CHEMISTRY: **Max. Marks: 60**

SECTION – I

(MULTIPLE CORRECT CHOICE TYPE)

This section contains **8 multiple choice questions.** Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONE OR MORE is/ are correct**

21. Aldehydes and ketones give crystalline product with $NaHSO_3$. The correct statements about it are

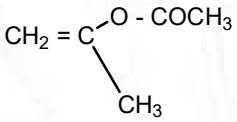
A) all carbohydrates also give the addition product with $NaHSO_3$

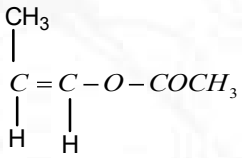
B) Carbonyl compounds can be regenerated from the addition product by hydrolysis

C) Oxygen in SO_3 connects to carbonyl carbon

D) Sulphur in the $-SO_3H$ connects to the carbonyl compound

22. The product of hydrolysis of A and B can be distinguished with

(A) 

(B) 

A) I_2/NaOH B) Fehlings solution

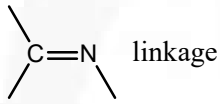
C) $NaHSO_3$ D) 2,4-DNPH

23. Which of the following react with ethanolic KCN ?

A) ethyl chloride B) chloro benzene

C) benzaldehyde D) 2,4-dinitro chloro benzene

24. Among the following which will react with acetone and form a product with



linkage

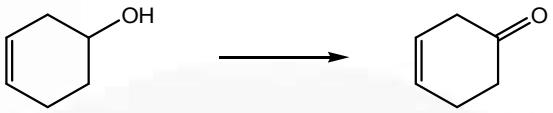
A) $C_6H_5NH_2$ B) $(CH_3)_3N$ C) NH_2-NH_2 D) $CH_3-\underset{\displaystyle H}{\underset{|}{N}}-CH_3$

25. The chemicals used in preparing Fehlings solution are.

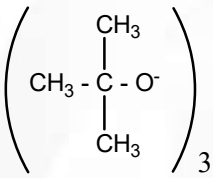
A) $CuSO_4$ B) sodium potassium tartrate

C)NaOH D) sodium citrate

26. The reagents which bring about the following reaction are

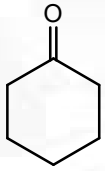


A) CrO_3, HCl, pyridine B) CrO_3, H_2SO_4 ,acetone

C)  Al + acetone

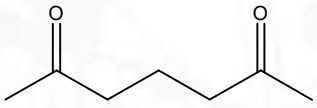
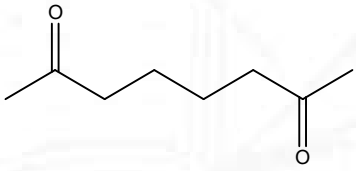
D) 1% $KMnO_4$

27. In which of the following a pair of diastereomers is formed ?

A) $CH_3CHO + NH_2OH \xrightarrow[\Delta]{H^+}$ B)  $+NH_2OH \xrightarrow[\Delta]{H^+}$

C) $CH_3COCH_2CH_3 \xrightarrow[H^+]{NH_2OH}$ D) $HCHO + NH_2OH \xrightarrow[\Delta]{H^+}$

28. Which of the following when treated with aq.NaOH give a product with six membered ring?

A)  B) 

C)  D)all

SECTION - II
(COMPREHENSION TYPE)

This section contains **4 groups of questions.** Each group has 2 multiple choice questions based on a paragraph. Each question has 4 choices A), B), C) and D) for its answer, out of which **ONLY ONE** is **correct.**

Paragraph for Questions 29 and 30

When an aldehyde with no $\alpha - hydrogen$ is treated with conc alkali it undergoes disproportionation. The products are sodium salt of an acid and alcohol. It can be intramolecular also.

29. The product formed in the following reaction in

$C_6H_5COCHO \xrightarrow{OH^-}$

A) $C_6H_5COCOO^-$

B) $C_6H_5CHOHCHO$

C) $C_6H_5COOH + C_6H_5CH_2OH$

D) $C_6H_5CH(OH)-COO^-$

30. $(CH_3)_2CHCHO \xrightarrow[\Delta, H_2O]{NaOH}$ the products are

A) $(CH_3)_2CH-\underset{OH}{\underset{|}{C}}(H)-\underset{CH_3}{\underset{|}{C}}(CH_3)-CHO$

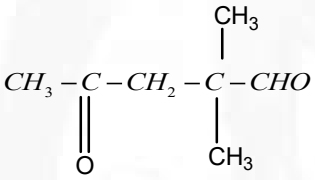
B) $(CH_3)_2=CH-\underset{CH_3}{\underset{|}{C}}(CH_3)-CHO$

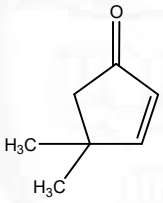
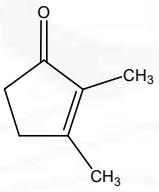
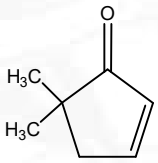
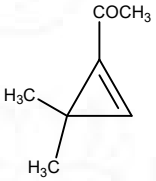
C) $(CH_3)_2CHCH_2OH + (CH_3)_2CHCOO^-Na^+$

D) $(CH_3)_2CH-\underset{OH}{\underset{|}{C}}(H)-\underset{CH_3}{\underset{|}{C}}(CH_3)-COOH$

Paragraph for Questions 31 and 32

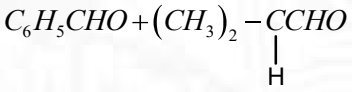
Aldol condensation takes place in aldehydes or ketones having at least one α H-atom when treated with NaOH. The product is β hydroxy aldehyde or ketone respectively. On heating, dehydration takes place and α,β-unsaturated aldehydes or ketones are formed.

31.  $\xrightarrow[H_2O,\Delta]{KOH} C_7H_{10}O$ the product is

A)  B)  C)  D) 

32. Which of the following pair gives a single product in crossed aldol condensation

A) $C_6H_5-CH_2CHO, +C_6H_5CHO$ B) $C_6H_5CHO+HCHO$

C)  D) $CH_3CHO+(CH_3)_2CH.CHO$

Paragraph for Questions 33 and 34

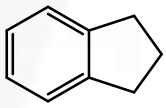
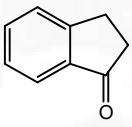
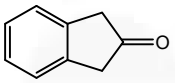
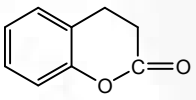
In the following reactions sequences, B is an intermediate which releases CO_2 with $NaHCO_3$ and decolorises Baeyer's reagent

$$A \xrightarrow[CH_3COONa]{(CH_3CO)_2O} B \xrightarrow[2.SOCl_2\ 3.AlCl_3]{1.H_2,Pd-C} C$$

33. A is

A) C_6H_5CHO B) $C_6H_5CH_2OH$ C) $C_6H_5COCH_3$ D) $C_6H_5CH=CH_2$

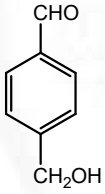
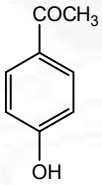
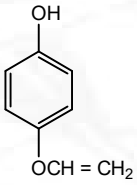
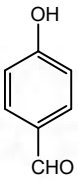
34. C is

A)  B)  C)  D) 

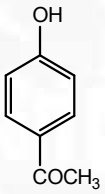
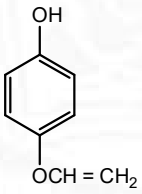
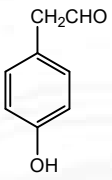
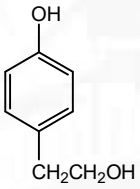
Paragraph for Questions 35 and 36

5 isomeric p-disubstituted aromatic compounds have the formula $C_8H_8O_2$

35. One isomer gives positive iodoform test it is

A)  B)  C)  D) 

36. One compound reduces ammonical $AgNO_3$ and gives Color with neutral $FeCl_3$. It is

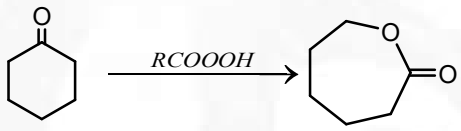
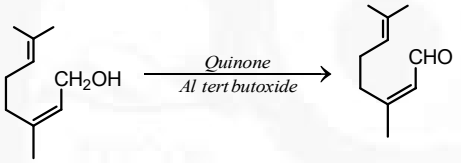
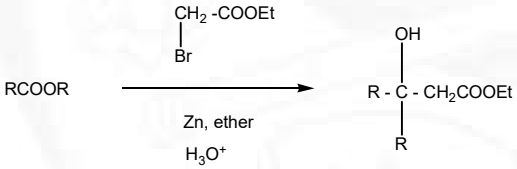
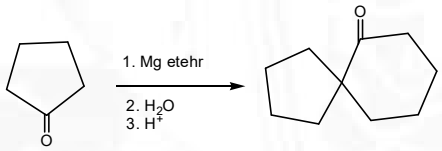
A)  B)  C)  D) 

SECTION – III

(MATRIX MATCH TYPE)

This section contains **4 multiple choice questions.** Each question has matching lists. The codes for the lists have choices (A), (B), (C), and (D) out of which **ONLY ONE** is correct.

37. Match the following

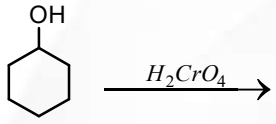
Column-I (Reaction)	**Column-II** (Name of the reaction in which it is involved)
A) 	P) pinacol-pinacolone rearrangement
B) 	Q)Reformatsky reactiion
C) 	R) Oppenauer oxidation
D) 	S) Baeyer-villiger oxidation

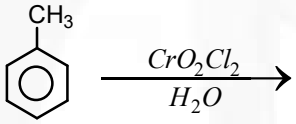
A) $A \rightarrow S;\ B \rightarrow R;C \rightarrow Q;D \rightarrow P$ B) $A \rightarrow S;\ B \rightarrow Q;C \rightarrow P;D \rightarrow S$

C) $A \rightarrow Q;\ B \rightarrow S;C \rightarrow Q;D \rightarrow P$ D) $A \rightarrow R;\ B \rightarrow PR;C \rightarrow Q;D \rightarrow S$

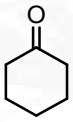
38. **Column-I** **Column-II**

(Reaction) (Product)

A)  P) $C_6H_5COCH_3$

B)  Q) $C_6H_5CH_2CHO$

C) $C_6H_5-C\equiv CH \xrightarrow[HgSO_4]{H_2SO_4}$ R) C_6H_5CHO

D) $C_6H_5CH_2Cl \xrightarrow[3.H_2O]{1.KCN\ 2.SnCl_2,HCl}$ S) 

A) A $\rightarrow$P;B $\rightarrow$R;C $\rightarrow$Q;D $\rightarrow$P B)A $\rightarrow$P;B $\rightarrow$Q;C $\rightarrow$Q;D $\rightarrow$S

C) A $\rightarrow$S;B $\rightarrow$P;C $\rightarrow$Q;D $\rightarrow$Q D)A $\rightarrow$S;B $\rightarrow$R;C $\rightarrow$P;D $\rightarrow$Q

39.

Column-I (Compound)	**Column-II** (Name of the reaction in which it is involved)
A) C_6H_5CHO	P) Aldol condensation
B) HCHO	Q) Cannizzaro reaction
C) CH_3COCH_3	R) Benzoin condensation
D) CH_3CHO	S) Iodoform

A) A $\rightarrow$ QR;B $\rightarrow$ Q;C $\rightarrow$ PS;D $\rightarrow$ PS B) A $\rightarrow$ PS;B $\rightarrow$ Q;C $\rightarrow$ PS;D $\rightarrow$ PQ

C) A $\rightarrow$ PR;B $\rightarrow$ Q;C $\rightarrow$ S;D $\rightarrow$ P D) A $\rightarrow$ PS;B $\rightarrow$ P;C $\rightarrow$ S;D $\rightarrow$ S

40.

Column-I (Compound)	**Column-II** (Reaction)
A) C_6H_5CHO	P) positive iodoform test
B) CH_3CHO	Q) Reduces Fehlings solution
C) HCHO	R) Reduces Tollens reagent
D) CH_3COCH_3	S) 2,4-DNPH

A) A $\rightarrow$ RS;B $\rightarrow$ PQRS;C $\rightarrow$ QRS;D $\rightarrow$ S

B) A $\rightarrow$ S;B $\rightarrow$ P;C $\rightarrow$ QRS;D $\rightarrow$ PQ

C) A $\rightarrow$ R;B $\rightarrow$ P;C $\rightarrow$ RS;D $\rightarrow$ P

D) A $\rightarrow$ PR;B $\rightarrow$ PRS;C $\rightarrow$ QS;D $\rightarrow$ S