

Topic : Alcohols, Phenols and Ethers (Reaction Mechanism)
Type of Questions

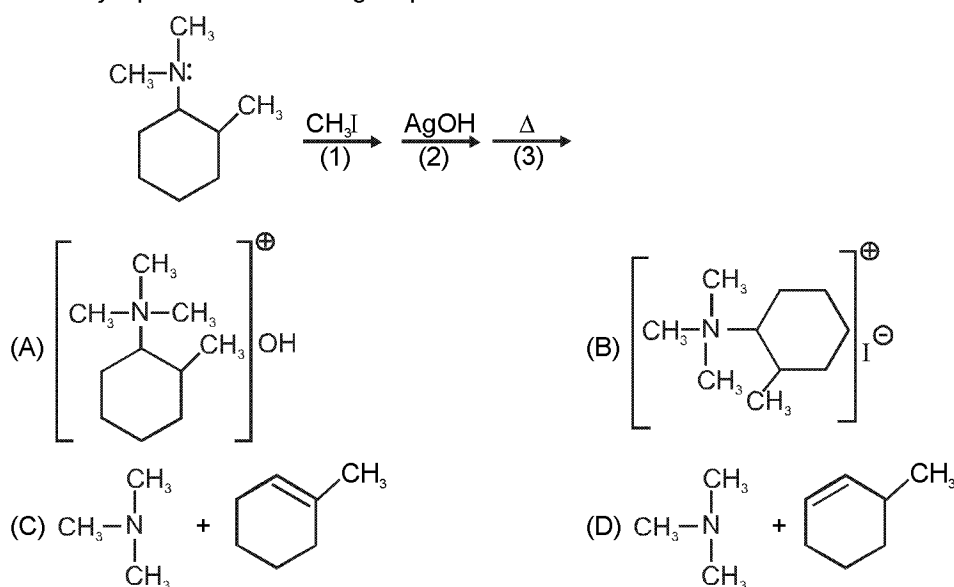
Single choice Objective ('-1' negative marking) Q.1 to Q.4
 Multiple choice objective ('-1' negative marking) Q.5 to Q.6
 Short Subjective Questions ('-1' negative marking) Q.7
 Match the Following (no negative marking) Q. 8
 Subjective Questions ('-1' negative marking) Q.9

(3 marks 3 min.)
 (4 marks 4 min.)
 (3 marks 3 min.)
 (8 marks 10 min.)
 (4 marks 5 min.)

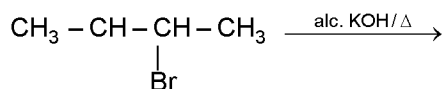
M.M., Min.

[12, 12]
 [8, 8]
 [3, 3]
 [8, 10]
 [4, 5]

1. The major product of following sequence of reactions is :



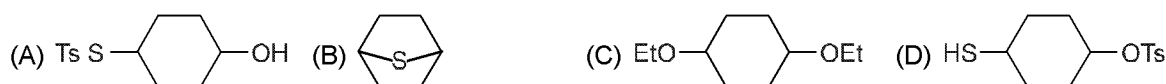
2. For the given reaction choose the correct option:



- (A) Reaction is regioselective but not stereoselective.
 (B) Reaction is stereoselective but not regioselective.
 (C) Reaction is both regioselective and stereoselective .
 (D) Reaction is none of regioselective and stereoselective .

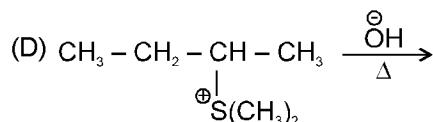
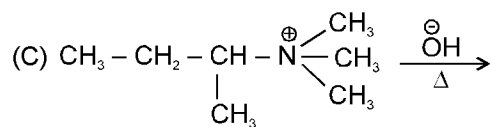
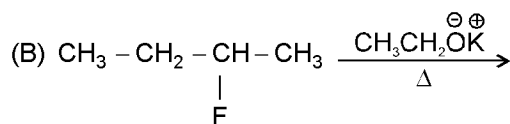
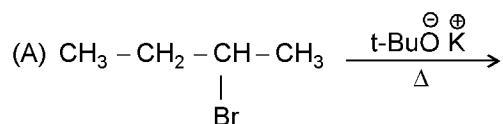
3. Product

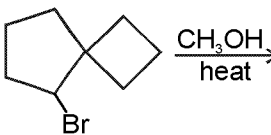
The product is :

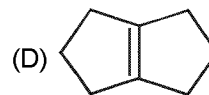
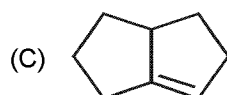
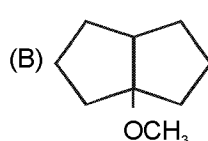
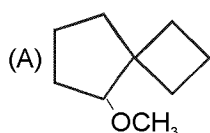


4. The correct statement(s) about $\text{C}_5\text{H}_{11}\text{Br}$ is/are :
- (A) Total 8 structural isomers are possible for $\text{C}_5\text{H}_{11}\text{Br}$
 (B) Two out of the all structural isomers of $\text{C}_5\text{H}_{11}\text{Br}$ are inert towards E-2 reaction
 (C) Only one out of all structural isomers of $\text{C}_5\text{H}_{11}\text{Br}$ gives three products in E-2 reaction.
 (D) Only two out of all structural isomers of $\text{C}_5\text{H}_{11}\text{Br}$ produce alkene which can show geometrical isomerism.

5*. In which reaction product formation takes place by Hoffmann rule ?



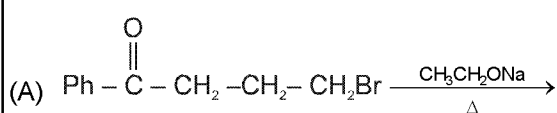
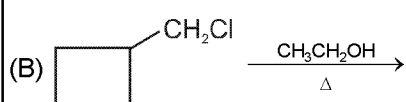
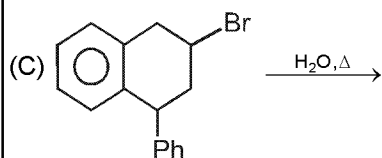
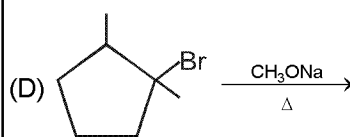
6*.  product, which of the following products are possible ?



7. The rate of bimolecular elimination reaction of $\text{CH}_3 - \text{CH}_2 - \text{Br}$ is faster than $\text{CD}_3 - \text{CH}_2 - \text{Br}$.

8. **Matching**

More than one option of column-II may match with one option of column-I.

Column – I (Reactions)	Column – II (Mechanism for major product)
(A) 	(p) $\text{S}_{\text{N}}1$
(B) 	(q) $\text{S}_{\text{N}}2$
(C) 	(r) E1
(D) 	(s) E2
	(t) E1cB

9. You have the task of preparing styrene ($\text{C}_6\text{H}_5\text{CH}=\text{CH}_2$) by dehydrohalogenation of either 1-bromo-2-phenylethane or 1-bromo-1-phenylethane using KOH in ethanol. Which alkyl halide would you choose as your starting material to give the better yield of the alkene ? Explain your answer

Answer Key

DPP No. # 21

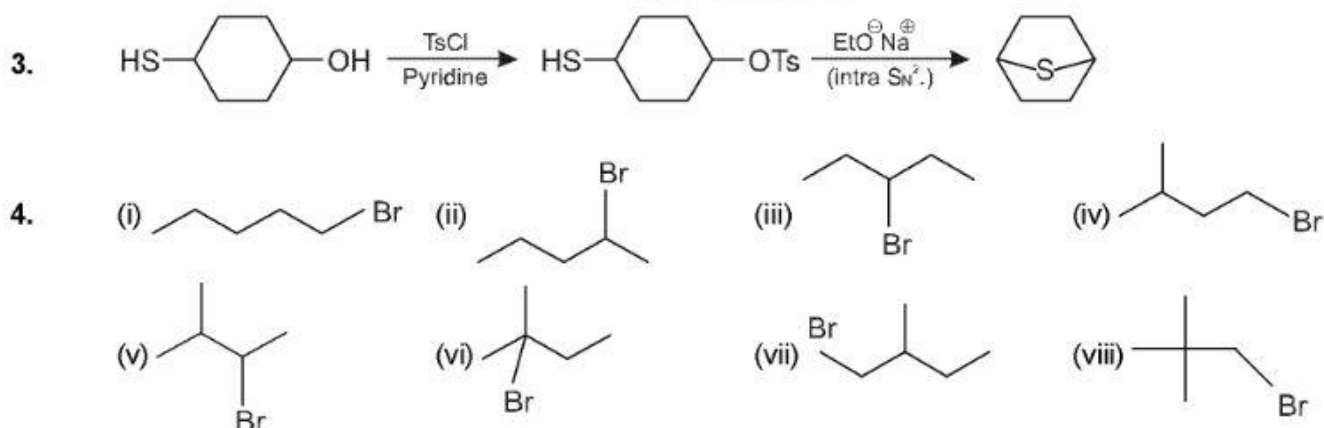
- (D)
- (B)
- (C)
- (A)
- (A)
- (BC)
- False
- (a) (A) (b) (C) (c) (C)
- Lucas reagent is used to distinguish primary, secondary and tertiary alcohol.

$$R-OH + HCl \xrightarrow{ZnCl_2} R-Cl \text{ (white ppt.)} + H_2O$$

3° Alcohol → Instant turbidity
 2° Alcohol → After 5 minute turbidity appear.
 1° Alcohol → After 30 minute turbidity appear.

Hints & Solutions

DPP No. # 22



Total 8 structural isomers.
 (viii) is inert towards E-2
 (ii) gives three alkenes in E-2

- 5*. Strong electronegative group (F , NR_3^+ , SR_2^+) exert strong -I due to this reaction followed by E1cB mechanism. $t-BuO^-$ also give Hoffmann product.
- 6*. C_2H_5OH give S_N1 and E1 reaction, so all products can be formed.
7. The cleavage of C-D bond is more difficult than the cleavage of C-H bond.
8. A → t B → p,r C → p D → s
9. The better yield will be obtained by using the secondary halide, 1-bromo-1-phenylthane, because the desired reaction is E2.