Chemistry - 11th Class Chemistry Short Questions Chapter 11 Preparation

Q1. The radioactive decay is always first order reaction.Explain?

Ans 1: The rate of radioactive decay depends on the amount of radioactive substance.Since only of substance is involved in this process therefore it is always a first order reaction.

Q2. State rate of chemical reaction and give its units?

Ans 1: The rate of reaction is defined as the change in concentration of reactant or a product divided by the time taken for the change.
The rate of reaction has the units of concentration divided by time,Usually the concentration is expressed in mole dm^{-3} And the time in second, thus the units for the reaction rates are moles $dm_{-3}s^{-1}$.

Q3. How does the catalyst affect the rate of a reaction?

Ans 1: A catalyst provides anew reaction path with low activation energy barriers.A greater number of molecules are able to get over the new energy barrier and reaction rate increases.

Q4. Define energy of Activation.How it is affected by temperature?

Ans 1: The minimum amount of energy which molecules must have in addition to their average K.E to form an activated complex is called activation energy. It is denoted by "E".
Many chemical reactions do not take place at room temperature because molecules have low K.E than the activation energy.Thus the activation energy is necessary to start a reaction.

Q5. What is pseudo first order reaction?Give an example.

Ans 1: The rate of reaction remains effectively independence of the concentration of water because being a solvent it is present in very large excess.Such type of reactions has been named as pseudo-first order reaction.
E.g.Hydrolysis of tertiary butyl bromide.

Q6. Define catalysis.Name its two types?

Ans 1: The process which take place in the presence of a catalyst is called catalysis.
There are two types of it.

1. Homogeneous catalysis
2. Heterogeneous catalysis

Q7. Define and give an example of the process of activation of catalyst?

Ans 1: A substance which promotes the activity of catalyst is called promoter or activator or catalyst for a catalyst.
E.g.Nickle is used as catalyst fro hydrogenation of vegetable oil and copper is used as activator.

Q8. How higher temperature increase the rate of reaction?

Ans 1: When we increase the temperature the average energy of the molecules increases. The number of those molecules also increase which can form an activated complex after collision.So by increasing temperature, number of effective collision increased and rate of reaction also increases.

Q9. Define Activation Energy and Activated Complex.

Ans 1: The minimum amount of energy required for an effective collision is called activation energy.
Activated complex is an unstable combination of all the atoms involved
In the reaction for which the energy is maximum.It is a short lived species and decomposes into the products immediately.It has a transient existence, that is why it is also called a transition state.

Q10. Define negative catalyst along with an example?

Ans 1: A substance which decreases the rate of reaction is called negative catalyst or inhibitor.
E.g.Tetraethyl is added to petrol because it control pre-ignition of petrol.
