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# Chemistry 12 Chapter 4 Exemplar Solutions Chemical Kinetics Part 4 (For CBSE, ICSE, IAS, NET, NRA 2022)

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## II. Multiple Choice Questions (Type-II)

**Note:** In the following questions two or more options may be correct

### Question 21:

Rate law cannot be determined from balanced chemical equation if \_\_\_\_\_.

- (i) Reverse reaction is involved
- (ii) It is an elementary reaction.
- (iii) It is a sequence of elementary reactions.
- (iv) Any of the reactants is in excess.

**Answer: (i) , (iii) , (iv)**

### Question 22:

Which of the following statements are applicable to a balanced chemical equation of an elementary reaction?

- (i) Order is same as molecularity.
- (ii) Order is less than the molecularity.
- (iii) Order is greater than the molecularity.
- (iv) Molecularity can never be zero.

**Answer: (i) , (iv)**

### Question 23:

In any unimolecular reaction \_\_\_\_\_.

- (i) Only one reacting species is involved in the rate determining step.

(ii) The order and the molecularity of slowest step are equal to one.

(iii) The molecularity of the reaction is one and order is zero.

(iv) Both molecularity and order of the reaction are one.

**Answer: (i) , (ii)**

**Question 24:**

For a complex reaction \_\_\_\_\_.

(i) Order of overall reaction is same as molecularity of the slowest step.

(ii) Order of overall reaction is less than the molecularity of the slowest step.

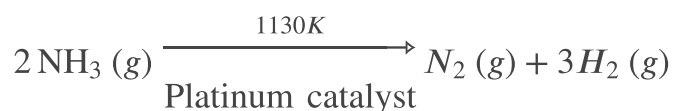
(iii) Order of overall reaction is greater than molecularity of the slowest step.

(iv) Molecularity of the slowest step is never zero or non-integer.

**Answer: (i) , (iv)**

**Question 25:**

At high pressure the following reaction is zero order.



Which of the following options are correct for this reaction?

(i) Rate of reaction = Rate constant

(ii) Rate of the reaction depends on concentration of ammonia.

(iii) Rate of decomposition of ammonia will remain constant until ammonia disappears completely.

(iv) Further increase in pressure will change the rate of reaction.

**Answer: (i) , (iii) , (iv)**

**Question 26:**

During decomposition of an activated complex

(i) Energy is always released

(ii) Energy is always absorbed

(iii) Energy does not change

(iv) Reactants may be formed

**Answer: (i) , (iv)**

**Question 27:**

According to Maxwell Boltzmann distributon of energy, \_\_\_\_\_.

- (i) The fraction of molecules with most probable kinetic energy decreases at higher temperatures.
- (ii) The fraction of molecules with most probable kinetic energy increases at higher temperatures.
- (iii) Most probable kinetic energy increases at higher temperatures.
- (iv) Most probable kinetic energy decreases at higher temperatures.

**Answer: (i) , (iii)**

**Question 28:**

In the graph showing Maxwell Boltzmann distribution of energy, \_\_\_\_\_.

- (i) Area under the curve must not change with increase in temperature.
- (ii) Area under the curve increases with increase in temperature.
- (iii) Area under the curve decreases with increase in temperature.
- (iv) With increase in temperature curve broadens and shifts to the right hand side.

**Answer: (i) , (iv)**

**Question 29:**

Which of the following statements are in accordance with the Arrhenius equation?

- (i) Rate of a reaction increases with increase in temperature.
- (ii) Rate of a reaction increases with decrease in activation energy.
- (iii) Rate constant decreases exponentially with increase in temperature.
- (iv) Rate of reaction decreases with decrease in activation energy.

**Answer: (i) , (ii)**