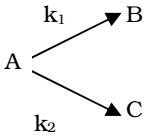
61. For the reaction : $2A + B \longrightarrow C + D$, measurement of the rate of the reaction at varying concentrations are given below:

Trial No.	[A]	[B]	Rate in mol $L^{-1}s^{-1}$
1	0.010	0.010	2.5
2	0.010	0.020	5.0
3	0.030	0.020	45.0

The overall order of the reaction is :

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

62. A substance undergoes first order decomposition. The decomposition follows two parallel first order reactions as : $k_1 = 1.26 \times 10^{-4} s^{-1}$; $k_2 = 3.8 \times 10^{-5} s^{-1}$



The percentage distribution of B and C are :

(A) 75% B and 25% C **(B)** 80% B and 20% C

(C) 60% B and 40% C **(D)** 76.83% B and 23.17% C

63. For a reaction $A \longrightarrow xP$, when [A] = 2.2 mM, the rate was found to be 2.4 mMs^{-1}. On reducing the concentration of A to half, the rate changes to 0.6 mMs^{-1}. The order of reaction with respect to A is :

(A) 1.5 **(B)** 2.0 **(C)** 2.5 **(D)** 3.0

64. In a chemical reaction, two reactants take part. The rate of reaction is directly proportional to the concentration of one of them and inversely proportional to the concentration of the other. The order of the reaction is :

(A) zero **(B)** 1 **(C)** 2 **(D)** 4

65. The rate of reaction between two reactants A and B decreases by a factor of 4 if the concentration of reactant B is doubled. The order of this reaction with respect to the reactant B is :

(A) 2 **(B)** –1 **(C)** 1 **(D)** –2

66. For a first order reaction $A \longrightarrow B$, the reaction rate at reactant concentration of 0.01 M is found to be 2.0×10^{-5} mol $L^{-1}s^{-1}$. The half-life of the reaction is :

(A) 300 s **(B)** 30 s **(C)** 220 s **(D)** 347 s

67. The rate constant of a chemical reaction has units-L $mol^{-1}s^{-1}$. Order of the reaction will be :

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

68. Which of the following reactions ends in finite time?

(A) zero order **(B)** 1^{st} order

(C) 2^{nd} order **(D)** 3^{rd} order

69. $A + 2B \longrightarrow C + D$. If $-\frac{d[A]}{dt} = 5 \times 10^{-4}$ mol $L^{-1}s^{-1}$, then $-\frac{d[B]}{dt}$ is :

(A) 2.5×10^{-4} mol $L^{-1}s^{-1}$ **(B)** 5.0×10^{-4} mol $L^{-1}s^{-1}$

(C) 2.5×10^{-3} mol $L^{-1}s^{-1}$ **(D)** 1.0×10^{-3} mol $L^{-1}s^{-1}$

70. In a reaction $A \rightarrow$ products, when from 8.0×10^{-2} M of A, half life is found to be 120 minute. For the initial concentration 4.0×10^{-2} M, the half life of the reaction becomes 240 minute. The order of the reaction is :

(A) zero **(B)** one **(C)** two **(D)** 0.5

71. $2N_2O_5 \rightleftharpoons 4NO_2 + O_2$. For the above reaction which of the following is not correct about rates of reaction?

(A) $\frac{-d[N_2O_5]}{dt} = 2\frac{d[O_2]}{dt}$ **(B)** $-\frac{1}{2}\frac{d[N_2O_5]}{dt} = \frac{d[O_2]}{dt}$

(C) $\frac{d[NO_2]}{dt} = 4\frac{d[O_2]}{dt}$ **(D)** $-\frac{d[N_2O_5]}{dt} = \frac{d[NO_2]}{dt} = 4\frac{d[O_2]}{dt}$

72. For the reaction, $Cl_2 + 2I^- \longrightarrow I_2 + 2Cl^-$, second order w.r.t I^- and zero order w.r.t Cl_2 the initial concentration of I^- was 0.20 mol L^{-1}. Then the rate of formation of I_2 in mol L^{-1} sec^{-1} would be: [Given rate constant for the reaction is $2.5\times10^{-2} mol^{-1}L\,sec^{-1}$]

(A) 1×10^{-4} **(B)** 5×10^{-4} **(C)** 1×10^{-3} **(D)** 5×10^{-3}

73. In the reaction $3A \longrightarrow 2B$, rate of reaction $+\frac{d(B)}{dt}$ is equal to :

(A) $-\frac{1}{3}\frac{d[A]}{dt}$ **(B)** $-\frac{2}{3}\frac{d[A]}{dt}$ **(C)** $+\frac{2d[A]}{dt}$ **(D)** $-\frac{3}{2}\frac{d[A]}{dt}$

74. For the reaction, $N_2 + 3H_2 \rightleftharpoons 2NH_3$

The rate of change of concentration for hydrogen is $0.3\times10^{-4} Ms^{-1}$. The rate of change of concentration of ammonia is :

(A) -0.2×10^{-4} **(B)** 0.2×10^{-4} **(C)** 0.1×10^{-4} **(D)** 0.3×10^{-4}

75. The reaction, $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ is carried out in a $1dm^3$ vessel and 2 dm^3 vessel separately. The ratio of the reaction velocities will be :

(A) 1 : 8 **(B)** 1 : 4 **(C)** 4 :1 **(D)** 8 : 1