Maximum Marks: 09   **(OBJECTIVE TYPE)**   Time Allowed: 10 Min.

NOTE: Tick The Correct Option:

1. The unit of the rate constant is the same as that of the rate of reaction in:
   - (a) First order reaction
   - (b) Second order reaction
   - (c) Zero order reaction
   - (d) Third order reaction

2. All radioactive disintegration nuclear reactions are of:
   - (a) First order
   - (b) Second order
   - (c) Third order
   - (d) Zero order

3. Arrhenius equation is represented as:
   - (a) $A = k^{-E_a/RT}$
   - (b) $A = k^{RT/-E_a}$
   - (c) $k = Ae^{RT/-E_a}$
   - (d) $k = Ae^{-E_a/RT}$

4. The units of rate constant for first order reaction are:
   - (a) $Moles\ dm^{-3}s^{-1}$
   - (b) $Moles^{-1}dm^3s^{-1}$
   - (c) $Moles^{-2}dm^6s^{-1}$
   - (d) s^{-1}

5. Which reaction has fractional order?
   - (a) $2NO + 2H_2O \rightarrow 2H_2O + N_2$
   - (b) $NO + O_3 \rightarrow NO_2 + O_2$
   - (c) $2HI \rightarrow H_2 + I_2$
   - (d) $CHCl_3 + Cl_2 \rightarrow CCl_4 + HCl$

6. The half-life period of a reaction is equal to $\dfrac{1.5}{ka^2}$. The order of reaction is:
   - (a) 1
   - (b) 2
   - (c) 3
   - (d) 0

7. For endothermic reaction, the E_a of reverse reaction is _____ that of forward reaction.
   - (a) Greater than
   - (b) Smaller than
   - (c) Equal to
   - (d) All

8. In daylight, the reaction between H_2 and Cl_2 is:
   - (a) Slow
   - (b) Moderate
   - (c) Explosive
   - (d) Negligible

9. The units of the slope are:
   - (a) $kJ\ mol^{-1}$
   - (b) $JK^{-1}\ mol^{-1}$
   - (c) $K\ mol^{-1}$
   - (d) K

Maximum Marks: 16   **(SUBJECTIVE TYPE)**   Time Allowed: 30 Min.

SECTION-I

Q.2: Give brief answers to the following questions: (12)

  i. Define rate of reaction. Give its units?

  ii. Differentiate between average rate and instantaneous rate.

 iii. Define rate equation or rate law.

 iv. The radioactive decay is always a first order reaction. Explain.

  v. Define activation energy and activated complex.

 vi. Why powdered Al reacts more rapidly with cold NaOH than Al foil with warm NaOH?

SECTION-II

NOTE: Attempt All Questions: (04)

Q.3: Define order of reaction and give one example of first, second and third order reactions.