QB365 Question Paper Software
10th Standard - Science
Acids, Bases and Salts Assertion and reason

Exam Time: 00:20 Hrs | Date: 2025-10-11

Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** The colour of litmus solution is purple.
   Reason: The litmus solution is neutral.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

2. **Assertion:** Lime juice has sour taste while lime water is bitter
   Reason: Lime juice is an acid and lime water is a base
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

3. **Assertion:** $NaHCO_3$ is a basic salt.
   Reason: It is a salt of strong base, NaOH and weak acid, H_2CO_3.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

4. **Assertion:** All non metal oxides are acidic.
   Reason: They dissolve in water to form acids.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

5. **Assertion:** Antacids neutralize the effect of extra acid produced in the stomach during indigestion and thus provide relief.

Reason: Antacids are mild bases.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

6. **Assertion:** pH = 7 signifies pure water.

Reason: pH of acetic acid is greater than 7.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true

7. **Assertion:** Salt of KNO_3 is formed by strong base and weak acid.

Reason: Salt of NH_4CI is formed by weak base and strong acid.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

8. **Assertion:** Strength of the acid or base decreases with dilution.

Reason: Ionization of an acid or a base increases with dilution.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

9. **Assertion**: Higher the H^+ ion concentration, lower is the pH value.

Reason: The pH of a neutral solution = 7, that of a basic solution < 7 and that of an acidic solution> 7.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

10. **Assertion (A)** It is advised that while diluting an acid one should add water to acid and not acid to water keeping the solution continuously stirred.

Reason (R) The process of dissolving an acid into water is highly exothermic.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) Assertion is true but Reason is false.

(d) Assertion is false but Reason is true.

Answers Key:

Assertion and reason

1. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
2. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
3. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
4. (d) If both assertion and reason are false
5. **(a)** Both A and R are true, and R is correct explanation of the assertion.
6. **(c):** pH of acetic acid is less than 7.
7. (d): $KOH + HNO_3 \longrightarrow KNO_3 + H_2ONH_4OH + HCl \longrightarrow NH_4Cl$
   (Strong base) (Strong acid) (Weak base) (Strong acid)
8. **(b):** Ionization of an acid or a basic increases on dilution but concentration of H^+ or OH^- ions decreases per unit volume, thus strength of the acid or the base decreases with dilution.
9. **(c):** Higher the H^+ ion concentration, lower is the pH value. The pH value less than 7 represents an acidic solution and value more than 7 represents a basic solution.
10. (a) Both Assertion and Reason are correct and Reason is the correct explanation of Assertion.