

MULTIPLE CHOICE

Choose the correct answer from the following choices:

1. The characteristics of reversible reactions are the following except:

- products never recombine to form reactants
- they never complete
- they proceed in both ways
- they have a double arrow between reactants and products

2. In the lime kiln, the reaction $\text{CaCO}_{3(s)} \longrightarrow \text{CaO}_{(s)} + \text{CO}_{2(g)}$ goes to completion because;

- of high temperature
- CaO is more stable than CaCO_3
- CO_2 escapes continuously
- CaO is not dissociated

3. For the reaction $2\text{A}_{(g)} + \text{B}_{(g)} \rightleftharpoons 3\text{C}_{(g)}$ the expression for the equilibrium constant is:

- $\frac{[2\text{A}] [\text{B}]}{[3\text{C}]}$
- $\frac{[\text{A}]^2 [\text{B}]}{[\text{C}]^3}$
- $\frac{[3\text{C}]}{[2\text{A}] [\text{B}]}$
- $\frac{[\text{C}]^3}{[\text{A}]^2 [\text{B}]}$

4. When a system is at equilibrium state:

- the concentration of reactants and products becomes equal
- the opposing reactions (forward and reverse) stop
- the rate of the reverse reaction becomes very low
- the rates of the forward and reverse reactions become equal

5. Which one of the following statement is not correct about active mass?

- rate of reaction is directly proportional to active mass
- active mass is taken in molar concentration
- active mass is represented by square brackets
- active mass means total mass of substances

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| 6. When the magnitude of K_c is very large it indicates: | |
| <ul style="list-style-type: none"> reaction mixture consists of almost all products reaction mixture has almost all reactants reaction has not gone to completion reaction mixture has negligible products | |
| 7. When the magnitude of K_c is very small, it indicates: | |
| <ul style="list-style-type: none"> equilibrium will never establish all reactants will be converted to products reaction will go to completion the amount of products is negligible | |
| 8. Reactions which have comparable amounts of reactants and products at equilibrium state have: | |
| <ul style="list-style-type: none"> very small K_c value very large K_c value moderate K_c value none of these c | |
| 9. At dynamic equilibrium: | |
| <ul style="list-style-type: none"> the reaction stops to proceed the amounts of reactants and products are equal the speeds of the forward and reverse reactions are equal the reaction can no longer be reversed | |
| 10. In an irreversible reaction dynamic equilibrium: | |
| <ul style="list-style-type: none"> never establishes establishes before the completion of reaction establishes after the completion of reaction establishes readily | |

11. A reverse reaction is one that:

- which proceeds from left to right
- in which reactants react to form products
- which slows down gradually
- which speeds up gradually

12. Nitrogen and hydrogen were reacted together to make ammonia: $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ $K_c = 2.86 \text{ mol}^{-2} \text{ dm}^6$

What will be present in the equilibrium mixture?

- NH_3 only
- N_2 , H_2 and NH_3
- N_2 and H_2 only
- H_2 only

13. For a reaction between PCl_3 and Cl_2 to form PCl_5 , the units K_c are:

- mol dm^{-3}
- $\text{mol}^{-1} \text{ dm}^{-3}$
- $\text{mol}^{-1} \text{ dm}^3$
- mol dm^3