

GSE/M-21

1483

CHEMISTRY
(Organic Chemistry)
(Theory)
Paper-VI-CH-106

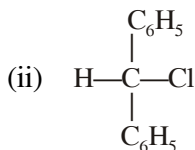
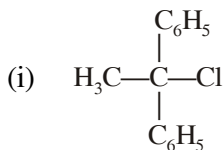
Time : Three Hours]

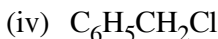
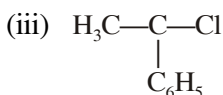
[Maximum Marks : 32

Note : Attempt *five* questions in all, selecting *two* questions from each Section. Question No. 1 is compulsory.

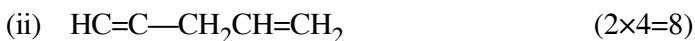
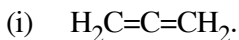
Compulsory Question

1. (a) Compare the melting point of *cis* and *trans*-2-butene. Explain giving reason.
- (b) Chlorination of chlorobenzene is more difficult than that of toluene. Why?
- (c) Arrange the "Following in the increasing order of their reactivity in S_N1 reaction.



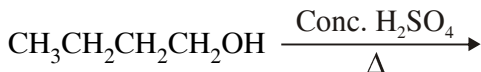


(d) Give IUPAC names of the following compounds :



SECTION-A

2. (a) Complete the following reaction and give its mechanism.



(b) How will you convert :

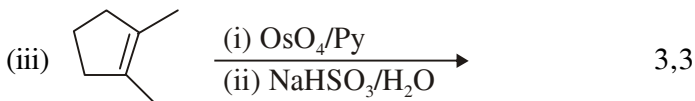
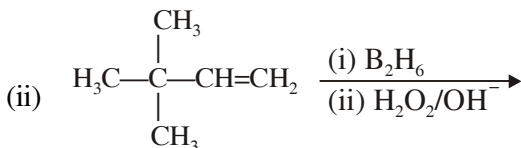
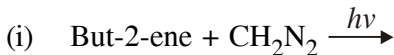
(i) But-2-ene to ethanoic acid.

(ii) Propan-1-ol to propan-2-ol.

(iii) Propene to 1-Bromopropane. 3,3

3. (a) What is peroxide effect ? Why is it shown only by HBr and not by HF, HCl and HI ?

(b) Complete the following reactions:



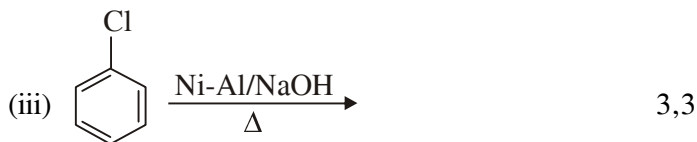
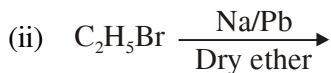
4. (a) What are annulenes ? Give one example each of aromatic, anti-aromatic and non-aromatic annulenes.
 (b) Explain the mechanism of nitration of benzene. 3,3
5. (a) (i) Why an aqueous solution of Tropylium bromide gives precipitate with silver nitrate solution. ?
 (ii) Benzene is unsaturated compound but it fails to give Baeyer's test. Explain.
 (b) (i) Pick out the substituents which are (i) Ring activating (ii) Ring deactivating $-\text{Br}$, $-\text{NH}_2$, $-\text{CH}_3$, $-\text{NO}_2$, $-\text{CN}$
 (ii) Predict the product of Friedel Craft's reaction of benzene with isobutyl chloride and write chemical equation. 3,3

SECTION-B

6. (a) Give products and mechanism of addition of BrCCl_3 to buta-1,3-diene in presence of peroxide.
 (b) Why terminal alkynes are acidic in nature ? 3,3
7. (a) Complete the following reactions :
 (i) $\text{CH}\equiv\text{C}-\text{CH}=\text{CH}_2 + \text{HCl} \rightarrow$
 (ii) $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3 \xrightarrow[196-200 \text{ K}]{\text{Na/NH}_3 (\text{liq.})}$
 (iii) $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2 \xrightarrow[\text{low temp.}]{\text{HBr}}$
- (b) Convert the following :
 (i) Iodoform into ethyne.
 (ii) Ethyne into acetaldehyde. 3,3

8. (a) Allyl halides are more reactive than alkyl halides towards nucleophilic substitution reactions. Explain.

(b) Complete the following reactions :



9. (a) Explain :

(i) Wurtz-Fittig reaction.

(ii) Dow's process.

(b) Complete the following reactions :

