

CHEMISTRY CLASS 12 BATCH

CHEMICAL KINETICS

DPP-01

1. For a gaseous reaction, the rate of reaction may be expressed in the units

- (A) atm (B) atm s
(C) atm/s (D) atm/s²

2. Which of the following will react at the highest rate?

- (A) 1 mol. of A & 1 mol. of B in a 1 L vessel
(B) 2 mol. of A & 2 mol. of B in a 2 L vessel
(C) 3 mol. of A & 3 mol. of B in a 3 L vessel
(D) All would react at the same rate

3. Which of the following does not affect the rate of reaction?

- (A) Amount of the reactant taken
(B) Physical state of the reactant
(C) ΔH of reaction
(D) Size of vessel

4. The unit of rate constant and rate of reaction are same for

- (A) First order (B) Zero order
(C) Second order (D) Third order

5. A gaseous reaction, $A_2(g) \rightarrow B(g) + 12C(g)$, shows increase in pressure from 100 mm to 120 mm in 5 minutes. The rate of disappearance of A_2 is

- (A) 4 mm min⁻¹ (B) 8 mm min⁻¹
(C) 16 mm min⁻¹ (D) 2 mm min⁻¹

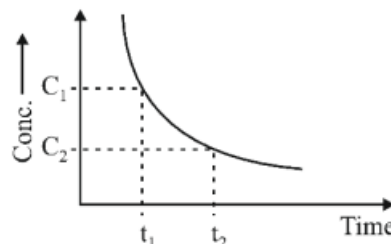
6. In a reaction, $2X + Y \rightarrow X_2Y$, the X disappears at

- (A) Half the rate as that of disappearance of Y
(B) The same rate as that of disappearance of Y
(C) The same rate as that of appearance of X_2Y
(D) Twice the rate as that of appearance of X_2Y

7. For the reaction $N_2 + 3H_2 \rightarrow 2NH_3$, the rate of change of concentration for hydrogen is $-0.3 \times 10^{-4} \text{ Ms}^{-1}$. 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}

8. The graph plotted between concentration versus time



(A) It gives rate of disappearance of reactant

(B) $-\frac{d[C_2 - C_1]}{t_2 - t_1}$

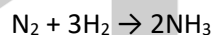
(C) Both (A) & (B)

(D) It predicts the order of reaction

9. The rate constant for the forward and backward reactions of hydrolysis of ester are 1.1×10^{-2} and $1.5 \times 10^{-3} \text{ min}^{-1}$ respectively. The equilibrium constant of the reaction is

- (A) 7.33 (B) 0.733
(C) 73.3 (D) 733

10. For the given reaction:



Rate of formation of ammonia is $2 \times 10^{-4} \text{ mol. L}^{-1} \text{ s}^{-1}$ then find rate of disappearance of hydrogen?

- (A) $3 \times 10^{-4} \text{ mol. L}^{-1} \text{ s}^{-1}$
(B) $2 \times 10^{-4} \text{ mol. L}^{-1} \text{ s}^{-1}$
(C) $4 \times 10^{-4} \text{ mol. L}^{-1} \text{ s}^{-1}$
(D) $6 \times 10^{-4} \text{ mol. L}^{-1} \text{ s}^{-1}$

11. In the reaction: $BrO_3^- (aq) + 5Br^- (aq) + 6H^+ \rightarrow 3Br_2(l) + 3H_2O(l)$ The rate of appearance of bromine (Br_2) is related to rate of disappearance of bromide ions as following

- (A) $\frac{d(Br_2)}{dt} = -\frac{5}{3} \frac{d(Br^-)}{dt}$
(B) $\frac{d(Br_2)}{dt} = \frac{5}{3} \frac{d(Br^-)}{dt}$
(C) $\frac{d(Br_2)}{dt} = \frac{3}{5} \frac{d(Br^-)}{dt}$
(D) $\frac{d(Br_2)}{dt} = -\frac{3}{5} \frac{d(Br^-)}{dt}$

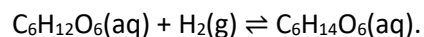
12. For the reaction $A + B \rightarrow \text{Products}$, it is observed that

- A) On doubling the initial concentration of A only, the rate of reaction is also doubled and
- B) On doubling the initial concentration of both A and B, there is a change by a factor of 8 in the rate of the reaction.

The rate of this reaction is given by

- (A) $\text{Rate} = k [A] [B]^2$
- (B) $\text{Rate} = k [A]^2 [B]^2$
- (C) $\text{Rate} = k [A] [B]$
- (D) $\text{Rate} = k [A]^2 [B]$

13. For the following reaction



Which one of the following is not affected by the addition of catalyst?

- (A) Rate of forward reaction
- (B) Rate of backward reaction
- (C) Time required to reach the equilibrium
- (D) Spontaneity

14. The rate of a reaction is expressed as

$$+\frac{1}{2} \frac{\Delta[C]}{\Delta t} = \frac{1}{3} \frac{\Delta[D]}{\Delta t} = \frac{1}{4} \left(-\frac{\Delta[A]}{\Delta t} \right) = \left(-\frac{\Delta[B]}{\Delta t} \right)$$

Then reaction is

- (A) $4A + B \rightarrow 2C + 3D$
- (B) $B + 3D \rightarrow 4A + 2C$
- (C) $A + B \rightarrow C + D$
- (D) $B + D \rightarrow A + C$