

**CHOITHRAM SCHOOL MANIK BAGH INDORE****CLASS XII Session: 2018-19****Subject: Chemistry**  
**Allotment Date: 23 /11/18****Assignment No: IV**  
**Submission Date: 03/12/18**

S.No	QUESTION	MARKS	LEVEL
<b>OBJECTIVE TYPE</b>			
1.	What is clemmensen's reduction?	1	Knowledge
2.	Arrange the following compounds in the increasing order of their acid strength Benzoic acid, p-nitrobenzoic acid, 3,4-Dinitrobenzoic acid	1	Understanding
3.	Di-tert-butylketone does not give precipitate with NaHSO <sub>3</sub> whereas acetone does. Give reason.	1	hot
<b>SHORT ANSWER TYPE I</b>			
4.	Predict the product formed when cyclohexancarbaldehyde reacts with following reagents: i)Tollen's reagent ii)semicarbazide and weak acid.	2	knowledge
5.	Carboxylic acids are more acidic than alcohols or phenols although all of them have hydrogen atom attached to a oxygen atom (-O-H) ?	2	understanding
6.	Compound 'A' was prepared by oxidation of compound 'B' with alkaline KMnO <sub>4</sub> . Compound 'A' on reduction with lithium aluminium hydride gets converted back to compound 'B'. When compound 'A' is heated with compound 'B' in the presence of H <sub>2</sub> SO <sub>4</sub> it produces fruity smell of compound 'C'. Identify the family to which the compounds A , B and C belong to ?	2	logic
7.	Compound 'X' (C <sub>2</sub> H <sub>4</sub> O) on oxidation gives 'Y' (C <sub>2</sub> H <sub>4</sub> O <sub>2</sub> ). 'X' undergoes haloform reaction. On treatment with HCN 'X' forms a product 'Z' which on hydrolysis gives 2-hydroxypropanoic acid? i) Write the structures of 'X and 'Y'. ii) Write the equations for the reactions involved.	2	Hot
<b>SHORT ANSWER TYPE II</b>			
8.	Explain the following by giving suitable reasons: a) Acetic acid is a weaker acid than chloroacetic acid. b)Aliphatic aldehydes are easily oxidized by Fehling's solution but aromatic aldehydes are not.	3	Understanding
9.	Arrange the following as directed : i)in increasing order of pK <sub>b</sub> values : C <sub>2</sub> H <sub>5</sub> NH <sub>2</sub> , C <sub>6</sub> H <sub>5</sub> NHCH <sub>3</sub> , (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NH, and C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> ii)In increasing order of basic strength: C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> , C <sub>6</sub> H <sub>5</sub> N(CH <sub>3</sub> ) <sub>2</sub> , (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NH , and CH <sub>3</sub> NH <sub>2</sub> Justify your answer in each case.	3	Multi conceptual
10.	Give reason for the following: i)benzaldehyde is less reactive than acetaldehyde towards nucleophilic addition reaction. ii)formaldehyde can take part in cross aldol condensation. iii)controlling the pH during the reaction of aldehyde and ketones with ammonia derivatives is necessary.	3	Understanding
<b>LONG ANSWER TYPE</b>			
11.	An unknown aldehyde 'A' on reacting with alkali gives β-hydroxy aldehyde, which loses water to form an unsaturated aldehyde, but-2-enal. Another aldehyde 'B' undergoes disproportionation reaction in the presence of conc. Alkali to form products 'C' and 'D'. 'C' is an aryl alcohol with formula C <sub>7</sub> H <sub>8</sub> O. i)Identify 'A' and 'B'. ii) Write the sequence of the reactions involved. iii) Name the product when 'B' reacts with zinc amalgam and hydrochloric acid	5	Logic
12.	Account for the following : i)pK <sub>b</sub> of aniline is more than that of methylamine. ii)Ethylamine is soluble in water whereas aniline is not . iii)although amino group is o- and p- directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline. iv)Aniline does not undergo Friedel-Crafts reaction. v)Gabriel pthalimide synthesis is preferred for synthesizing primary amines.	5	Hot