

Identifying Organic Compounds Using Reactions

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Response: Based on the reactions described:

- 1. Identification of Compound A:** When phenol ($\text{C}_6\text{H}_5\text{OH}$) reacts with bromine water ($\text{Br}_2/\text{H}_2\text{O}$), it undergoes electrophilic aromatic substitution to form a white precipitate of **2,4,6-tribromophenol**. Therefore, **A is Phenol ($\text{C}_6\text{H}_5\text{OH}$)**.
- 2. Identification of Compound B:** When an alcohol with at least two carbon atoms containing β -hydrogens is heated with concentrated H_2SO_4 , it undergoes dehydration to form an alkene. Alkenes readily decolourise bromine water ($\text{Br}_2/\text{H}_2\text{O}$).
 - In option (1), CH_3OH (methanol) cannot undergo dehydration to form an alkene because it has only one carbon atom.
 - In option (3), $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$ (isobutanol) dehydrates in the presence of conc. H_2SO_4 to form **isobutene**, an alkene that decolourises $\text{Br}_2/\text{H}_2\text{O}$.

Correct Answer:

(3) $\text{C}_6\text{H}_5\text{OH}$, $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$
