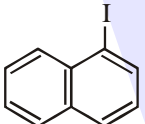
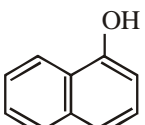
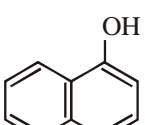
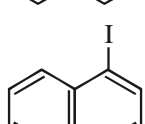


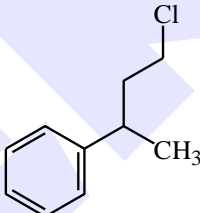
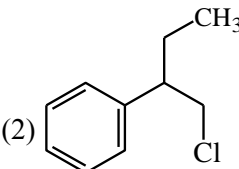
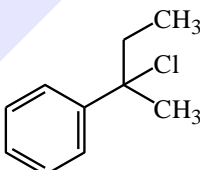
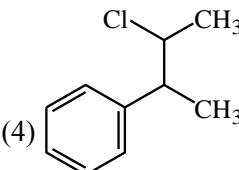
## ALCOHOL & ETHER

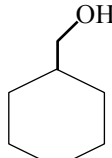
- Ceric ammonium nitrate and  $\text{CHCl}_3$  / alc. KOH are used for the identification of functional groups present in \_\_\_\_\_ and \_\_\_\_\_ respectively.  
 (1) Alcohol, phenol (2) Amine, alcohol  
 (3) Alcohol, amine (4) Amine, phenol
- Given below are two statements :  
**Statement-I** : 2-methylbutane on oxidation with  $\text{KMnO}_4$  gives 2-methylbutan-2-ol.  
**Statement-II** : n-alkanes can be easily oxidised to corresponding alcohol with  $\text{KMnO}_4$ .  
 Choose the correct option :  
 (1) Both statement I and statement II are correct  
 (2) Both statement I and statement II are incorrect  
 (3) Statement I is correct but Statement II is incorrect  
 (4) Statement I is incorrect but Statement II is correct
- \_\_\_\_\_ grams of 3-Hydroxy propanal (MW=74) must be dehydrated to produce 7.8 g of acrolein (MW = 56) ( $\text{C}_3\text{H}_4\text{O}$ ) if the percentage yield is 64. (Round off to the Nearest Integer).  
 [Given : Atomic masses : C : 12.0 u, H : 1.0 u, O : 16.0 u]
- Main Products formed during a reaction of 1-methoxy naphthalene with hydroiodic acid are:

-  and  $\text{CH}_3\text{OH}$
-  and  $\text{CH}_3\text{I}$
-  and  $\text{CH}_3\text{OH}$
-  and  $\text{CH}_3\text{I}$

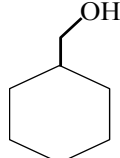
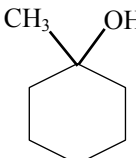
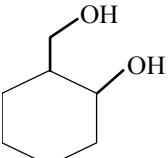
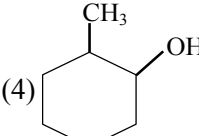
- Given below are two statements :  
**Statement I** :  $\text{C}_2\text{H}_5\text{OH}$  and  $\text{AgCN}$  both can generate nucleophile.  
**Statement II** :  $\text{KCN}$  and  $\text{AgCN}$  both will generate nitrile nucleophile with all reaction conditions.  
 Choose the most appropriate option :  
 (1) Statement I is true but statement II is false  
 (2) Both statement I and statement II are true  
 (3) Statement I is false but statement II is true  
 (4) Both statement I and statement II are false
- Reaction of Grignard reagent,  $\text{C}_2\text{H}_5\text{MgBr}$  with  $\text{C}_8\text{H}_8\text{O}$  followed by hydrolysis gives compound "A" which reacts instantly with Lucas reagent to give compound B,  $\text{C}_{10}\text{H}_{13}\text{Cl}$ .

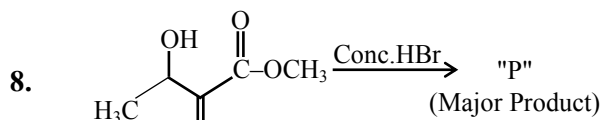
The Compound B is :

- 
- 
- 
- 

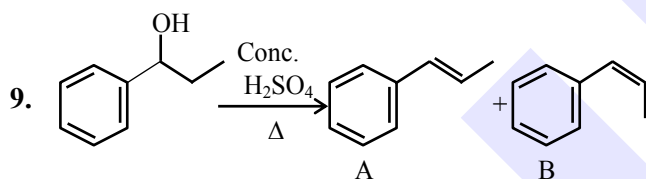
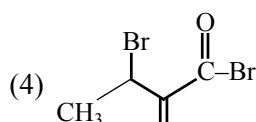
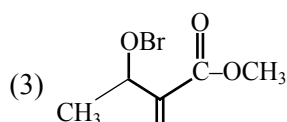
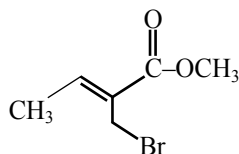
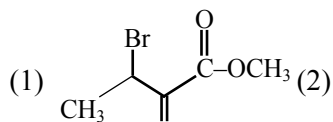
- 
 $\xrightarrow[120^\circ\text{C}]{\text{H}_3\text{PO}_4}$  A  
 Major Product  
 $\xrightarrow[\text{H}_2\text{O}]{\text{H}_2\text{O}_2/\text{OH}^-}$  P  
 Major Product

Consider the above reaction and identify the Product P :

- 
- 
- 
- 



Consider the above reaction, the major product "P" formed is :-



consider the above reaction, and choose the correct statement :

- (1) The reaction is not possible in acidic medium
- (2) Both compounds **A** and **B** are formed equally
- (3) Compound **A** will be the major product
- (4) Compound **B** will be the major product

10. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

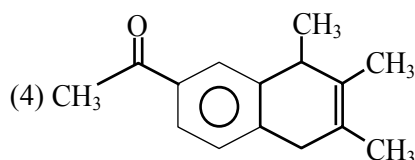
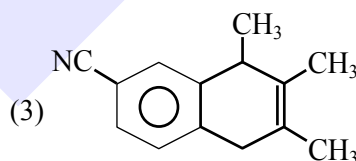
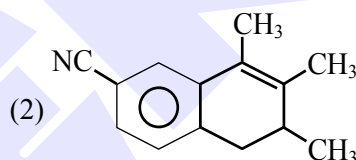
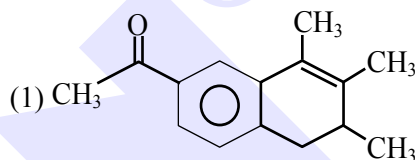
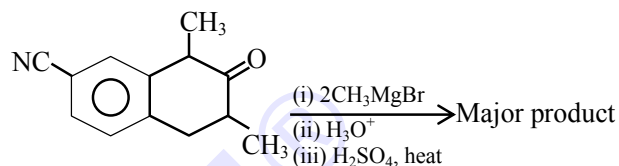
**Assertion (A):** Synthesis of ethyl phenyl ether may be achieved by Williamson synthesis.

**Reason (R):** Reaction of bromobenzene with sodium ethoxide yields ethyl phenyl ether.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

- (1) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**
- (2) **(A)** is correct but **(R)** is not correct
- (3) **(A)** is not correct but **(R)** is correct
- (4) Both **(A)** and **(R)** are correct but **(R)** is NOT the correct explanation of **(A)**

11. Which one of the following is the major product of the given reaction?



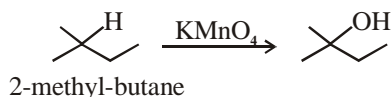
**SOLUTION**

**1. Official Ans. by NTA (3)**

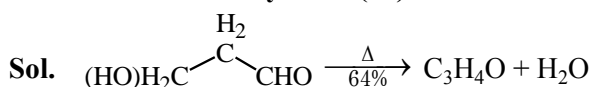
**Sol.** Ceric ammonium nitrate for alcohol and  $\text{CHCl}_3/\text{KOH}$  is carbyl amine test for primary amines

**2. Official Ans. by NTA (3)**

**Sol.** Alkane are very less reactive, tertiary hydrogen can oxidise to alcohol with  $\text{KMnO}_4$ .



**3. Official Ans. by NTA (16)**

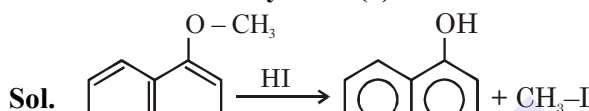


$$\frac{x}{74} \text{ mol} \quad \frac{x}{74} \times 0.64 = \frac{7.8}{56}$$

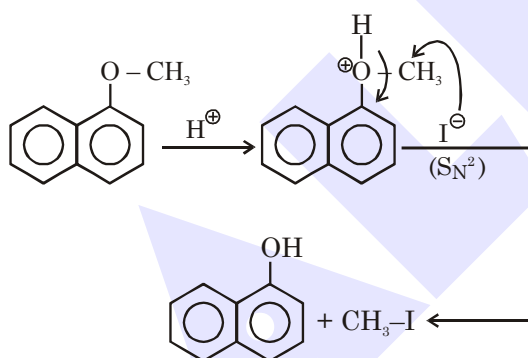
$$x = 16.10$$

$$\approx 16.00$$

**4. Official Ans. by NTA (2)**



**Mechanism**

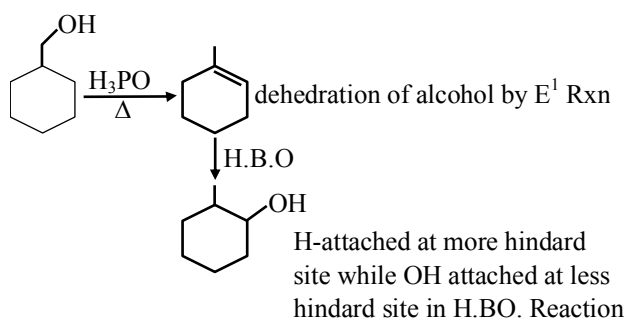


**5. Official Ans. by NTA (1)**

**6. Official Ans. by NTA (3)**

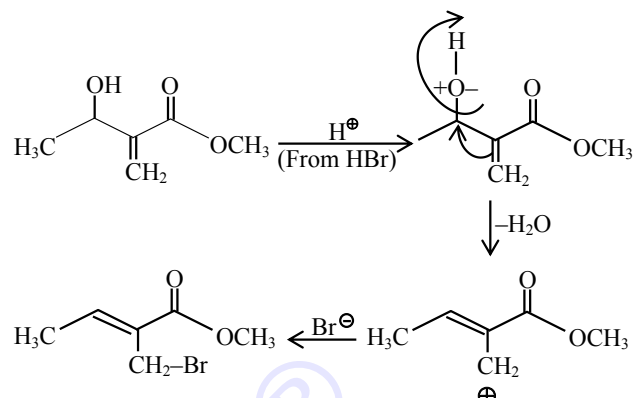
**7. Official Ans. by NTA (4)**

**Sol.**



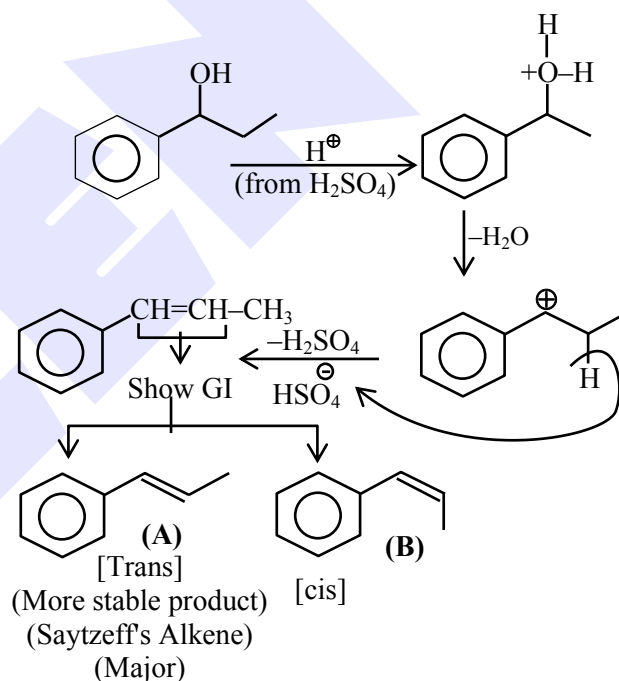
**8. Official Ans. by NTA (2)**

**Sol.**

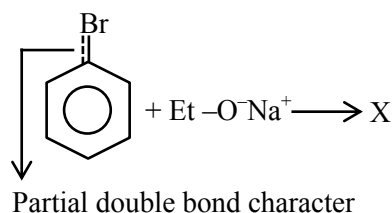
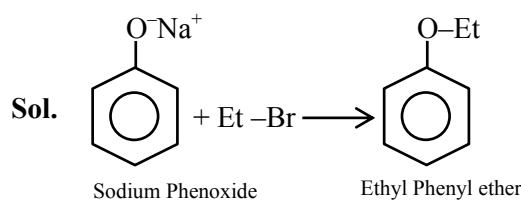


**9. Official Ans. by NTA (3)**

**Sol.**



**10. Official Ans. by NTA (2)**



## 11. Official Ans. by NTA (1)

Sol.

