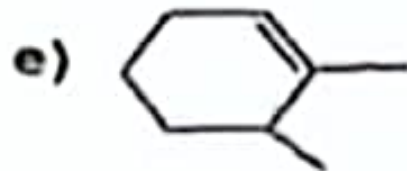
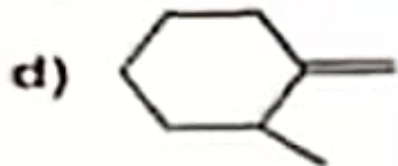
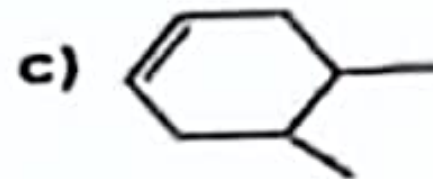
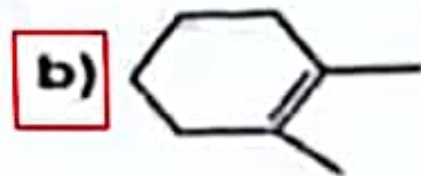
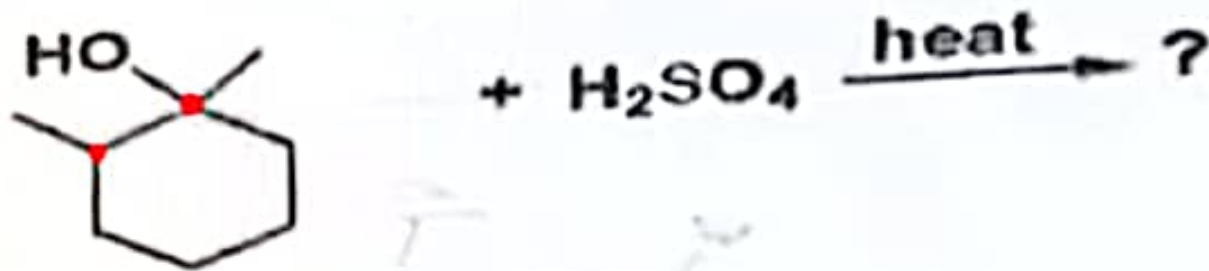
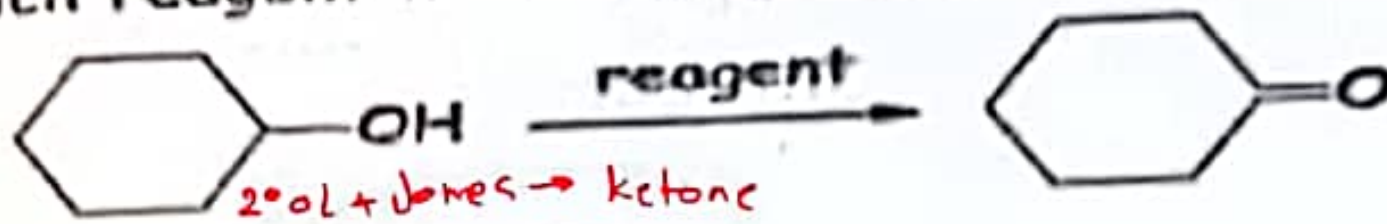


14

Which is the major product of this reaction?



Which reagent will accomplish the following?



a) PBr_3

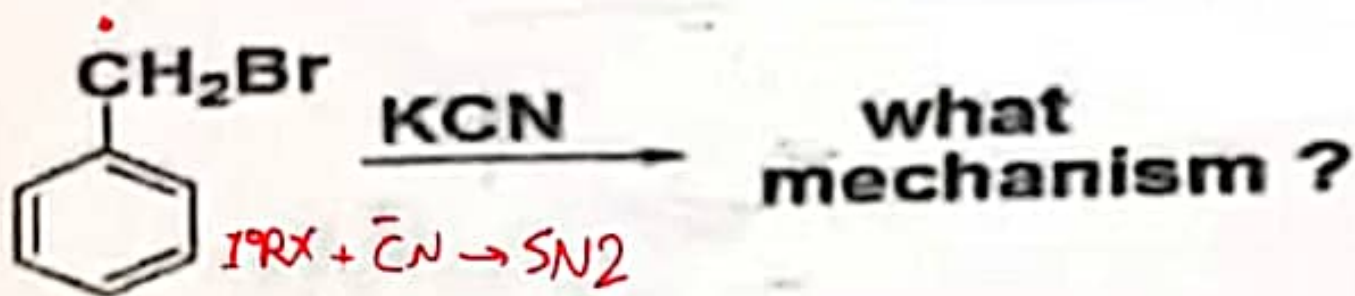
b) SOCl_2

c) $\text{CrO}_3 / \text{H}^+$

d) $\text{H}_2\text{SO}_4 / \text{heat}$

e) NaOC_2H_5

By what mechanism is the major product of this reaction formed?



a) $\text{S}_{\text{N}}2$

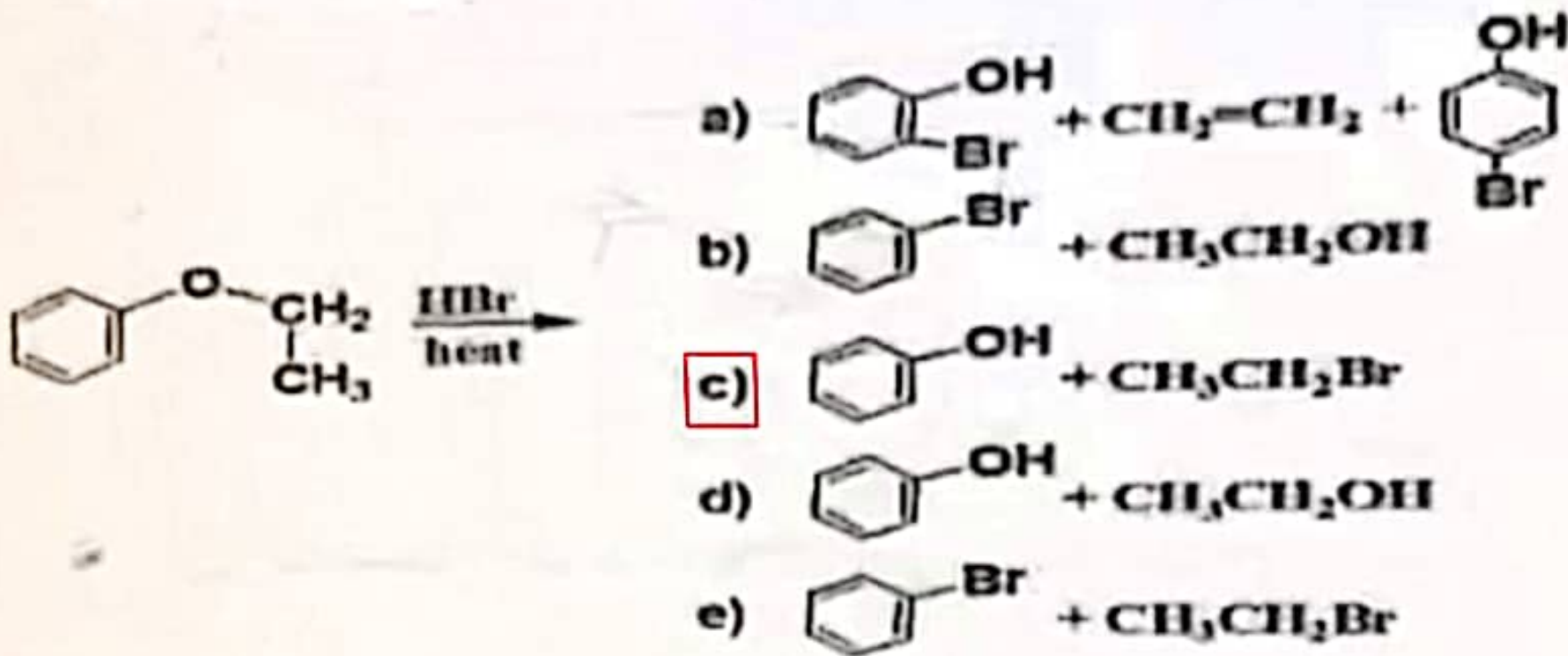
b) $\text{S}_{\text{N}}1$

c) $\text{E}1$

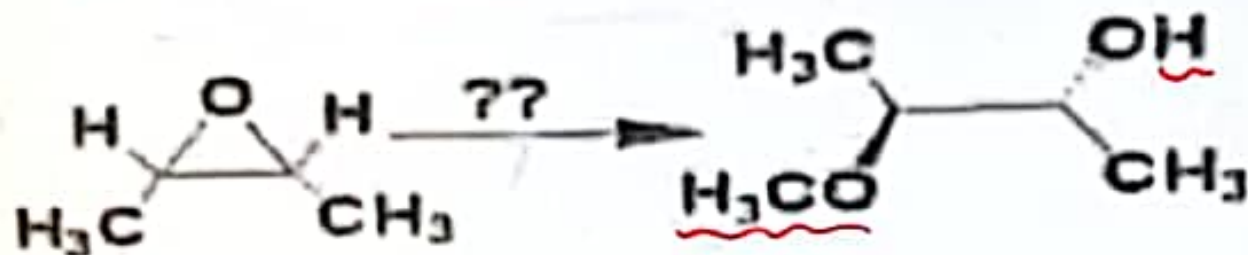
d) $\text{E}2$

e) $\text{S}_{\text{N}}1 + \text{E}1$

What are the products of the following reaction?

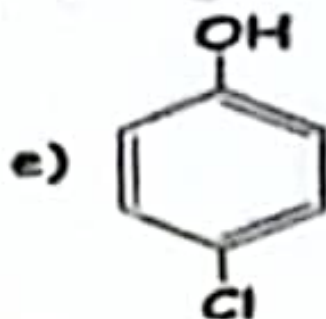
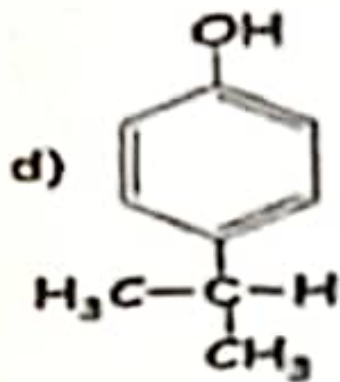
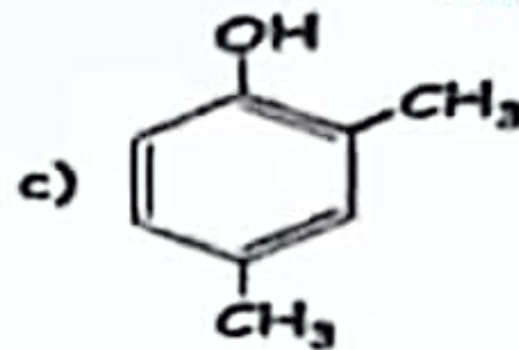
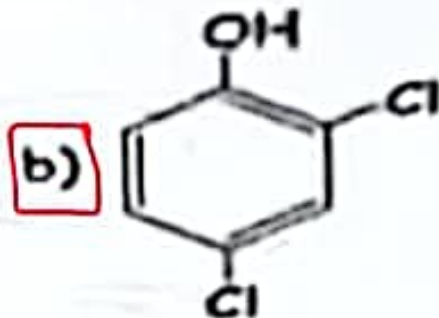
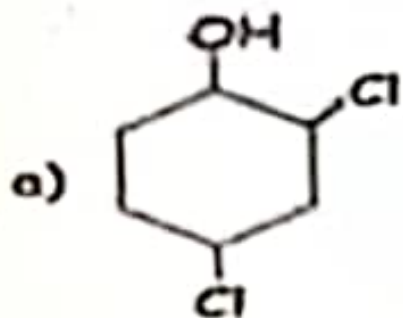


Which reagent would achieve the following transformation?

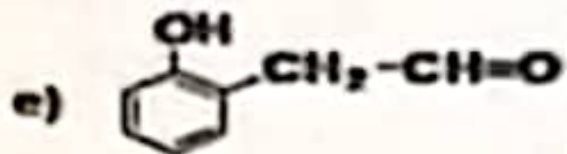
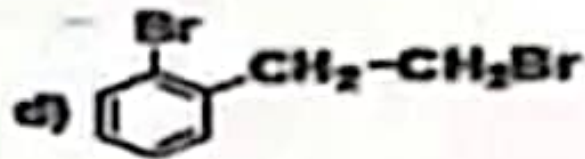
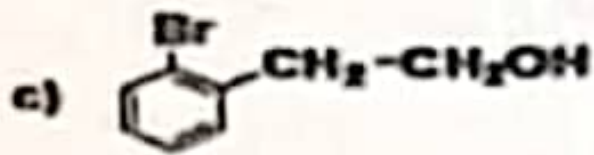
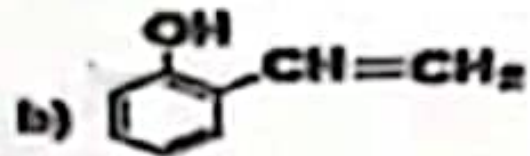
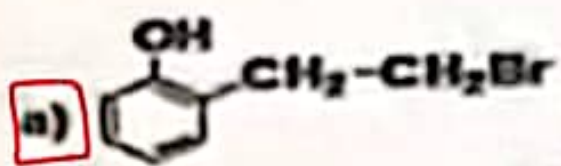
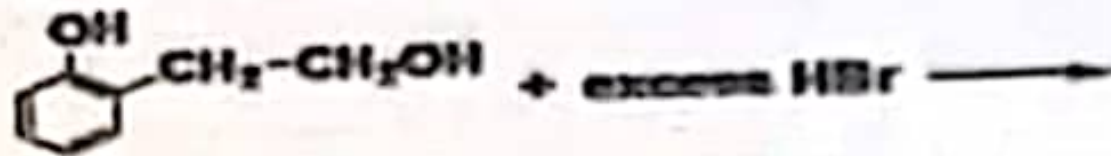


- a) NaOH then H₂O b) CH₃CO₂H **c) CH₃OH/ H⁺**
d) Na then CH₃Cl e) H₂O/ H⁺

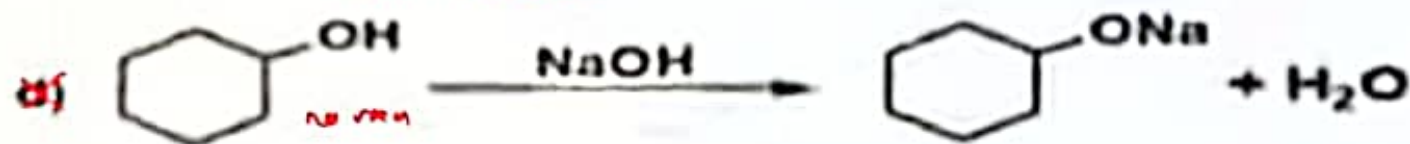
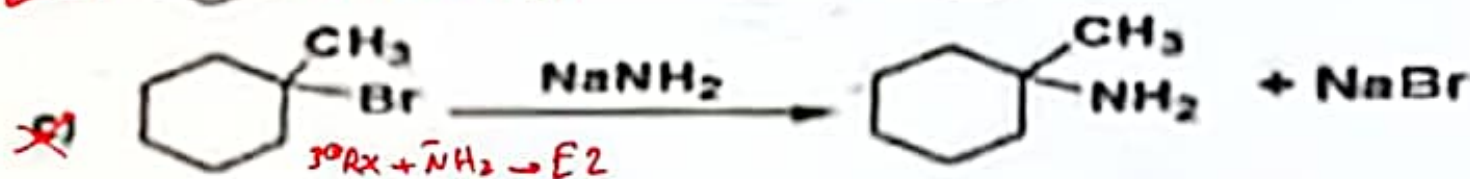
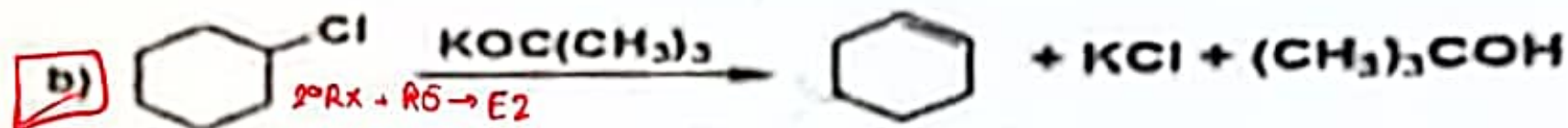
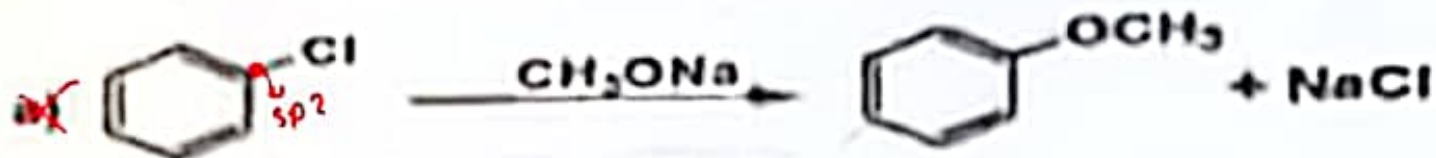
Which of the following is the strongest acid? Phenol > alcohol
G2 > H2I



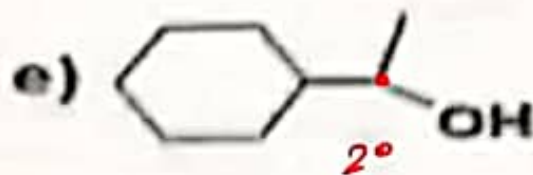
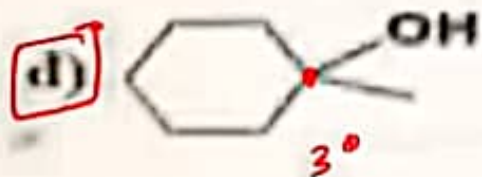
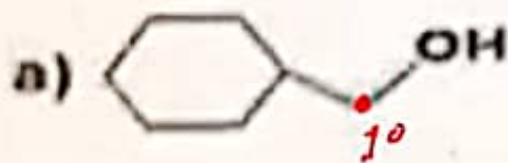
What is the major product of the following reaction?



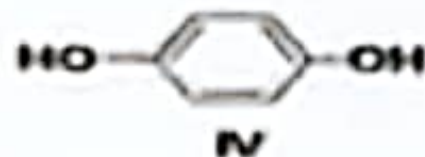
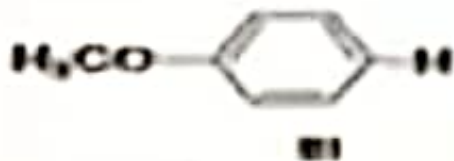
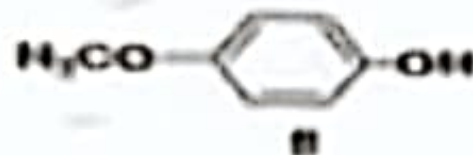
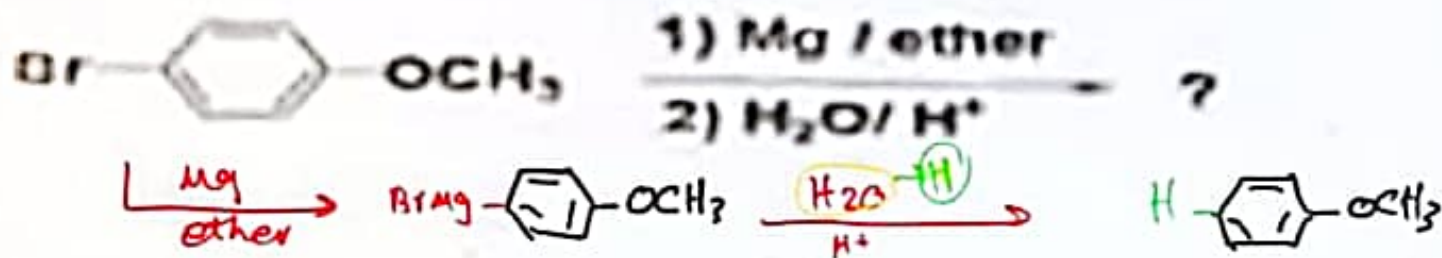
Which reaction gives the indicated product as major one?



Which compound yields an alkyl halide fastest upon reaction with HCl? $3^\circ > 2^\circ > 1^\circ$



What would this reaction yield?



a) I only

b) II + III

c) III only

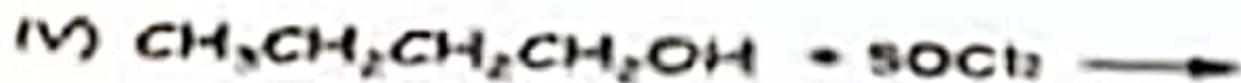
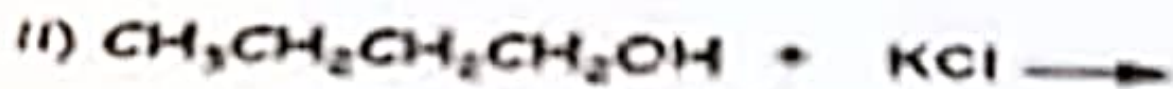
d) IV only

e) II + IV

Which halide is most reactive in S_N2 reactions?

- ↳ methyl > 1° > 2°*
- a) $\text{CH}_3\text{CH}_2\text{CH}_2\overset{\cdot}{\text{C}}\text{H}_2\text{Br}$ (1°)
- b) $\text{CH}_3\text{CH}_2\overset{\cdot}{\underset{\text{Br}}{\text{C}}}\text{CH}_3$ (2°)
- c) $\text{CH}_3\text{CH}_2\overset{\cdot}{\underset{\text{CH}_3}{\text{C}}}\text{HCH}_2\text{Br}$ (1°) ?
- d) $\text{CH}_3\text{CH}_2\text{CH}=\text{CHBr}$
- e) $\text{CH}_3-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{Br}$

Which is the best synthetic route of *n*-butyl chloride?



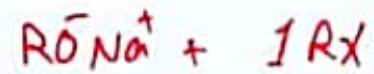
a) I only

b) II and III






c) III and IV

d) I and IV

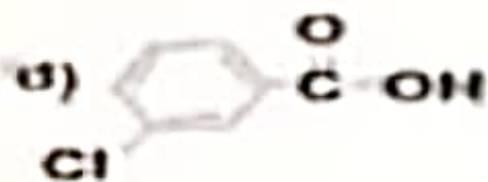
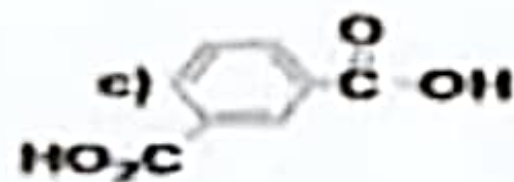
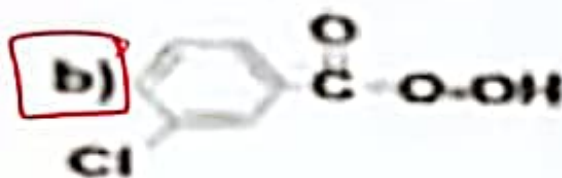
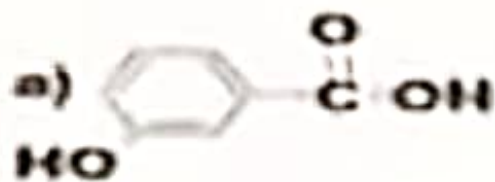
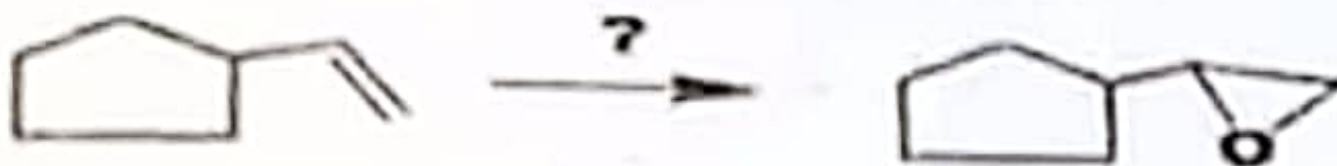
e) III only



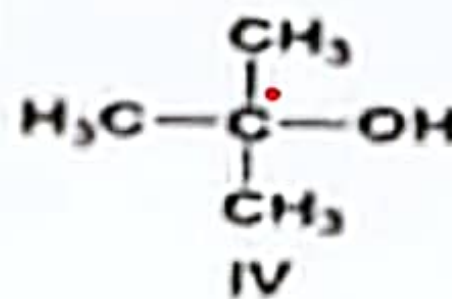
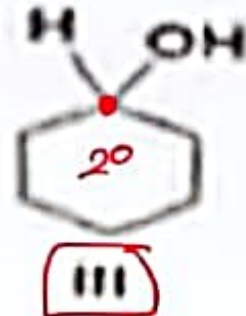
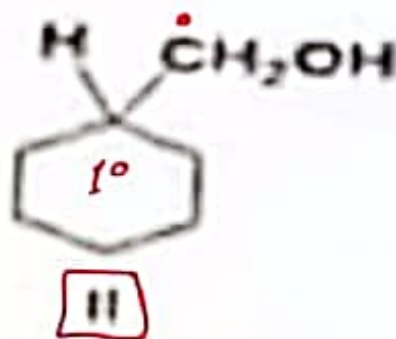
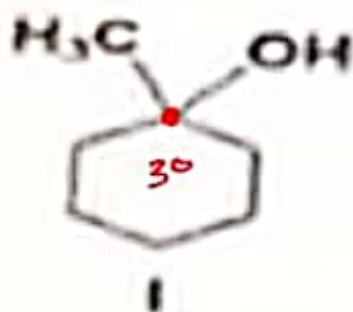
Which is the best synthesis of cyclopentyl ethyl ether?

- a)  + $CH_3-CH_2-OH \xrightarrow[\text{heat}]{H^+}$
- b)  + $CH_2=CH_2 \xrightarrow{H^+}$
- c)**  + $CH_3-CH_2-Br \longrightarrow$
- d)  + $CH_3-CH_2-ONa \longrightarrow$
- e)  + $CH_3-CH_2-OH \xrightarrow{NaNH_2}$

Which reagent would achieve the following transformation?



Which alcohol(s) would undergo oxidation with CrO_3/H^+ \rightarrow 1° & 2°



a) I and IV

b) II and III

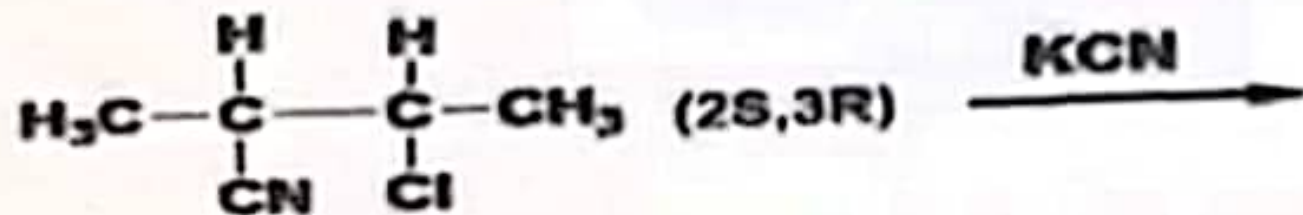
c) IV only

d) II only

e) I only

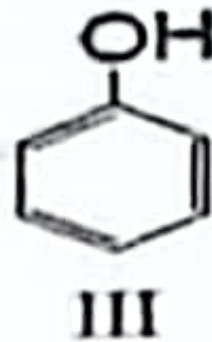
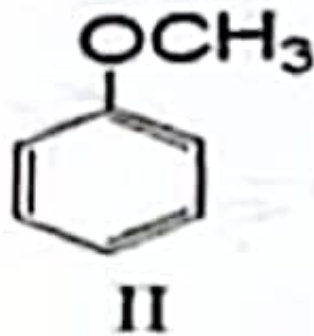
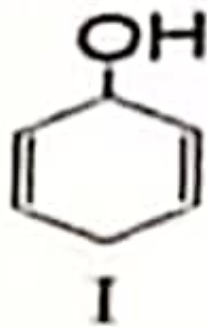
→ 1 product → inversion

What would this S_N2 reaction give as a major product ?



- a) an optically inactive racemic mixture
- b) an optically active single enantiomer
- c) two optically active diastereomers
- d) an optically inactive meso form
- e) two optically inactive diastereomers

Which compound(s) would NOT react with sodium metal (Na) or with sodium hydroxide?



a) I only

b) III only

c) II only

d) I and II

e) II and III

Which of the following is weakest nucleophile?

(atomic No. C=6; N=7; O=8; F=9 ; S=16)

