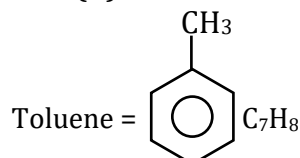


Practical Organic Chemistry

SOLUTIONS

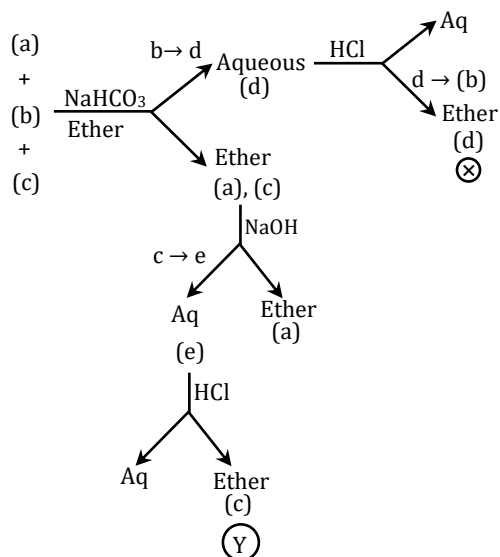
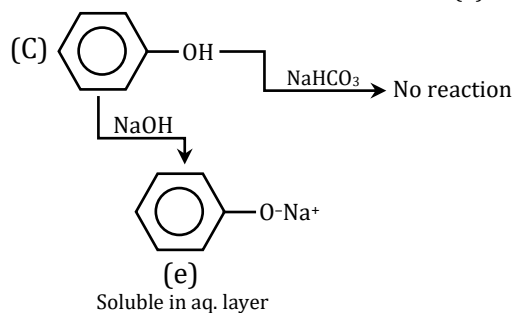
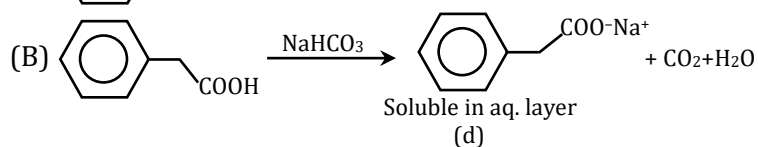
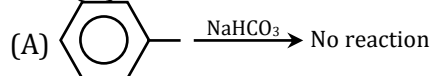
EXERCISE - O

1. Ans. (A)



M.wt = $7 \times 12 + 8 \times 1 = 92$

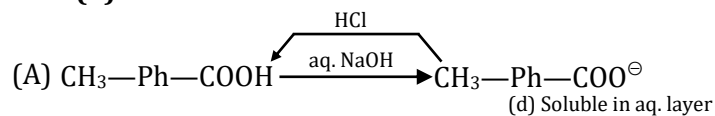
2. Ans. (D)

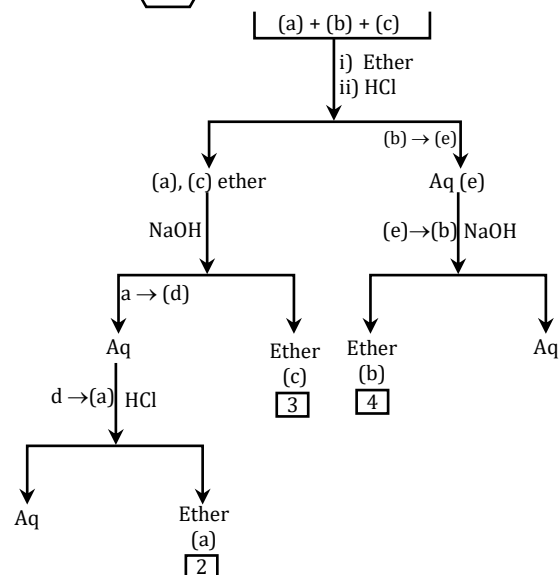
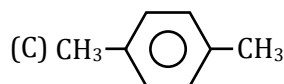
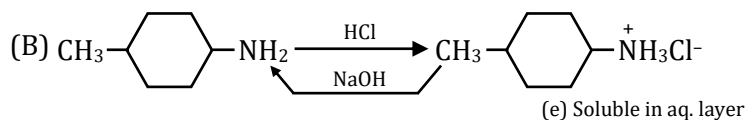


3. Ans. (D)

4. Ans. (B)

5. Ans. (C)





6. **Ans. (D)**

Separation of two immiscible liquid we use separating funnel/Decantation.



Separating funnel

7. **Ans. (B)**

Aniline is usually purified by steam distillation method.

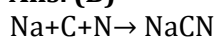
8. **Ans. (D)**

Steam distillation is most suitable method of separation of ortho and para nitro phenol.

9. **Ans. (C)**

Glycerol can be separated from spent-lye in soap industry by vacuum distillation.

10. **Ans. (B)**



11. **Ans. (A)**

Purification of organic compounds

* Chromatography is used for purification of organic compounds

* It involves methods like (A) Adsorption chromatography.

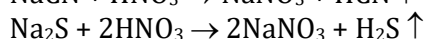
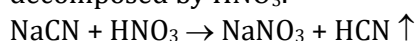
(B) Partition chromatography.

12. **Ans. (B)**

In paper chromatography, stationary phase and mobile phase both are liquid.

13. **Ans. (B)**

Lassaigne's extract is boiled with dil. HNO_3 before testing of Halogen because Na_2S and NaCN are decomposed by HNO_3 .



14. **Ans. (D)**

Blue colour is due to formation of ferri ferrocyanide iron(III) $\Rightarrow$ Prussian blue in colour

15. **Ans. (B)**
Hydrazine ($\text{NH}_2\text{-NH}_2$) have no carbon atom, so on fusing with $\text{Na}^\oplus$ metal, it does not form any NaCN which is main requirement in this test for nitrogen testing.
16. **Ans. (C)**
Hair contain amino acids which on heating produces ammonia.
17. **Ans. (D)**
Beilstein's test for organic compound is used for detection of halogens. They impart green or blue colour.
18. **Ans. (D)**
Use of anhydrous CuSO_4 as it form $\Rightarrow \text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (Blue colour solution)
19. **Ans. (C)**
In Kjeldahl's method nitrogen present is estimated as NH_3 .
20. **Ans. (C)**
Liebig's method is used for the estimation of carbon and hydrogen.
A known mass of an organic compound is burnt in the presence of excess of oxygen (free from CO_2)
Carbon and hydrogen present in the compound are oxidised to CO_2 and H_2O respectively.
$$\text{C}_x\text{H}_y + \left(x + \frac{y}{4}\right)\text{O}_2 \xrightarrow{\Delta} x\text{CO}_2 + \frac{y}{2}\text{H}_2\text{O}$$
21. **Ans. (A)**
0.765 gm of acid $\Rightarrow$ 0.535 gm of CO_2 + 0.138 gm of H_2O
$$\frac{0.534}{44} = 0.0121 \text{ moles} \qquad \frac{0.138}{18}$$

0.1456 gm of carbon = 0.0153 gm of H atom
$$\frac{0.1456}{0.765} \times 100 = \% \text{ Carbon} = 19\%$$

$$\frac{0.0153}{0.765} \times 100 = \% \text{ Hydrogen} = 2\%$$
22. **Ans. (C)**
Nitrogen in compound can be estimated by (1) Duma's method (2) Kjeldahl method
(a) Dumas method
In this method nitrogen present in the organic compound is converted into N_2 (molecular nitrogen). A weighed amount of organic compound is heated with cupric oxide in an atmosphere of carbon dioxide.
Kjeldahl's Method :
In this method nitrogen in the organic compound is converted into ammonia (NH_3)
A known mass of organic compound containing nitrogen is heated with concentrated sulphuric acid in presence of K_2SO_4 and CuSO_4 then nitrogen present in the compound is converted into ammonium sulphate. K_2SO_4 increase boiling point of H_2SO_4 and CuSO_4 acts as catalyst.
Organic compound + $\text{H}_2\text{SO}_4 \Rightarrow (\text{NH}_4)_2\text{SO}_4$
The resulting solution is distilled with excess of sodium hydroxide
$$(\text{NH}_4)_2\text{SO}_4 + 2\text{NaOH} \Rightarrow \text{Na}_2\text{SO}_4 + 2\text{NH}_3 + 2\text{H}_2\text{O}$$
23. **Ans. (B)**
Dumas method involves the determination of nitrogen contained in the organic compound in form of N_2 .
24. **Ans. (C)**
25. **Ans. (B)**
26. **Ans. (D)**
27. **Ans. (A)**
28. **Ans. (C)**
organic acid $\longrightarrow \text{CO}_2 + \text{H}_2\text{O}$
0.2 g 0.195 g 0.04 g

$$\% \text{ of C} = \frac{0.195 \times \frac{12}{44}}{0.2} \times 100 = 26.6\%$$

$$\% \text{ of H} = \frac{0.04 \times \frac{2}{18}}{0.2} \times 100 = 2.22\%$$

$$\% \text{ of O} = 100 - (\% \text{ C} + \% \text{ H}) = 100 - (26.6 + 2.22) = 71.2 \%$$

Elements	% by wt	$\frac{\% \text{ by wt}}{\text{At wt}} = X_i$	$\frac{X_i}{X_{\text{smallest}}}$
C	26.6	$\frac{26.6}{12} = 2.22$	1
H	2.22	$\frac{2.22}{1} = 2.22$	1
O	71.2	$\frac{71.2}{16} = 4.44$	2

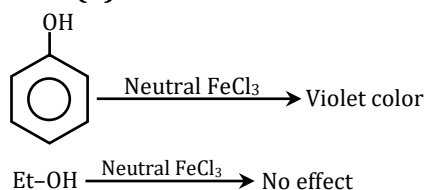
$\therefore$ Empirical formula = CHO_2

Empirical weight = $12 + 1 + 16 \times 2 = 45$

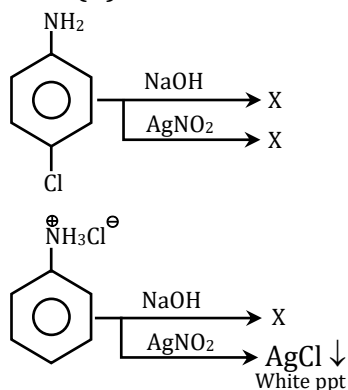
Now for acid to be dibasic, it must have two H-atom

$\therefore$ Mol formula = $(\text{CHO}_2)_2 = (\text{COOH})_2$

29. **Ans. (C)**



30. **Ans. (B)**

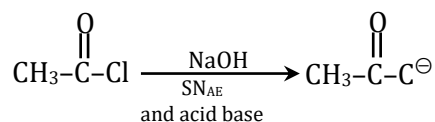
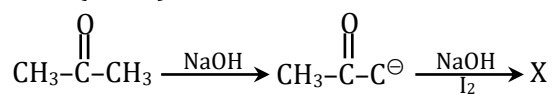


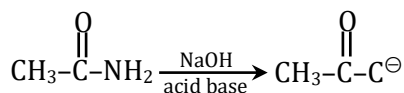
A. S.: $\text{H}_2\text{O} > \text{RNH}_2 > \text{R-NH}_2$

31. **Ans. (A,B,C,D)**

Compounds having methyl ketone group shows haloform test

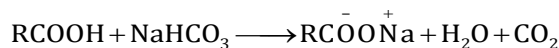
32. **Ans. (B,C,D)**





33. **Ans. (A,B,C)**

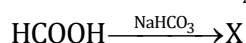
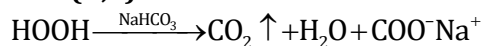
Phenol / Phenol derivative $\xrightarrow[(\text{NH}_4)_2\text{Ce}(\text{NO}_3)_6]{\text{Ceric ammonium nitrate}}$ Red colour



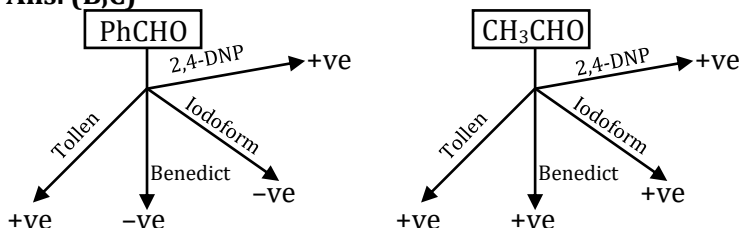
34. **Ans. (A,B)**

Only 1° Aliphatic & Aromatic amine give carbylamines test.

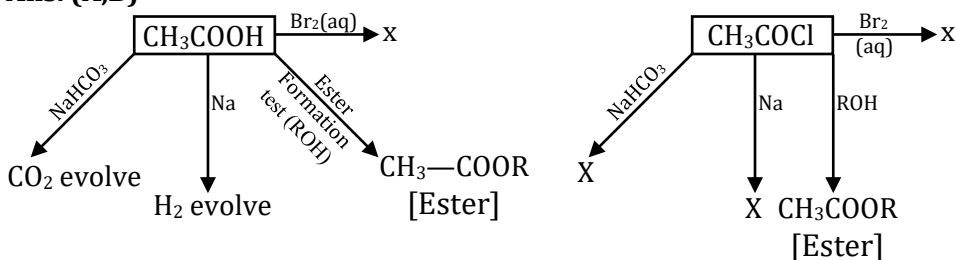
35. **Ans. (B,C)**



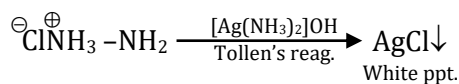
36. **Ans. (B,C)**



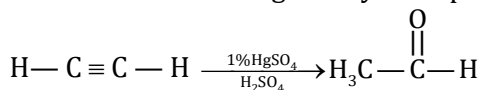
37. **Ans. (A,B)**



38. **Ans. (A)**



Bromin water test is given by multiple bonds.



H₂/Pd react with (=), (≡), and carbonyl group of aldehyde and ketone reduces functional group

39. **Ans. (B)**

2° Alcohol $\xrightarrow{\text{Victor Meyer's test}}$ Blue colour

3° Alcohol $\xrightarrow{\text{Victor Meyer's test}}$ Colourless

EXERCISE - S

1. **Ans. (3)**

Only Compounds containing nitrogen along with carbon will give Lassaigne's test for nitrogen.

Benzene diazonium halide do not give this test

III, V and VIII do not give this test

2. **Ans. (6)**

Organic Compound containing Halide ion give Beilstein test. Fluoride ion ($F^{\ominus}$) can't be detected by this test. Urea, Thiourea and pyridine also give this test.

except IV, VIII, IX and X, all compounds give Beilstein test.

3. **Ans. (2)**

Compound containing only Nitrogen and sulphur will give blood red colouration when $FeCl_3$ is added to their respective Lassaigne's extract. Only 1 and 3 will satisfy given condition.

4. **Ans. (6)**

Kjeldahl method is not applicable to compounds containing nitrogen in nitro and azo groups and nitrogen present in the ring (e.g. pyridine) as nitrogen of these compounds does not change to ammonium sulphate under these conditions.

I, II, IV, V, VI and VIII cannot be used.

5. **Ans. (56)**

mEq. Of acid = $50 \times 0.5 \times 2 = 50$

mEq. Of base = $60 \times \frac{1}{2} \times 1 = 30$

Excess of acid used to neutralise

$NH_3 = 50 - 30 = 20$ mEq

Percentage of N

$$= \frac{1.4 \times \text{mEq. of acid used}}{\text{Weight of compound}} = \frac{1.4 \times 20}{0.5} = 56.0\%$$

6. **Ans. (70)**

Here, H_3PO_3 is dibasic (i.e., $n = 2$).

The normality of $H_3PO_3 = M \times n = 0.5 \times 2 = 1$ N.

mEq. of $H_3PO_3 = 50 \times 0.5 \times 2 = 50$

mEq. of $Ca(OH)_2 = 30 \times 0.5 \times 2 = 30$

Excess of acid used to neutralise $NH_3 = 50 - 30 = 20$

$$\text{Percentage of } N_2 = \frac{1.4 \times \text{mEq. of acid used to neutralise } NH_3}{\text{Weight of compound}} = \frac{1.4 \times 20}{0.4} = 70\%$$

7. **Ans. (28)**

m. mol of $H_2SO_4 = 0.2 \times 10^{-4} \times 10^3 = 0.2 \times 10^{-1}$

mEq. of $H_2SO_4 = 0.2 \times 10^{-1} \times 2 = 0.4 \times 10^{-1} = 0.04$

$$\text{Percentage of N} = \frac{1.4 \times \text{mEq. of acid used to neutralise } NH_3}{\text{Weight of compound}} = \frac{1.4 \times 0.04}{0.002} = 28\%$$

8. **Ans. (51.2)**

Percentage of phosphorus

$$= \frac{62}{222} \times \frac{\text{Mass of } Mg_2P_2O_7}{\text{Mass of compound}} \times 100$$

$$= \frac{62}{222} \times \frac{0.22}{0.12} \times 100 = 51.20\%$$

9. **Ans. (3)**

All alcohol give CAN test and only phenol and its derivative will give $FeCl_3$ test.

II, III, IV, V, VIII, IX and X do not give both CAN and $FeCl_3$ test.

EXERCISE - JEE (Main) PYQ

1. **Ans. (3)**

Match list :-

(a)	Lassaigne's Test	(iii)	N, S, P, and halogen
(b)	Cu(II) oxide	(i)	Carbon
(c)	AgNO ₃	(iv)	Halogen Specifically
(d)	Sodium fusion extract gives black precipitate with acetic acid and lead acetate (CH ₃ COOH/(CH ₃ COO) ₂ Pb)	(ii)	Sulphur

2. **Ans. (1)**

Thin layer chromatography (TLC) is another type of adsorption chromatography, which involve separation of substance of a mixture over a thin layer of an adsorbent coated on glass plate.

A thin layer (about 0.2 mm thick) of an adsorbent (silica gel) or (Alumina) is spread over a glass plate of suitable size. Hence Assertion (1) is correct and Reason (R) is correct explanation of (1)

3. **Ans. (22)**

$$V = 22.78 \text{ ml, } T = 280 \text{ K}$$

$$P_{\text{total}} = 759 \text{ mmHg}$$

$$P_{\text{N}_2} = 759 - 14.2 = 744.8 \text{ mmHg}$$

$$n_{\text{N}_2} = \frac{744.8 \times 22.78}{760 \times 1000 \times 0.082 \times 280} = 0.00097$$

$$W_{\text{Nitrogen}} = 0.02716$$

$$\%N = \frac{0.02716}{0.125} \times 1000 = 21.728$$

4. **Ans. (42)**

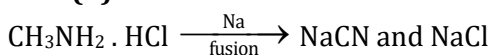
$$\% \text{ sulphur} = \frac{32}{233} \times \frac{\text{weight of BaSO}_4 \text{ formed}}{\text{weight of organic compound}} \times 100$$

$$= \frac{32}{233} \times \frac{1.4439}{0.471} \times 100$$

$$= 42.10$$

Nearest integer 42

5. **Ans. (2)**



NaCN gives +ve test for nitrogen and

NaCl gives +ve test for halogen

6. **Ans. (6)**

$$R_f = \frac{\text{Distance moved by the substance from baseline}}{\text{Distance moved by the solvent from baseline}}$$

$$= \frac{3.0 \text{ cm}}{5.0 \text{ cm}} = 0.6 \text{ or } 6 \times 10^{-1}$$

7. **Ans. (200)**

Let M is the molar mass of the compound (g/mol)

mass of compound = 0.01 M gm

$$\text{mass of carbon} = 0.01 M \times \frac{60}{100}$$

$$\text{moles of carbon} = \frac{0.01M}{12} \times \frac{60}{100}$$

$$\text{moles of CO}_2 \text{ from combustion} = \frac{4.4}{44} = \text{moles of carbon}$$

$$\frac{0.01M}{12} \times \frac{60}{100} = \frac{4.4}{44}$$

$$M = \frac{4.4}{44} \times \frac{100}{60} \times \frac{12}{0.01} = 200 \text{ gm/mol}$$

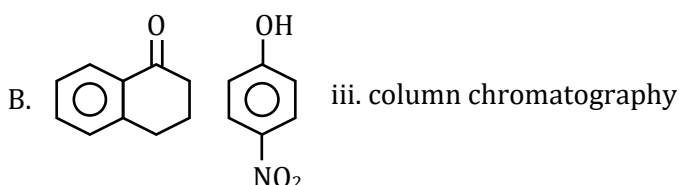
8. **Ans. (2)**

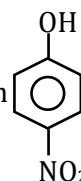
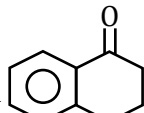
List I (Mixture)		List II (Separation Technique)	
(A)	$\text{CHCl}_3 + \text{C}_6\text{H}_5\text{NH}_2$	III	Distillation
(B)	$\text{C}_6\text{H}_{14} + \text{C}_5\text{H}_{12}$	IV	Fractional distillation
(C)	$\text{C}_6\text{H}_5\text{NH}_2 + \text{H}_2\text{O}$	I	Steam distillation
(D)	Organic compound in H_2O	II	Differential extraction

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9. **Ans. (3)**

A. $\text{H}_2\text{O}/\text{CH}_2\text{Cl}_2 \rightarrow \text{ii}$, $\text{CH}_2\text{Cl}_2 > \text{H}_2\text{O}$ (density) so they can be separated by differential solvent extraction.



Due to H-bonding in  it can be separated from  by column chromatography.

C. Kerosene / Naphthalene $\rightarrow$ iv. Fractional distillation.

Due to different B.P. of kerosene and Naphthalene it can be separated by fractional distillation.

D. $\text{C}_6\text{H}_{12}\text{O}_6/\text{NaCl} \rightarrow \text{i}$. Crystallization.

NaCl (ionic compound) can be crystallized.

10. **Ans. (44)**

weight of C in 0.792 gm CO_2

$$= \frac{12}{44} \times 0.792 = 0.216$$

$$\% \text{ of C in compound} = \frac{0.216}{0.492} \times 100$$

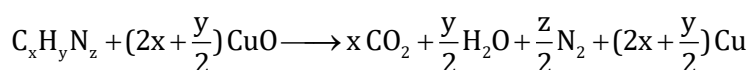
$$= 43.90\%$$

Ans : 44

11. **Ans. (2)**

Duma's method.

The nitrogen containing organic compound, when heated with CuO in a atmosphere of CO_2 , yields free N_2 in addition to CO_2 and H_2O .

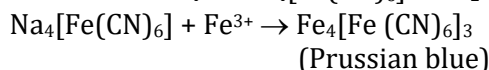
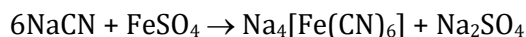


Traces of nitrogen oxides formed, if any, are reduced to nitrogen by passing the gaseous mixture over heated copper gauze.

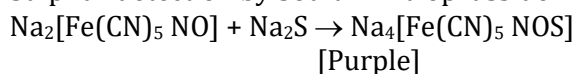
12. **Ans. (4)**

Nitrogen detection by lassaing's method

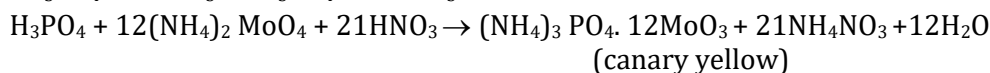
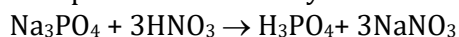




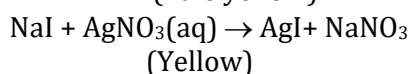
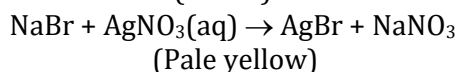
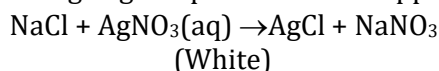
Sulphur detection by Sodium nitroprusside



Phosphorus detection by ammonium molybdate



Halogen give specific coloured ppt with $\text{AgNO}_3(\text{aq})$



13. **Ans. (1)**

As the chromatogram, degree of polarity $\rightarrow a > b > c$.

Statements A, B are incorrect as b comes out before 'c' the statement C is also incorrect.

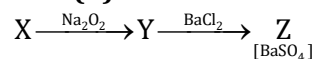
As a is most polar, it spends most time. Hence, A, B & C are incorrect statements.

14. **Ans. (4)**

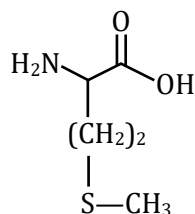
If any component eluted second then it means that its R_f value is low and its adsorption is stronger

$$R_f = \frac{\text{distance covered by substance from baseline}}{\text{total distance covered by solvent from baseline}}$$

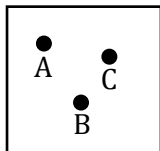
15. **Ans. (4)**



Methionine: $\text{C}_5\text{H}_{11}\text{NO}_2\text{S}$



16. **Ans. (1)**



According to the observation, A is more mobile and interacts with the mobile phase more than C, and C is more drawn to the mobile phase than B.

Hence, the correct order of elution in the silico gel column chromatography is – $B < C < A$

17. **Ans. (25)**

More R_f , less its polarity

$$R_f = \frac{\text{Distance travelled by compound 'X'}}{\text{Distance travelled by solvent 'Y'}}$$

$$= \frac{2}{8} = 0.25 = 25 \times 10^{-2}$$

18. Ans. (56)

$$\text{Moles of CO}_2 = \frac{0.22}{44} = \frac{1}{200}$$

$$\begin{aligned}\therefore \text{Moles of carbon} &= (\text{Moles of CO}_2) \times 1 \\ &= \frac{1}{200}\end{aligned}$$

$$\therefore \text{wt. of C} = \frac{1}{200} \times 12 = 0.06$$

$$\% \text{ of C} = \frac{0.06}{W} \times 100 = 24$$

(W = Wt. of Organic Compound)

$$W = 0.25$$

$$\text{Moles of H}_2\text{O} = \frac{0.126}{18} = 0.007$$

$$\therefore \text{Moles of H atom} = 2 \times 0.007 = 0.014$$

$$\begin{aligned}\% \text{ of Hydrogen} &= \frac{0.014 \times 1}{W} \times 100 \\ &= \frac{0.014 \times 1}{0.25} \times 100 \\ &= 5.6 \\ &= 56 \times 10^{-1}\end{aligned}$$

19. Ans. (40)

$$\text{mole of AgBr} = \frac{0.376}{188}$$

$$\text{mole of Br}^- = \text{mole of AgBr} = \frac{0.376}{188}$$

$$\text{mass of Br}^- = \frac{0.376}{188} \times 80$$

$$\% \text{ of Br}^- = \frac{0.376 \times 80}{188 \times 0.4} \times 100 = 40\%$$

20. Ans. (2)

In paper chromatography, a special quality paper known as chromatography paper is used. Paper contains water trapped in it, which acts as the stationary phase.

21. Ans. (4)

Aromatic aldehydes do not give Fehling's test..

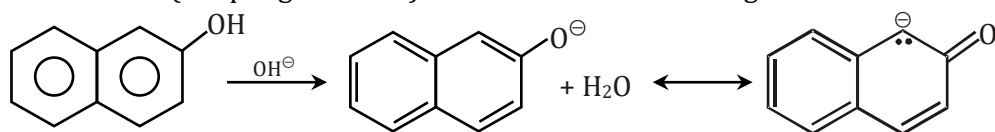
Both nitrogen and sulfur must be present to obtain blood red colour

Sodium nitroprusside gives blood red colour with S & N.

EXERCISE - JEE (Advanced) PYQ

1. Ans. (D)

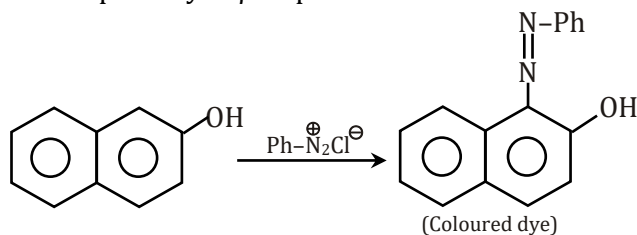
In alkaline medium the activating nature of -OH group increases and the rate of electrophilic substitution (Coupling Reaction) increases on aromatic ring.



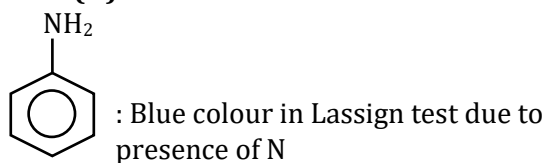
-OH group converts to $-O^{\ominus}$

Electron releasing nature of $-O^{\ominus}$ is more than -OH

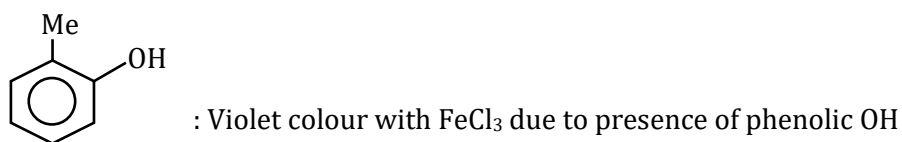
Nucleophilicity of β -naphthol increases in basic medium.



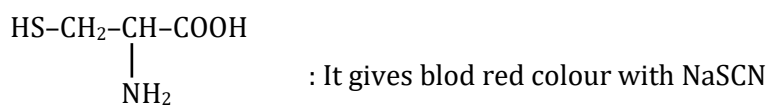
2. **Ans. (D)**



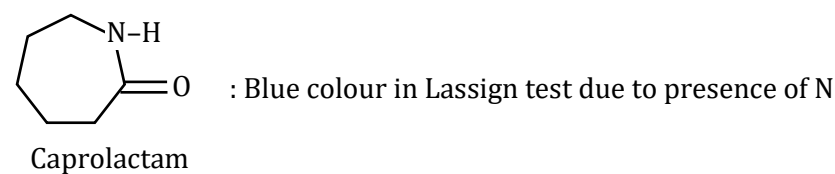
Aniline



o-Cresol



Cysteine

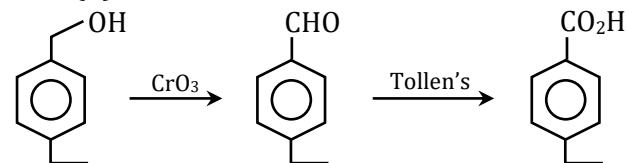


Caprolactam

JEE (Main) Practice Paper

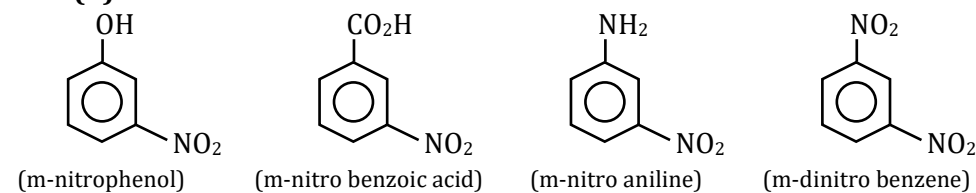
SECTION-A

1. **Ans. (2)**



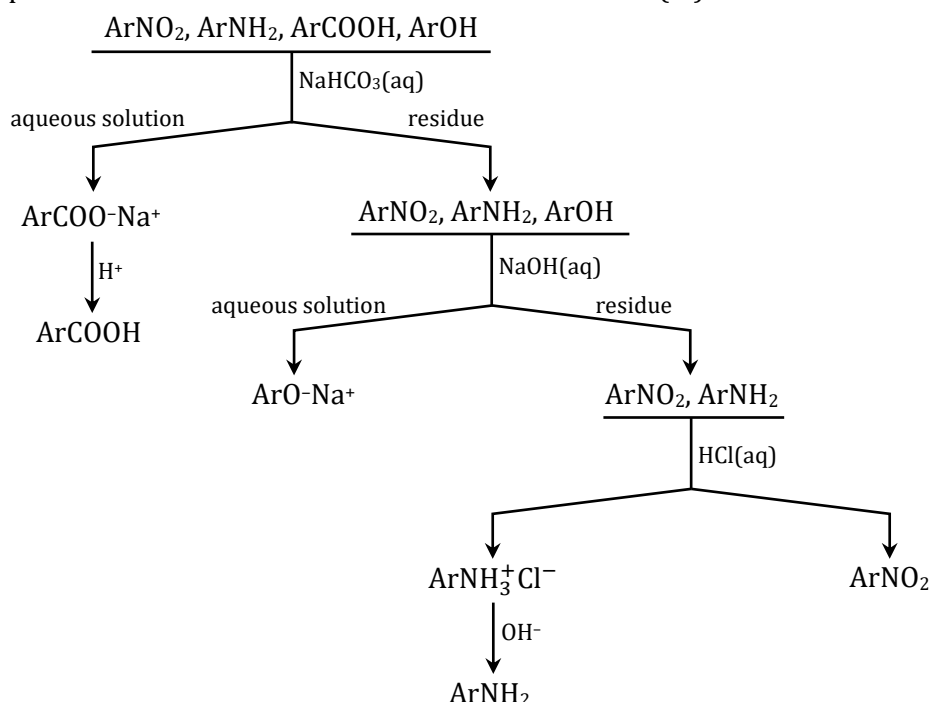
2. **Ans. (2)**
 $FeCl_3$ test for phenol.

3. **Ans. (3)**

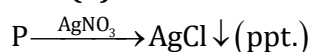


The mixture is composed of a neutral compound m-nitrobenzene, two acids (m-nitrobenzoic acid and m-nitrophenol), and a base (m-nitroaniline). m-nitrobenzoic acid is strong enough as an acid to decompose sodium carbonate ; m-nitrophenol is not, but does form a salt with sodium hydroxide. Hence, one way in which a separation may be effected is as follows. Dissolve the mixture in ether (all components are soluble).

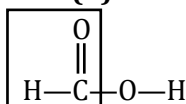
- (i) Extract the ethereal solution with aqueous sodium carbonate. Only m-nitrobenzoic acid enters the aqueous layer, and may be recovered on acidification.
- (ii) Extract the ethereal solution from (i) with aqueous sodium hydroxide. Only m-nitrophenol enters the aqueous layer, and may be recovered on acidification.
- (iii) Extract the ethereal solution from (ii) with hydrochloric acid. Only m-nitroaniline enters the aqueous layer, and may be recovered on basifying the solution.
- (iv) Evaporate off the ether from the ethereal solution from (iii). This leaves m-nitrobenzene.



4. **Ans. (4)**

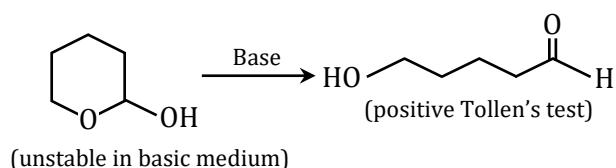


5. **Ans. (4)**



Due to formyl like group.

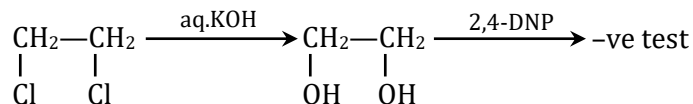
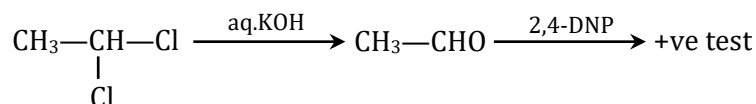
6. **Ans. (3)**



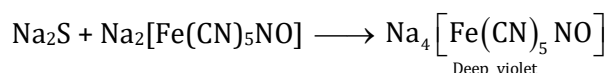
7. **Ans. (4)**

(1) and (2) are test for alkene.

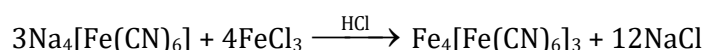
8. **Ans. (2)**



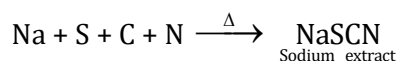
9. **Ans. (1)**



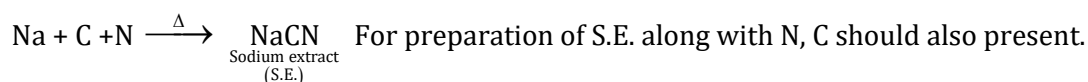
10. **Ans. (2)**



11. **Ans. (2)**



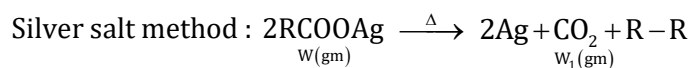
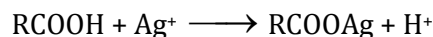
12. **Ans. (3)**



13. **Ans. (2)**

Anthracene can be purified by Sublimation.

14. **Ans. (1)**

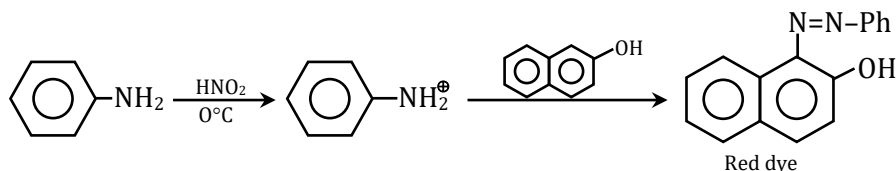


$$\text{EQ mass of acid} = \left(\frac{W}{W_1} \times 108 \right) - 108 + 1$$

15. **Ans. (3)**

Carboxylic acids liberate CO_2 gas from NaHCO_3 solution. They produce fruity smell of esters when heated with alcohol in presence of Conc. H_2SO_4 .

16. **Ans. (3)**



17. **Ans. (3)**

To convert CN^- and S^{2-} to volatile HCN and H_2S , or else they will interfere with the test forming AgCN or Ag_2S

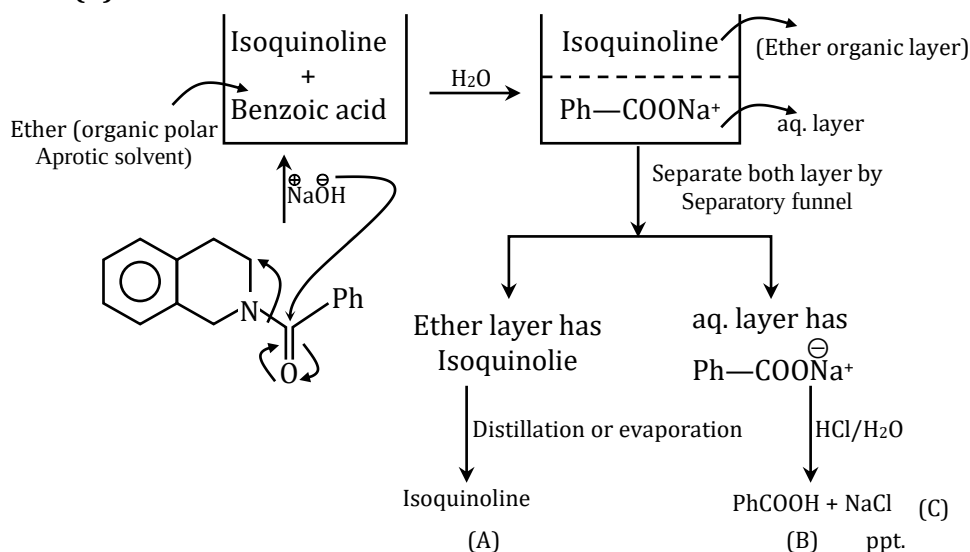
18. **Ans. (3)**

Rectified spirit contains 95.6 per cent ethanol and 4.4 per cent water

19. **Ans. (2)**

Only aniline and its derivatives will give diazo salt.

20. Ans. (2)



Benzoic acid is soluble in organic layer in undissociated form, after dissociation to Ph-COO⁻ it will be soluble in aq. Layer (polar protic solvent).

SECTION-B

1. Ans. (6)

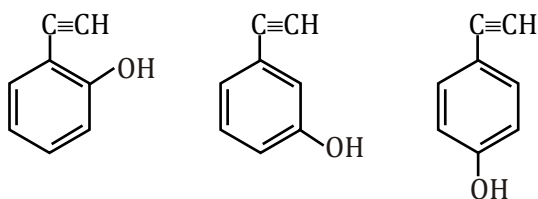
Salicylic acid, Phthalic acid, Cinnamic acid, Lactic acid, acetic acid and benzene sulphonic acid. Phenol is weaker acid as compare to H₂CO₃.

2. Ans. (6)

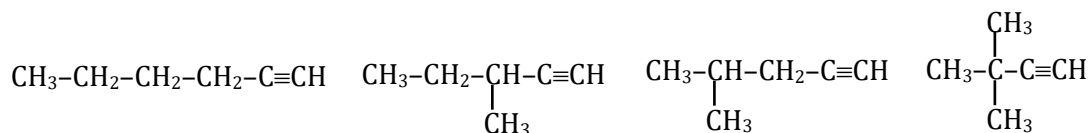
For positive test with Neutral FeCl₃ Phenolic group must be present

Positive test with Tollen's reagent Terminal alkyne must present

Possible structure of organic compound can be



3. Ans. (4)



4. Ans. (93)

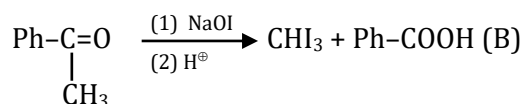
Ph-NH₂ give azo dye test

Molecular mass of PhNH₂ = 93

5. Ans. (3)

Number of acidic hydrogen is 6 so 3 moles of H₂ gas is evolved on reaction with sodium metal.

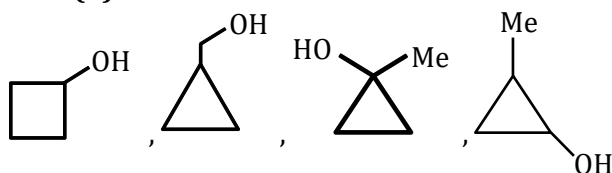
6. **Ans. (26.22)**



M.M. of compound B = 122

$$\text{Mass percentage of oxygen} = \frac{32}{122} \times 100 = 26.22$$

7. **Ans. (4)**



8. **Ans. (4)**

It is the test for organic compounds containing N i.e., both C & N must be present.

9. **Ans. (6)**

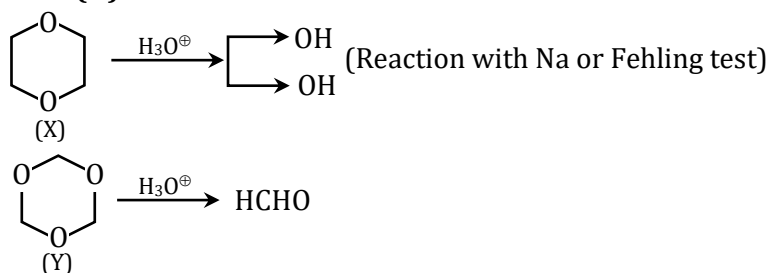
Unsaturated compound, Phenol and aniline decolourise brown colour of Br₂ solution.

10. **Ans. (5)**

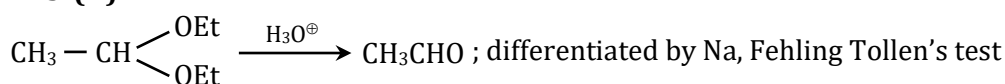
3° alcohol, Allylic alcohol and Benzylic alcohol gives immediate turbidity with Lucas reagent.

JEE (Advanced) Practice Paper

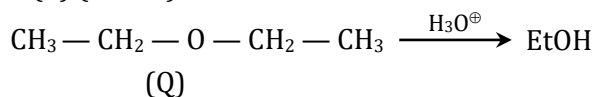
1. **Ans. (D)**



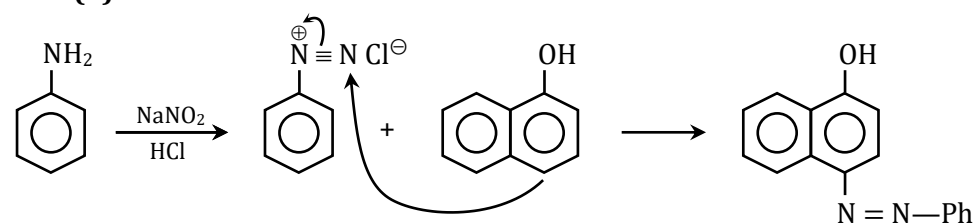
2. **Ans. (D)**



(P) (Acetal)



3. **Ans. (C)**



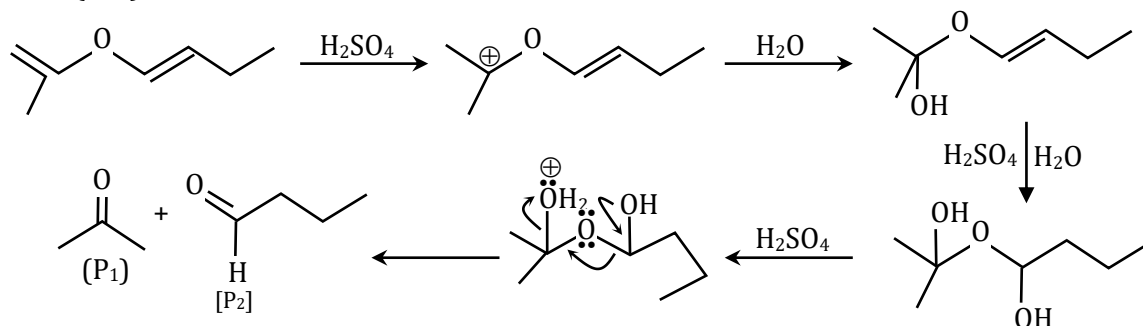
4. **Ans. (D)**

(A → H₂) will evolve with Ph—CH₂—Br

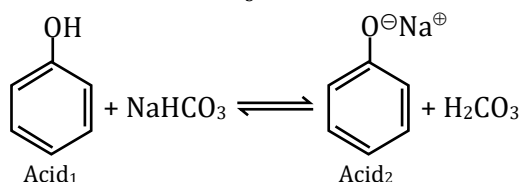
(B → AgCl) will form with Ph—CH₂—Br

(C → Ph—CO₂H) will form with Ph—CH₂—Br.

5. **Ans. (C)**
 $\text{NH}_2\text{-NH}_2$ (Inorganic compound give -ve Lassaigne's test)
6. **Ans. (B)**
 $\text{Na}_4[\text{Fe}(\text{CN})_5\text{NOS}]$ blue
7. **Ans. (A,B)**



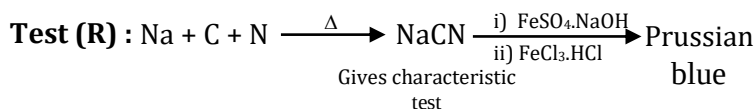
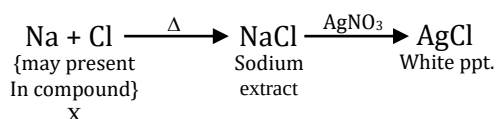
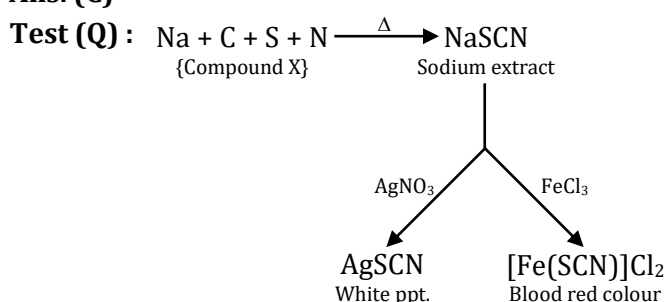
8. **Ans. (A,B,C)**
 A. S. : $\text{HCOOH} > \text{CH}_3\text{COOH} > \text{Picric acid} > \text{H}_2\text{CO}_3 > \text{Phenol}$

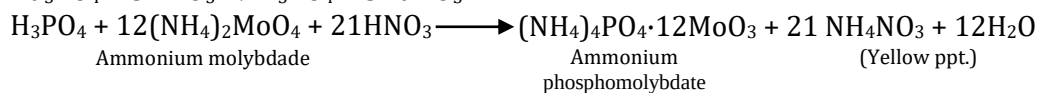
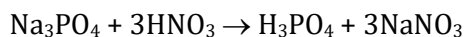
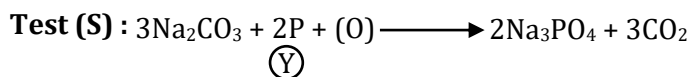
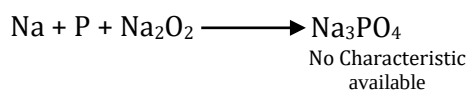
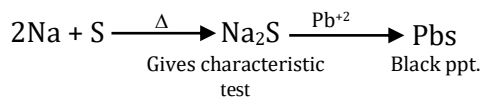
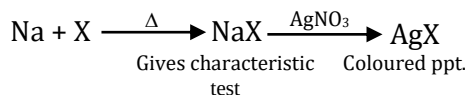


A.S. : $\text{Acid}_1 < \text{Acid}_2$. Therefore, reaction goes backward.

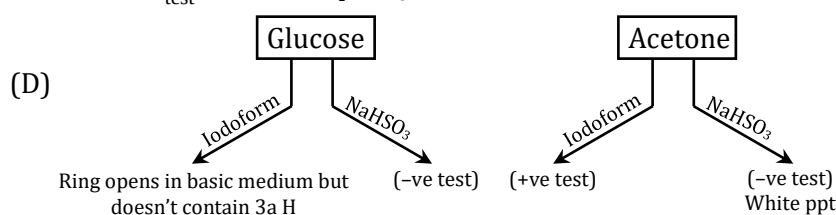
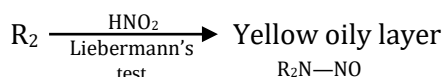
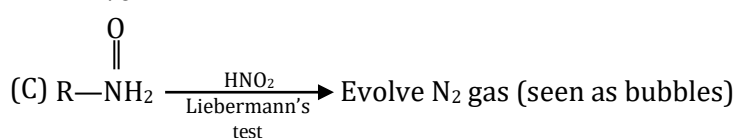
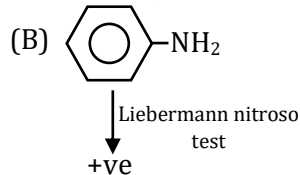
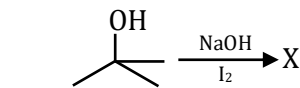
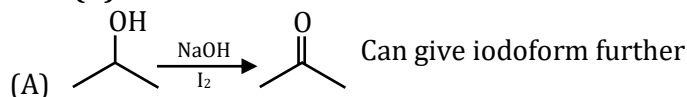
9. **Ans. (A,B,C)**
 The element present in compound are converted from covalent form into ionic form by fusing compound with Na metal
10. **Ans. (A,B,D)**
 Alcohol $\xrightarrow[\text{(CAN)}]{\text{Ceric ammonium nitrate}}$ Red colour
- Aldehyde $\xrightarrow{\text{CAN}}$ X

11. **Ans. (C)**
 12. **Ans. (B)**
 13. **Ans. (D)**
 14. **Ans. (B,C)**
 15. **Ans. (C)**

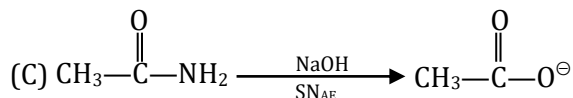
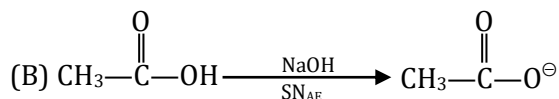
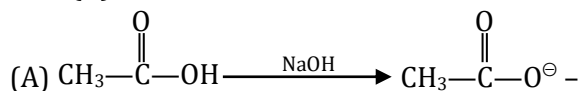




16. **Ans. (A)**



17. **Ans. (B)**



18. **Ans. (5)**

b, c, e, g, i