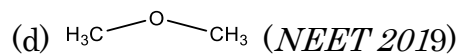
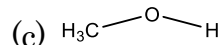
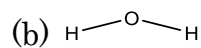
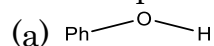
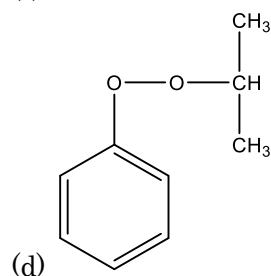
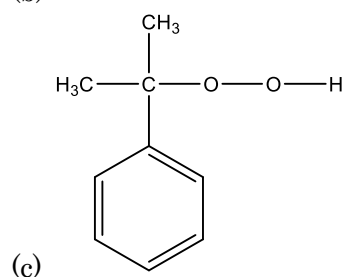
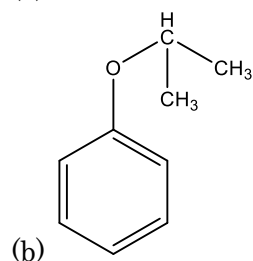
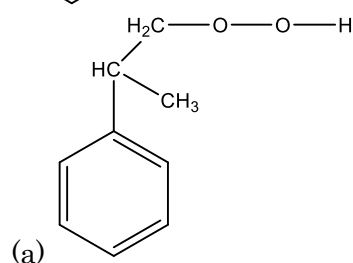
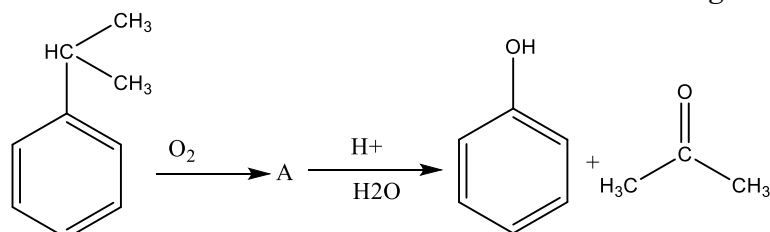


Alcohols, Phenols and Ethers

1. The compound that is most difficult to protonate is



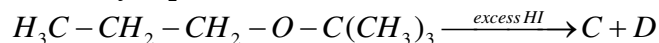
2. The structure of intermediate A in the following reaction is



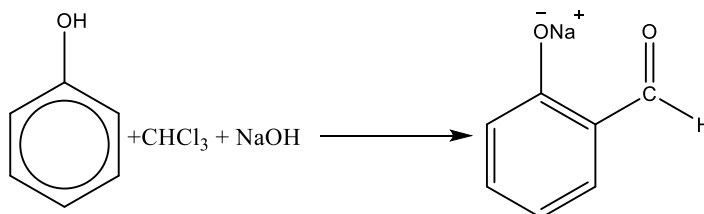
3. When vapours of a secondary alcohol is passed over heated copper at 573 K, the product formed is

- (a) a carboxylic acid
- (b) an aldehyde
- (c) a ketone
- (d) an alkene (Odisha NEET 2019)

4. The major products *C* and *D* formed in the following reactions respectively are



- (a) $H_3C-CH_2-CH_2-I$ and $I-C(CH_3)_3$
- (b) $H_3C-CH_2-CH_2-OH$ and $I-C(CH_3)_3$
- (c) $H_3C-CH_2-CH_2-I$ and $HO-C(CH_3)_3$
- (d) $H_3C-CH_2-CH_2-OH$ and $HO-C(CH_3)_3$ (Odisha NEET 2019)

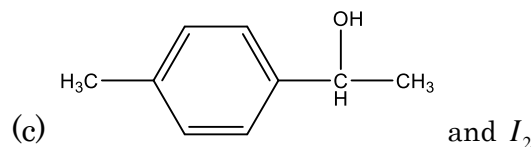
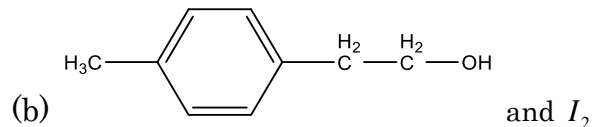
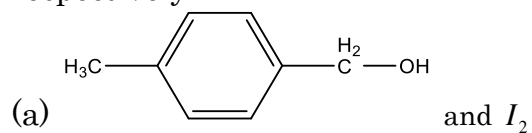


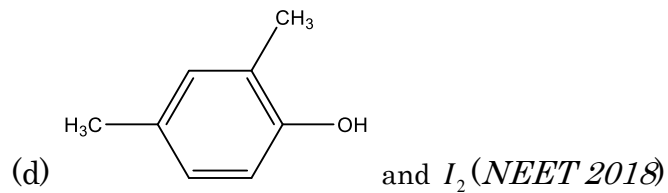
5. In the reaction, involved is

the electrophile

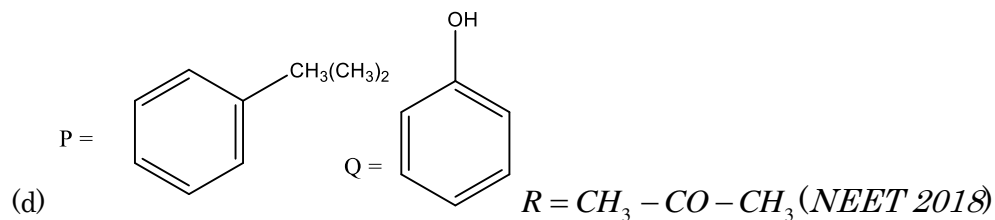
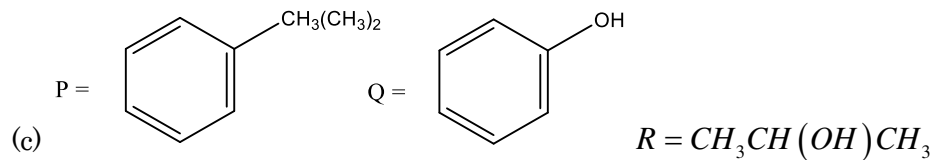
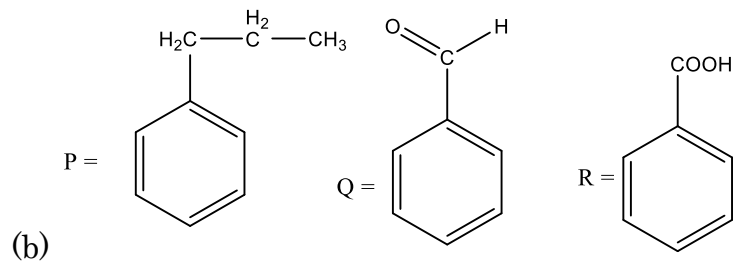
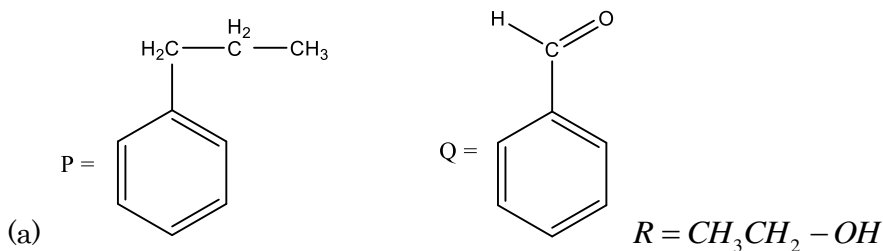
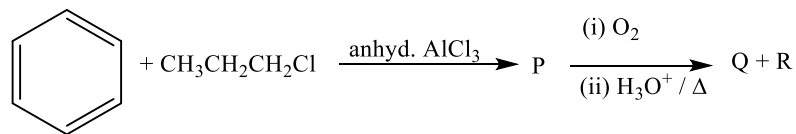
- (a) dichloromethyl cation $(\overset{+}{C}HCl_2)$
- (b) formyl cation $(\overset{+}{C}HO)$
- (c) dichloromethyl anion $(\bar{C}HCl_2)$
- (d) dichlorocarbene $(:CCl_2)$ (NEET 2018)

6. Compound *A*, $C_8H_{10}O$, is found to react with $NaOI$ (produced by reacting *Y* with $NaOH$) and yields a yellow precipitate with characteristic smell. *A* and *Y* are respectively





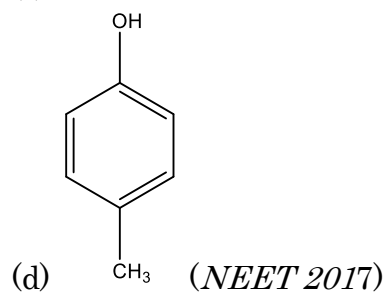
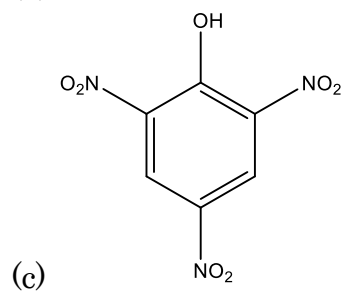
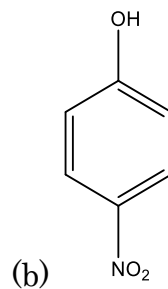
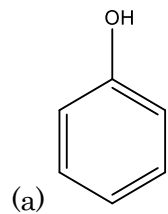
7. Identify the major products P, Q and R in the following sequence of reactions:



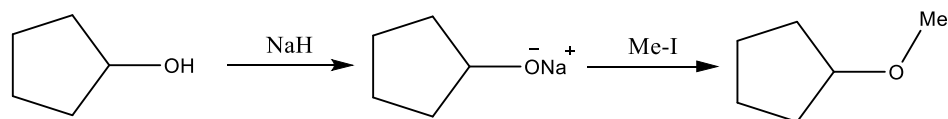
8. The heating of phenyl methyl ether with HI produces

- (a) iodobenzene
- (b) phenol
- (c) benzene
- (d) ethyl chloride. (*NEET 2017*)

9. Which one is the most acidic compound?



10. The reaction can be classified as

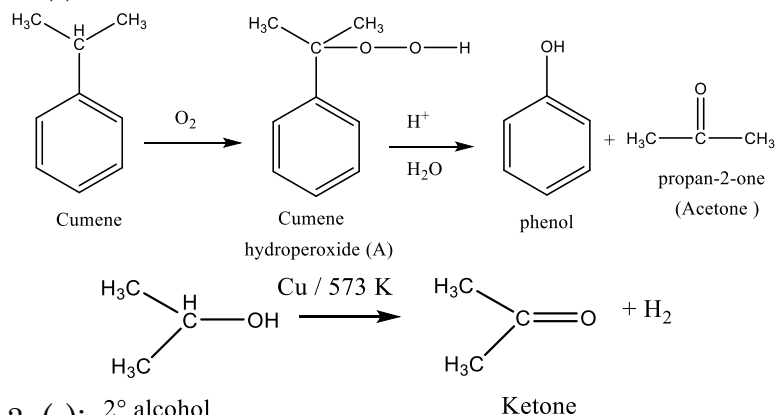


- (a) dehydration reaction
- (b) Williamson alcohol synthesis reaction
- (c) Williamson ether synthesis reaction
- (d) alcohol formation reaction. (NEET - I 2016)

EXPLANATIONS

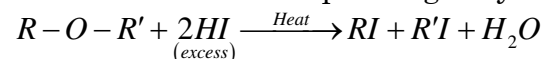
1. (a): In $Ph-OH$, the lone pair of oxygen is in conjugation with phenyl group so, it is least basic among the given compounds and is most difficult to protonate.

2. (c) :

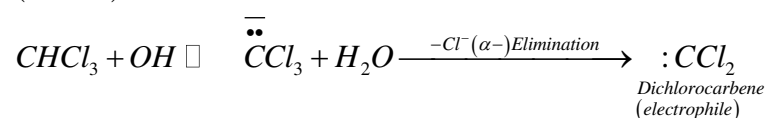


3. (c): 2° alcohol

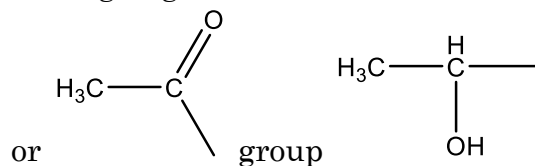
4. (a): Ethers are readily attacked by HI to give an alkyl halide and alcohol. But when heated with excess of HI, the product alcohol first formed reacts further with HI to form the corresponding alkyl iodide.



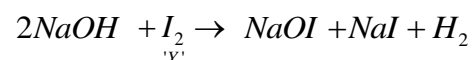
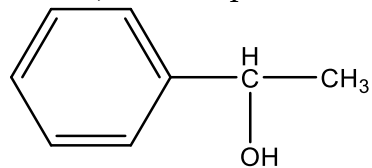
5. (d): It is Reimer - Tiemann reaction. The electrophile formed is dichlorocarbene ($:CCl_2$) which is formed according to the following mechanism :

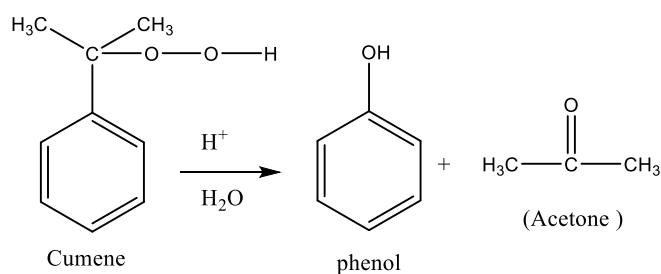
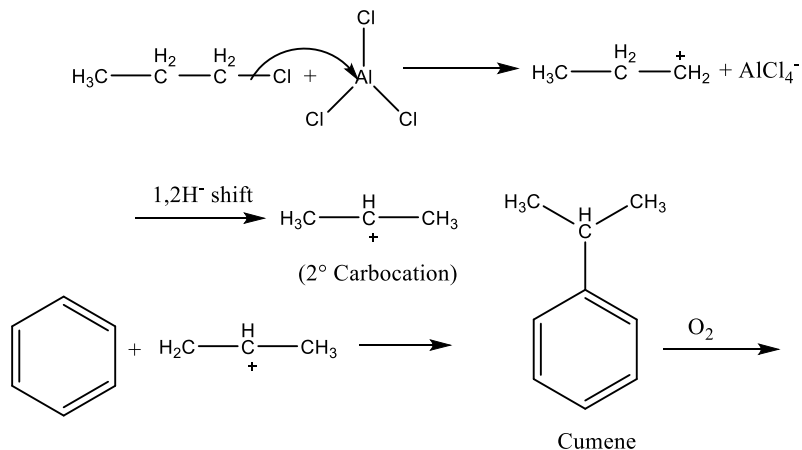
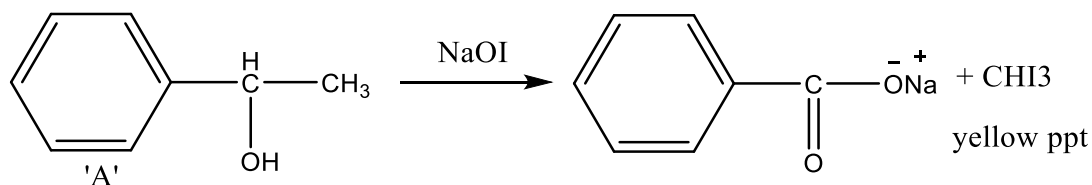


6. (c): As the compound is giving yellow precipitate with $NaOI$ that shows it is undergoing haloform reaction. Haloform reaction is shown by the compounds having



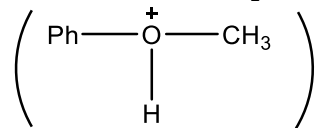
Hence, the compound A is





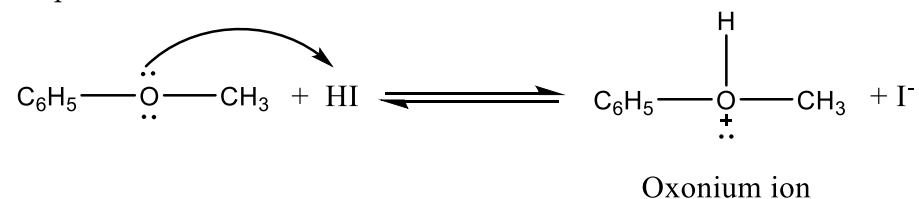
7. (d): hydroperoxide (A)

8. (b): In case of phenyl methyl ether, methyl phenyl oxonium ion

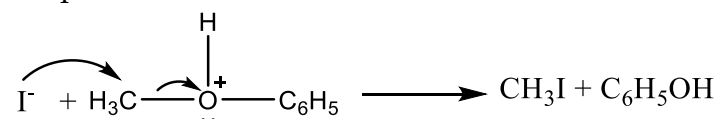


is formed by protonation of ether. The $\text{O}-\text{CH}_3$ bond is weaker than $\text{O}-\text{C}_6\text{H}_5$ bond as $\text{O}-\text{C}_6\text{H}_5$ has partial double bond character. Therefore, the attack by I^- ion breaks $\text{O}-\text{CH}_3$ bond to form CH_3I .

Step I:



Step II:



9. (c) : Electron withdrawing groups increase the acidity while electron donating groups decrease the acidity of phenol.

10. (c): Williamson' s ether synthesis reaction involves the treatment of sodium alkoxide with a suitable alkyl halide to form an ether.