QB365 Question Paper Software
10th Standard - Science
Carbon and Its Compounds Assertion and reason

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

Total Marks: 10

Questions:

Assertion and reason

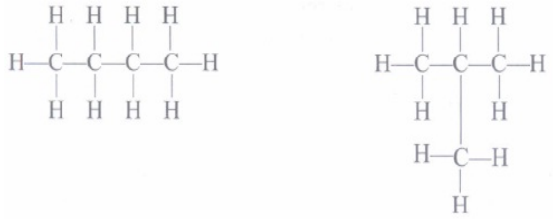
1. **Assertion**: Unsaturated carbon compounds will give a yellow flame with lots of black smoke
   Reason: Limiting the supply of air results in incomplete combustion.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and 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:** Acidified potassium dichromate is oxidising alcohols to acids.
   Reason: It adds oxygen to alcohol and is known as oxidising agent.
   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**: Ethanoic acid often freezes during winter in cold climates
   Reason: The melting point of pure ethanoic acid is 290 K
   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**: $CH_3COOC_2H_5$+ NaOH $\rightarrow$ CH_3COONa + C_2H_5OH is saponification reaction.
   Reason: CH_3COOH + C_2H_5OH $\xrightarrow{Conc.H_2SO_4}$ $CH_3COOC_2H_5$+ H_2O is esterification.
   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:** Following are the structural isomers of butane.
Reason: Structural isomers have the same molecular formula but they differ in their structures.



(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.

6. **Assertion:** In alkanes, alkenes and alkynes the valency of carbon is always four.
Reason: All hydrocarbons except alkanes contain double bonds.
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:** Carbon and its compounds can be used as fuels.
Reason : They are highly inflammable and have high calorific value.
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:** Diamond is not good conductor of electricity.
Reason: It has no free electrons.
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:** Covalent compounds are generally poor conductor of electricity.
Reason: They consist of molecules and not ions which can transfer charge.
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:** Two members of a homologous series have similar chemical properties.
Reason: Propane and butane are members of same homologous series.
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.

Answers Key:

Assertion and reason

1. (b) If both assertion and reason are true but reason is not a 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. (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
5. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
6. **(c):** Only alkenes contain double bond, alkynes contain triple bond, but in all hydrocarbons carbon remains tetravalent.
7. **(a)** Both A and R are true, and R is correct explanation of the assertion.
8. **(a):** In diamond, one carbon atom is attached to four other carbon atoms, hence it has no free electron.
9. **(a)** Both A and R are true, and R is correct explanation of the assertion.
10. **(b):** All the members of homologous series contain the same functional group, show gradation in physical properties and similarity in chemical properties.