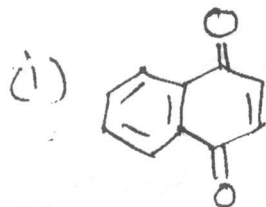


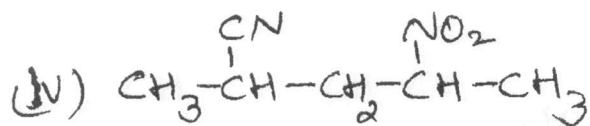
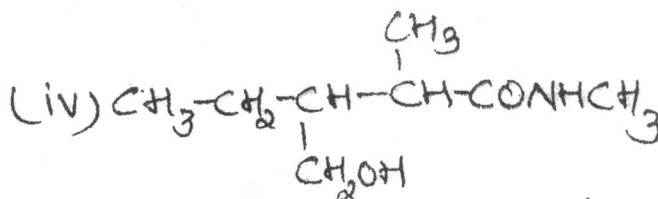
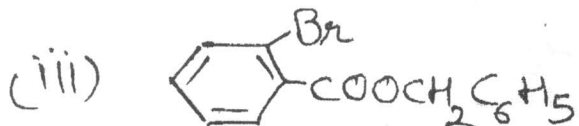
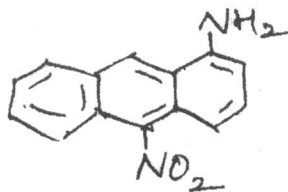
- I.B. (1) Question No. 1 is **compulsory**.
 (2) Answer any **four** of the remaining **six**.
 (3) Answer **all** subquestions of **each** main question **together**.

1. (a) Give IUPAC name for the following structural formulas (any **four**) :-

4



(ii)



(b) Draw the structures of the following compounds (any **four**) :-

4

- Triisopropylmethane
- 4-(N, N- Dimethylamino)-2-butanol
- p-Hydroxyacetophenone
- 3-Oxopentanamide
- 1-(Aminomethyl)-Naphthalene.

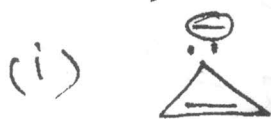
2. (a) Write resonating structures for the following compounds (any **four**) :-

4

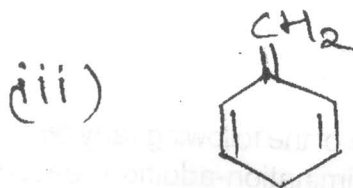
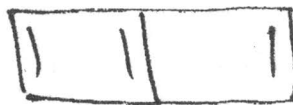
- Anthracene
- Phenol
- Acetanilide
- Bromobenzene
- Nitrobenzene.

(b) Predict and justify which of the following compounds are aromatic or non-aromatic, based on the Hückel rule (any **four**) :-

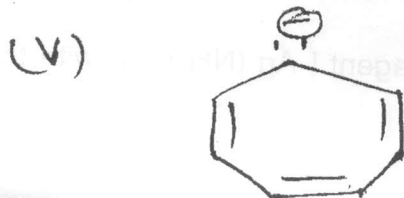
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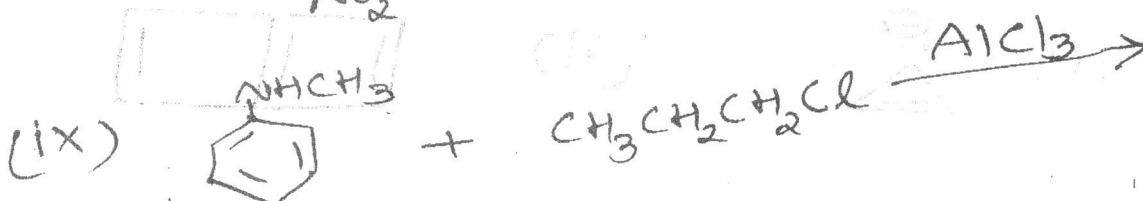
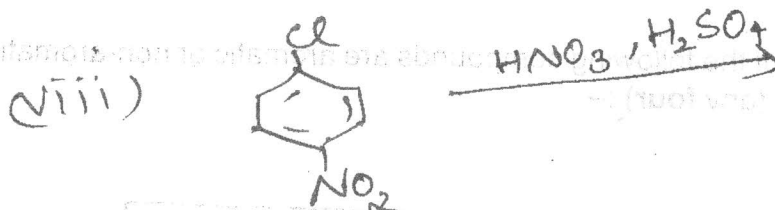
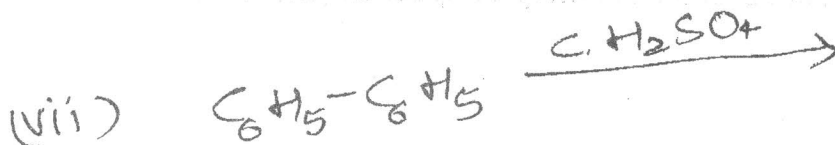
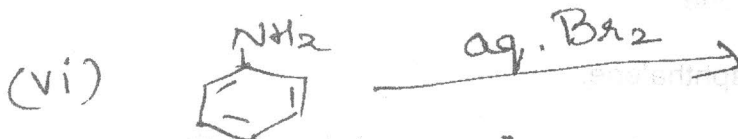
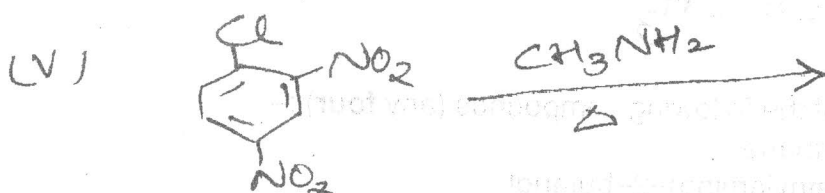
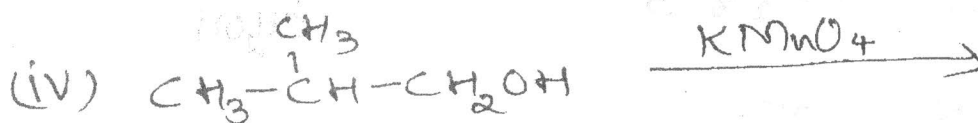
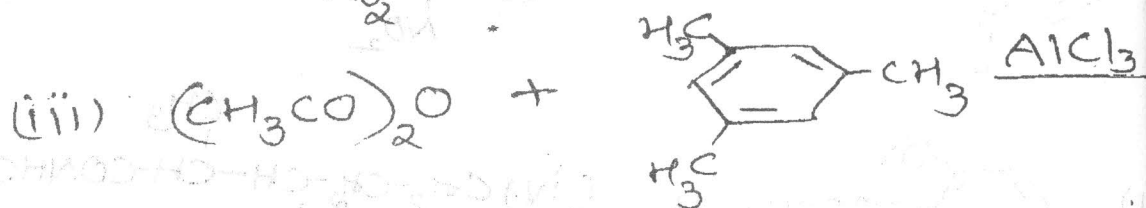
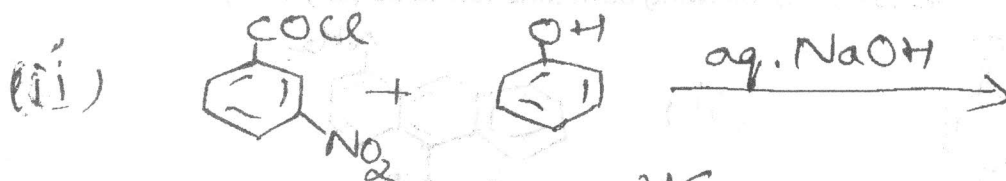
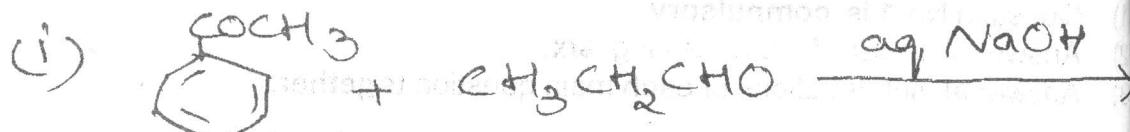
(ii)



(iv)



3. Write the products of the following reactions (any eight) :-



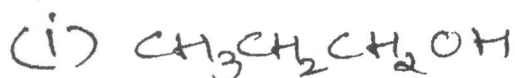
4. (a) Give mechanism with suitable example for each of the following (any two) :-

- Nucleophilic aromatic substitution- Elimination-addition reaction.
- Preparation of phenanthrene using Haworth method.
- Hofmann degradation of amides.

(b) Give products of reaction of Tollen's reagent $[Ag(NH_3)_2^+]$ with the following compounds and justify :

- CH_3CH_2CHO
- CH_3COCH_3

5. (a) Give reasonable explanation for the following (any **three**) :- 6
- Aromatic amines are weaker bases than ammonia.
 - Electrophilic aromatic substitution in anthracene takes place at 9 and/or 10 position.
 - In the monosubstitution of naphthalene, α -product is formed in preference to β -product.
 - $-\text{NO}_2$ group is deactivating and m-director in Electrophilic aromatic substitution reactions.
- (b) Give Grignard reagent and carbonyl compound that can be used to prepare the following alcohols : 2



6. (a) Give reduction products of Naphthalene with various reducing agents. Write reactions. 2
- (b) Convert the following (any **three**) :- 6
- Anthracene to 1-Nitroanthraquinone
 - 2-Naphthylamine to 2-Naphthoic acid
 - Benzene to 3, 5-Dinitrobenzoic acid
 - Benzene to m-bromophenol.

7. (a) Write products for the following (any **four**) :- 4
- α -Naphthoyl chloride + $(\text{CH}_3\text{CH}_2)_2\text{CuLi} \longrightarrow$
 - Benzophenone + Diphenyl hydrazine $\xrightarrow{\text{aq. HCl}}$
 - Naphthalene + HCHO + HCl $\xrightarrow{\text{ZnCl}_2}$
 - Anthracene + Maleic anhydride $\xrightarrow{\Delta}$
 - Phenanthrene $\xrightarrow{\text{H}_2\text{O}_2 \text{ in } \text{CH}_3\text{COOH}}$

- (b) Complete the following synthetic sequence and identify A, B, C and D. 4

