

Chapter 11

Alcohols, Phenols and Ethers

(Assertion and Reason Questions)

Directions: These questions consist of two statements, each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four responses.

- (a) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.
- (b) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.
- (c) If the Assertion is correct but Reason is incorrect.
- (d) If both the Assertion and Reason are incorrect.

Q.1. Assertion: The bond angle in alcohols is slightly less than the tetrahedral angle.
Reason: In alcohols, the oxygen of -OH group is attached to sp^3 hybridized carbon atom.

Q.2. Assertion: In Lucas test, 3° alcohols react immediately.
Reason: An equimolar mixture of anhyd. $ZnCl_2$ and conc. HCl is called Lucas reagent.

Q.4. Assertion: Phenol is more reactive than benzene towards electrophilic substitution reaction.
Reason: In the case of phenol, the intermediate carbocation is more resonance stabilized.

Q.5. Assertion: In case of phenol, bromination takes place even in absence of Lewis acid whereas bromination of benzene takes place in presence of Lewis acid like

FeBr₃.

Reason: – OH group attached to benzene ring is highly deactivating.

Q.6. Assertion: ter – Butyl methyl ether is not prepared by the reaction of ter-butyl bromide with sodium methoxide.

Reason: Sodium methoxide is a strong nucleophile.

Q.7. Assertion: Ethers behave as bases in the presence of mineral acids.

Reason: Due to the presence of lone pairs of electrons on oxygen.

Q.8. Assertion: With HI, anisole gives iodobenzene and methyl alcohol.

Reason: Iodide ion combines with smaller group to avoid steric hindrance.

Q.9. Assertion: With HI at 373 K, ter-butyl methyl ether gives ter-butyl iodide and methanol.

Reason: The reaction occurs by SN² mechanism.

Q.10. Assertion: Ethyl phenyl ether on reaction with HBr form phenol and ethyl bromide.

Reason: Cleavage of C–O bond takes place on ethyloxygen bond due to the more stable phenyl-oxygen bond.

-X-X-X-

ANSWER KEY

Q.1 : (a)

Q.2 : (b)

Q.3 : (c)

Q.4 : (a)

Q.5 : (c)

Q.6 : (b)

Q.7 : (d)

Q.8 : (d)

Q.9 : (c)

Q.10 : (c)