CHEMISTRY DEPARTMENT 2023
S.6 BRAINSTORMING TEST
TEST ON; DISTINGUISHING SPECIES

NAME……**INDEX number**……
Signature …… **expected score(%)**……

Instructions; Attempt *all questions in this paper.*

1. (a) Name **one** reagent that can be used to distinguish between members of the following pairs of compounds. In each case state what would be observed when each member of the pair (s) is separately treated with the reagent you have named;

(i) **HCOOH and CH_3COOH** (1 ½ marks)

Reagent

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Observations;

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(ii) **CH_3OH and CH_3CH_2OH** (1 ½ marks)

Reagent

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Observations;

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(iii) $\begin{matrix} COO^- \\ | \\ COO^- \end{matrix}$ and $HCOO^-$ (03 marks)

Reagent

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Observations;

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(iv) $(CH_3CH_2)_2NH$ and $CH_3CH_2NH_2$ (03 marks)

Reagent

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Observations;

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.2. (a) State what is observed when each of the following compounds is treated with ammoniacal silver nitrate solution:

(i) $CH_3CH_2C \equiv CH$ *(1 mark)*

observations

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E**quation**

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(ii) $CH_3CH_2CH_2CHO$ *(1 mark)*

observations

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Equation

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3. Name a reagent that can be used to distinguish between each of the following pairs of substances. In each case state what would be observed when the reagent is treated with each member of the pair.

(a) propan-2-ol and ethanol

Reagent: *($\frac{1}{2}$ mark)*

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Observation: *(1 mark)*

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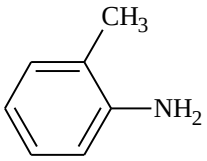
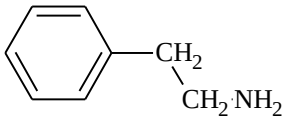
(b)  and 

Reagent: *(1 mark)*

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Observation: *(1½ marks))*

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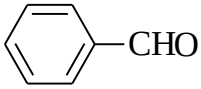
(c) HCHO and 

Reagent: *(1 mark)*

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Observation: *(1½ marks))*

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4. Name one reagent that can be used to distinguish between each of the following pairs of compounds and state what would be observed in each case if the reagent is reacted with the compounds

   (a) C_6H_5COOH and C_6H_5OH

   Reagent

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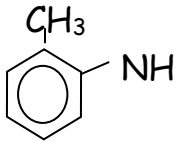
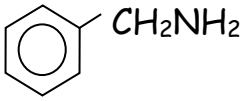
   Observations;

   ……

   ……

(b)  and 

Reagent

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Observations;

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(c) CH_3OH and CH_3CH_2OH

Reagent

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Observations;

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(d) $(CH_3)_2C=O$ and CH_3CH_2CHO *(03 marks)*

Reagent

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Observations;

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(e) HCOOH and HOOCCOOH *(03 marks)*

Reagent

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Observations;

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(f) $CH_3C{\equiv}CCH_3$ and $CH_3CH_2C{\equiv}CH$ *(03 marks)*

Reagent

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Observations;

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5. Name a reagent that can be used to distinguish between each of the following pairs of ions. In each case, state what would be observed if each member of the pair was treated with the reagent you have named.

(a) $C_2O_4^{2-}$ and CH_3COO^- *(3marks)*

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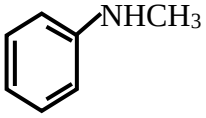
(b) $CH_3CH_2CH_2NH_2$ and 

(3 marks)

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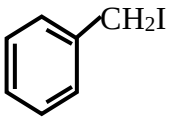
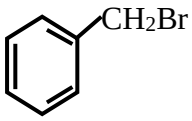
(c)  and  *(3 marks)*

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(d) $CH_2CH_2COCH_3$ and $CH_2CH_2CH_2CHO$ *(3 marks)*

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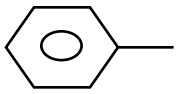
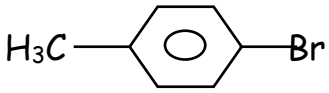
e)  and  (03 marks)

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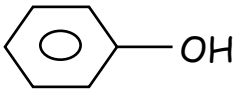
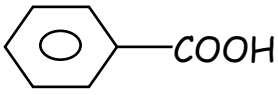
 and  (03 marks)

Reagent

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Observation

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6. State what would be observed and write equation for the reaction that would take place if:

a) 2,4-dinitrophenyl hydrazine is added to ethanal. (02 marks)

Observation

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Equation

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b) Propene is mixed with alkaline potassium manganate (VII) solution

Observation

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Equation

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c) Propanone is mixed with sodium hydrogensuphite solution

Observation

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Equation

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d) Propyne is mixed with ammoniacal copper(i) chloride solution

Observation

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Equation

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e) Propan-1-ol is mixed with iodine solution and sodium hydroxide solution

Observation

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Equation

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7. For each of the following pairs of species,Name a reagent that gives similar observations if treated with each of the species. In each case state what would be observed when the reagent named is treated with the species. state the functional group in the species,equation for the reaction when the reagent is treated with the specie.
(a) $(CH_3)_2C=O$ and CH_3CH_2CHO *(03 marks)*

Reagent

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Observations;

……

Functional group

……

Equation

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END.