



Assertion and Reason

Q.No.1: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Halogens are *o*, *p*-directing in in electrophilic aromatic substitution reactions.

Reason (R): Usually, *para* product predominates in an electrophilic substitution reaction.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.2: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): In Haber's process for the manufacture of ammonia, molybdenum acts as a promoter for iron.

Reason (R): Promoters are substances that enhance the activity of a catalyst.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.3: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): F—F bond in F_2 molecule is weak.

Reason (R): F atom is small in size which leads to large electron-electron repulsions.

- 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.

Q.No.4: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion: Molarity of a solution in liquid state changes with temperature.

Reason: The volume of a solution changes with change in temperature.

- A.** Both A and R are true, and R is the correct explanation of the assertion.
- B.** Both A and R are true, and 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.

Q.No.5: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion: Alcohol and phenol can be distinguished by sodium hydroxide.

Reason: Phenol is acidic while alcohol is neutral.

- A.** Both A and R are true, and R is the correct explanation of the assertion.
- B.** Both A and R are true, and 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.

Q.No.6: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): All amino acids exist as zwitter ions in aqueous solutions.

Reason (R): Amino acids have both -NH_2 (basic) and -COOH (acidic) groups.

- A.** Both A and R are true, and R is the correct explanation of the assertion.
- B.** Both A and R are true, and 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.

Q.No.7: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion: Benzyl bromide, when kept in acetone water, it produces benzyl alcohol.

Reason: The reaction follows S_N2 mechanism.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.8: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): The boiling points of alkyl halides decrease in the order: $RI > RBr > RCl > RF$.

Reason (R): Fluorine is the most electronegative atom.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.9: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Molality is regarded as a better criterion for measurement of concentration.

Reason (B): Molality is independent of temperature.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.10: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Glycine should be taken through diet.

Reason (R): Glycine is a non-essential amino acid.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.11:

Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Boiling points of alcohols are higher than ethers of comparable molar masses.

Reason (R): Alcohols undergo hydrogen bonding.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.12: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): When NaCl is added to water, a depression in freezing point is observed.

Reason (R): The lowering of the vapour pressure of a solution causes depression in the freezing point.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.13: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Oxygen exists as O_2 but sulphur exists as S_8 in both rhombic and monoclinic.

Reason (R): $p\pi-p\pi$ multiple bonds exist in oxygen as it has small size but $p\pi-$

$p\pi$ bonding does not exist in sulphur.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.14: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): The boiling points of alcohols are greater than the boiling points of ethers of comparable molecular masses.

Reason (R): Intermolecular hydrogen bonding is present in alcohols.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.

Q.No.15: Two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Which of the following options is correct for the given statements?

Assertion (A): Molecular solids are characterized by low melting points.

Reason (R): The molecular solids are held together by strong electrostatic forces of attraction.

- A. Both A and R are true, and R is the correct explanation of the assertion.
- B. Both A and R are true, and 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.