

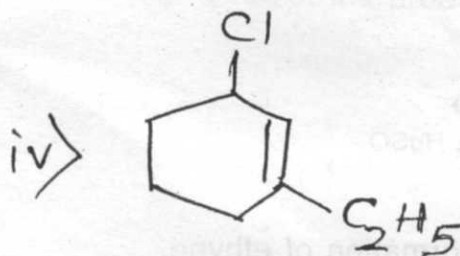
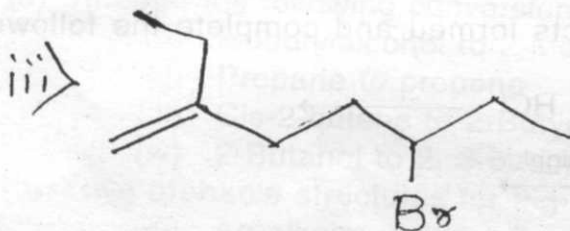
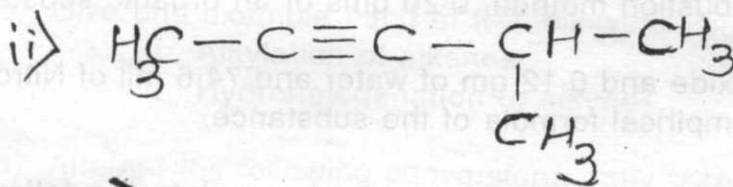
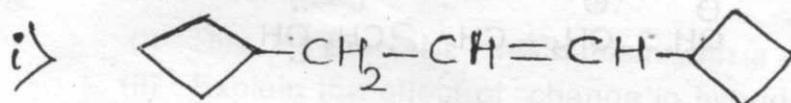
N.B.: (1) Question 1 is compulsory.

(2) Attempt any **four** questions from the remaining **six** questions.

(3) **All** answers to subquestions of individual questions should be grouped **together** and answered **one below the other**.

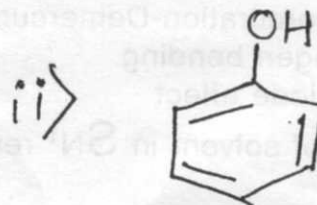
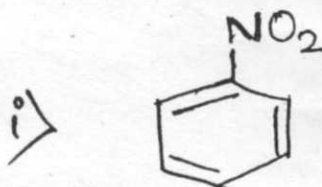
1. (a) Give the IUPAC nomenclature for the following compounds :—

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(b) Draw the resonating structure for :—

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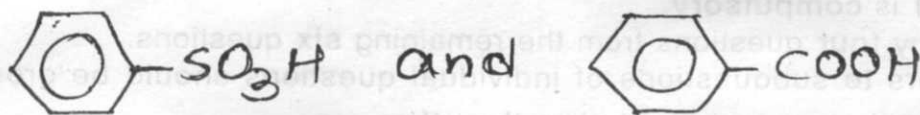


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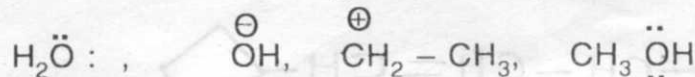
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2. (a)(i) Compare the acidity and justify.

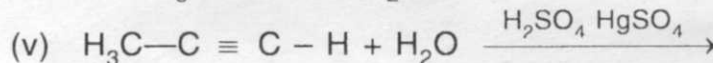
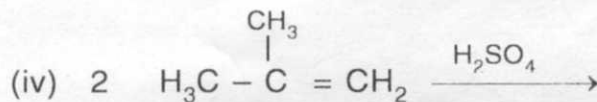
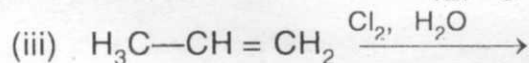
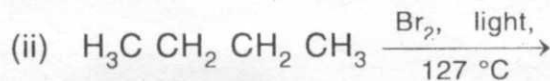
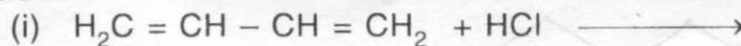


- (ii) Indicate whether the following are electrophiles or nucleophiles :—



- (b) When analysed by combustion method, 0.20 gms of an organic substance yielded :—
0.147 gm of carbon dioxide and 0.12 gm of water and 74.6 mil of Nitrogen gas at NTP. Find the empirical formula of the substance.

3. (a) Write the structures of the products formed and complete the following reactions :



- (b) On the basis of hybridization, explain the formation of ethyne.

4. Write short notes on (any
- four**
-) :—

- Types of inclusion compounds.
- Oxymercuration-Demercuration of alkenes
- Hydrogen bonding
- Peroxiode effect
- Role of solvent in $\text{S}_{\text{N}}1$ reaction.

5. Answer the following (any **two**) :— 8
- (i) Discuss the mechanism and stereochemistry of S_N2 reaction with suitable examples.
 - (ii) Discuss the E1 mechanism of dehydro-halogenation of alkyl halides and give suitable evidence for the same.
 - (iii) Discuss various methods for hydroxylation of alkenes.
6. (a) Answer the following 6
- (i) Discuss the S_N1 mechanism with a suitable example.
 - (ii) Explain the effect of change in hybridisation on bond length.
 - (iii) Give the mechanism of chlorination of methane. 2
- (b) Give one example each of the following reactions :—
- (i) Alkylation of alkenes.
 - (ii) Hydrohalogenation of alkynes. 6
7. (a) Attempt the following conversions, (any **three**) :—
- (i) Isobutylalcohol to 2-Methylpropane
 - (ii) Propane to propene
 - (iii) Cis-2-butene to 2-Butyne
 - (iv) 2-Butanol to 2, 3-butanediol. 2
- (b) Give probable structures for the following :—
- (i) An alkene yielding 2 moles of acetaldehyde on ozonolysis.
 - (ii) Predict the products of ozonolysis of cyclopentene.
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