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4601

Your Roll No.

B.Sc. Prog./II

AS

CH-202 : ORGANIC CHEMISTRY

(Admissions of 2008 & onwards)

Time : 2 Hours

Maximum Marks : 50

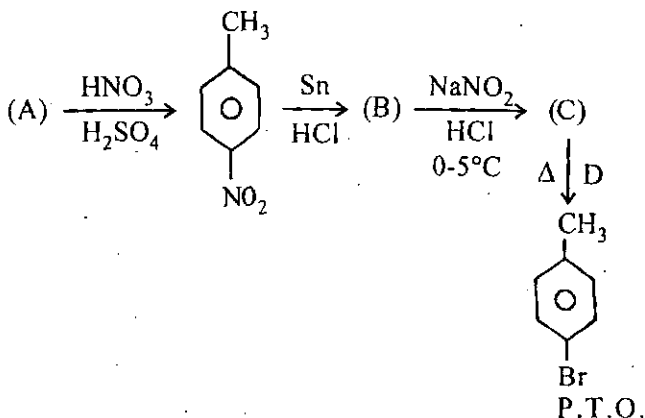
(Write your Roll No. on the top immediately
on receipt of this question paper.)

Attempt any **four** questions.


Question No. 1 is compulsory and carries 14 marks.

1. (a) An aromatic hydrocarbon (A), C_9H_{12} can be oxidized with $KMnO_4$ to (B) having molecular formula $C_8H_6O_4$. Compound (B) is a dicarboxylic acid but does not form an anhydride on heating (B) when treated with bromine in presence of $FeCl_3$ gives only one monobromoderivative (C), $C_8H_5BrO_4$. Give the structural formulae for (A), (B) and (C).

- (b) Identify the compounds (A) through (D) -



- (c) How will you obtain 1-propanol and 2-propanol from propene. (6,4,4)
2. (a) Give the synthesis of ethylacetoacetate from ethylacetate. Give the name and mechanism of the reaction involved.
- (b) Starting from EAA, how will you prepare –
- (i) 4-methyl-uracil
 - (ii) Adipic acid
 - (iii) Pentan – 2,4 – dione (6,6)
3. (a) Giving reasons, arrange the following in the decreasing order of reactivity towards – addition of HCl
ethene, propene, 2-methylbut-2-ene.
- (b) Give the products of reduction of nitrobenzene in acidic and electrolytic conditions.
- (c) Give a chemical test to distinguish between the two of following :
- (i) Acetone from diethyl ketone
 - (ii) Acetone from acetaldehyde (4×3)
4. Explain the following :–
- (a) Ph-NH_2 does not undergo Friedel crafts alkylation reaction.

- (b) Chlorobenzene has a C-Cl bond length of 1.69 \AA while ethylchloride has it 1.76 \AA .
- (c) Halogens are ortho-para directors but are deactivating. (4×3)
5. Give the major products obtained when (any six) –
- (i) Glycerol is treated with periodic acid.
 - (ii) 2-bromobutane is treated with alcoholic KOH.
 - (iii) Benzenesulphonic acid is fused with NaOH.
 - (iv) H_3CCOCl is treated with water/acid.
 - (v)  undergoes reductive ozonolysis.
 - (vi) Propyne is treated with H_2O in presence of $\text{H}_2\text{SO}_4/\text{HgSO}_4$.
 - (vii) H_3CCONH_2 is treated with Br_2 in presence of aq. KOH.
 - (viii) t-butylmethylether is treated with HI. (2×6)
6. (a) Both o-bromoanisole and m-bromoanisole yield the same product on treatment of KNH_2 in presence of liquid ammonia. Explain giving mechanism.
- (b) Compare SN^1 and SN^2 reaction mechanisms involving alkyl halides. (6,6)