CBSE Class 12 physics

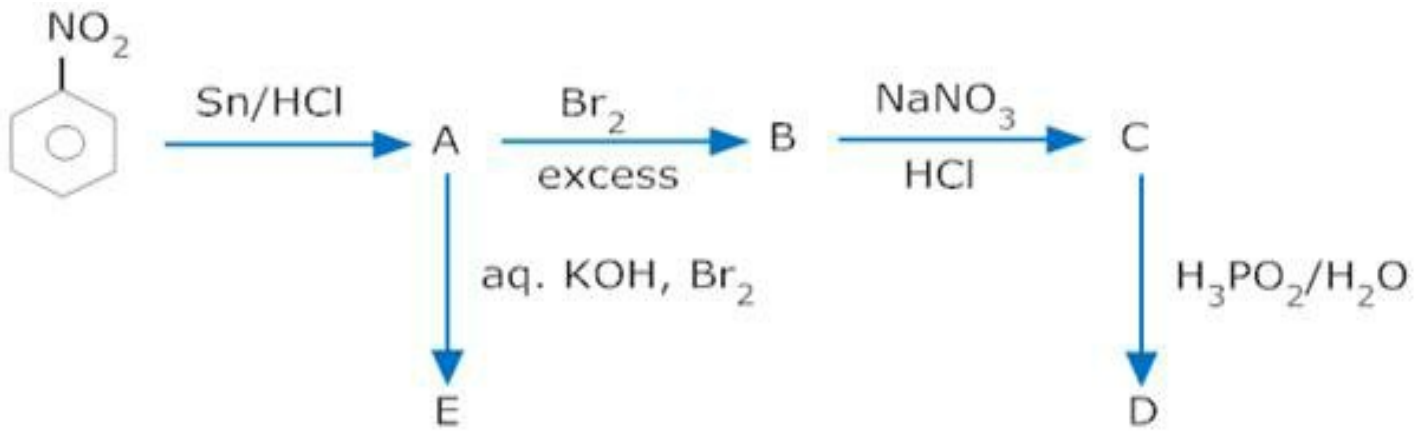
Important Questions

Chapter 13

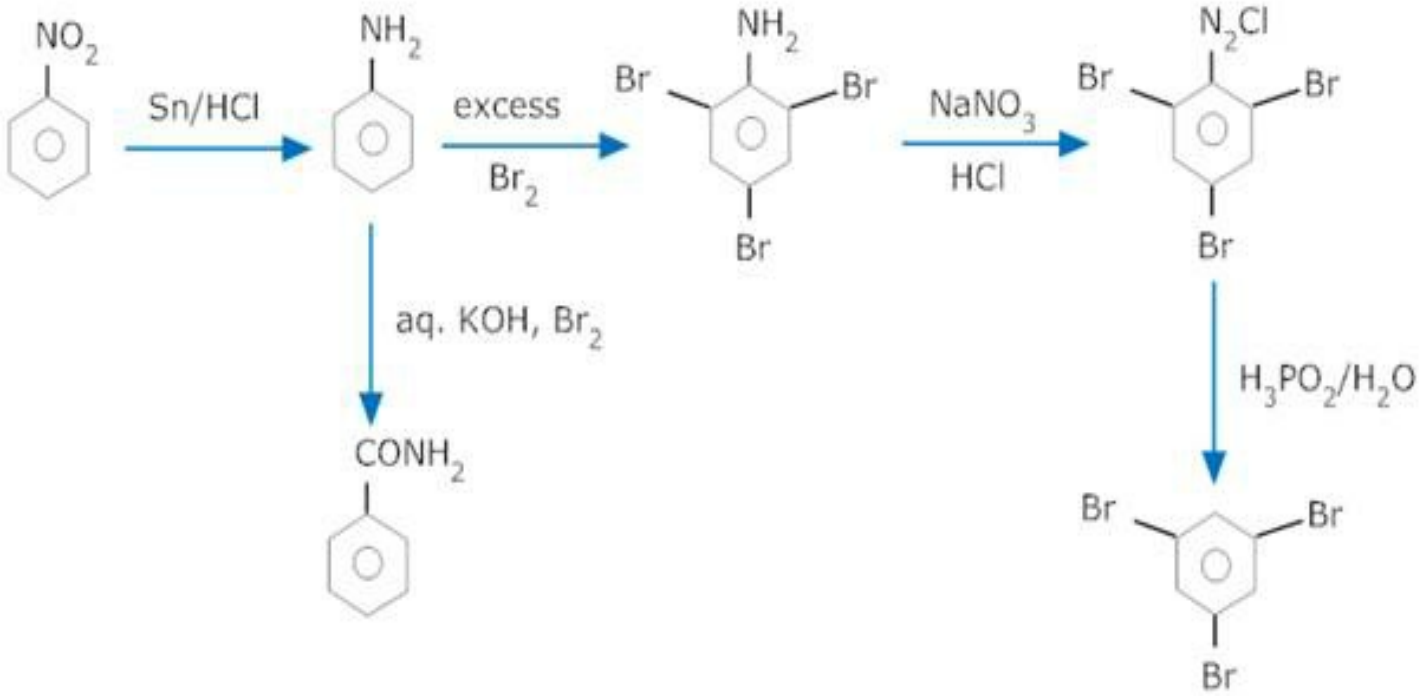
Amines

3 Mark Questions

1.



Ans.



2.A compound (X) having formula C_3H_7 NO reacts with Br_2 in the presence of NaOH to give

another compound (Y). Compound (Y) reacts with HNO_2 to form ethanol and N_2 gas . Identify (X) and (Y) . Write the reaction involved.

Ans.

Since Y gives ethanol and N_2 gas with HNO_2 , therefore it is $CH_3CH_2NH_2$.

Ethan amine (Y) is formed on reacting (X) with Br_2 and NaOH;

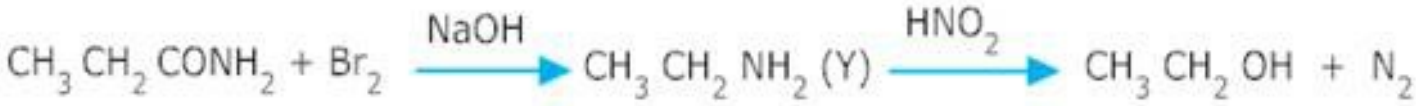
Therefore X is $CH_3CH_2CO\ NH_2$.

Therefore

X= $CH_3CH_2CONH_2$

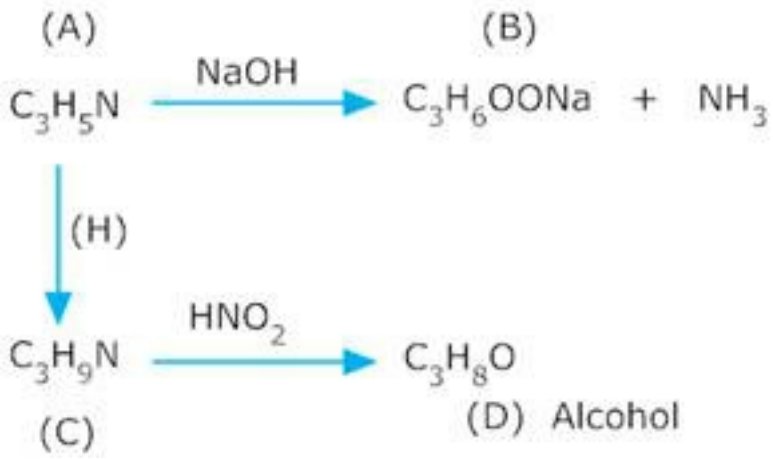
Y = $CH_3CH_2NH_2$

The reactions are –



3.An organic compound A (C_3H_5N) on boiling with alkali gives NH_3 and sodium salt of an acid B $(C_3H_6O_2)$. The compound A on reduction gives $C(C_3H_9N)$ which on treatment with nitrous acid gives an alcohol $D(C_3H_8O)$. Identify A to D

Ans.

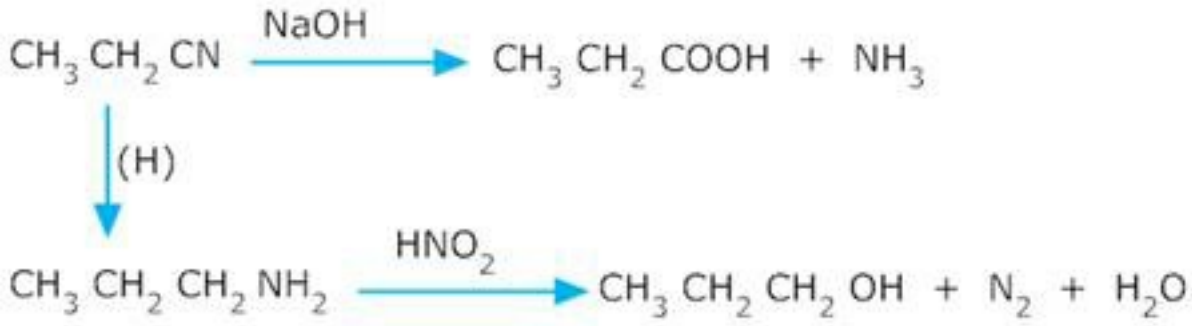


Since the compound (A) gives sodium salt and ammonia, (A) is cyanide. The compound (C) is a primary amine as it reacts with HNO_2 and forms an alcohol (D) Therefore

A= CH_3CH_2CN ,B= CH_3CH_2COOH .

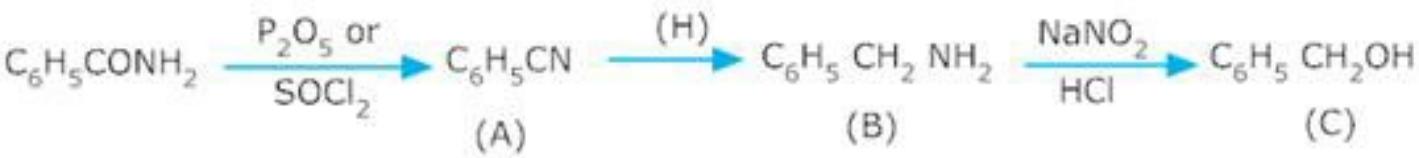
C= $CH_3CH_2CH_2NH_2$,D= $CH_3CH_2CH_2OH$

Equations are-

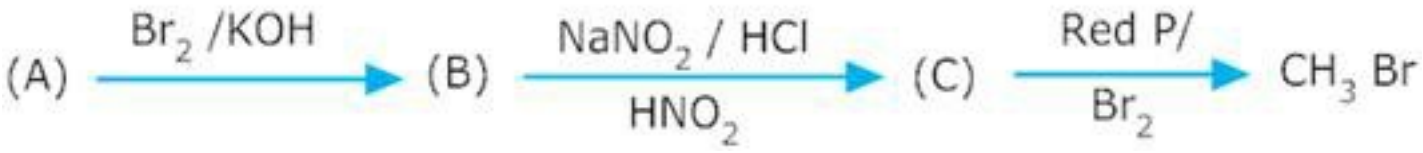


4.

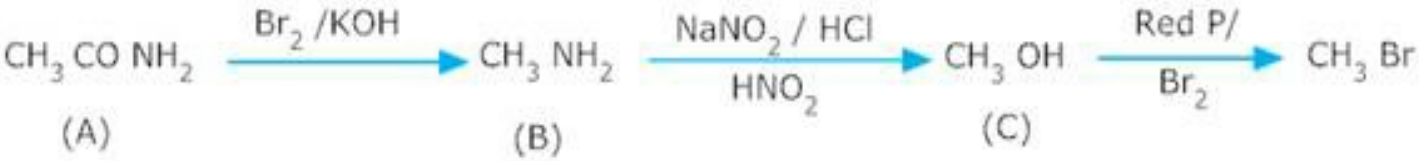
Ans.


C6H5CONH2
P2O5 or
SOCl2
C6H5CN
(A)
(H)
C6H5 CH2 NH2
(B)
NaNO2
HCl
C6H5 CH2OH
(C)

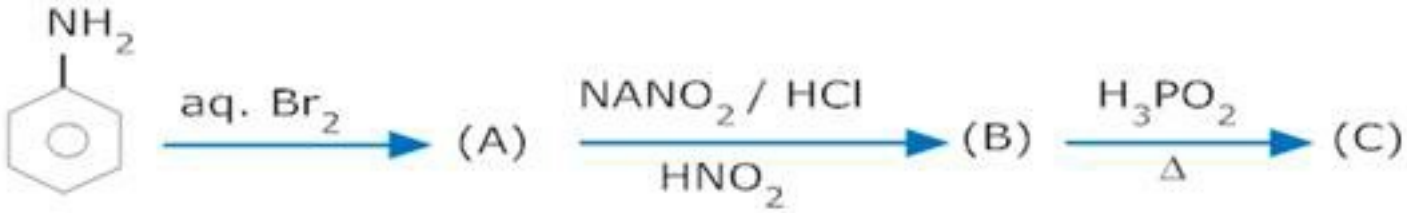
5.


(A)
Br2 /KOH
(B)
NaNO2 / HCl
HNO2
(C)
Red P/
Br2
CH3 Br

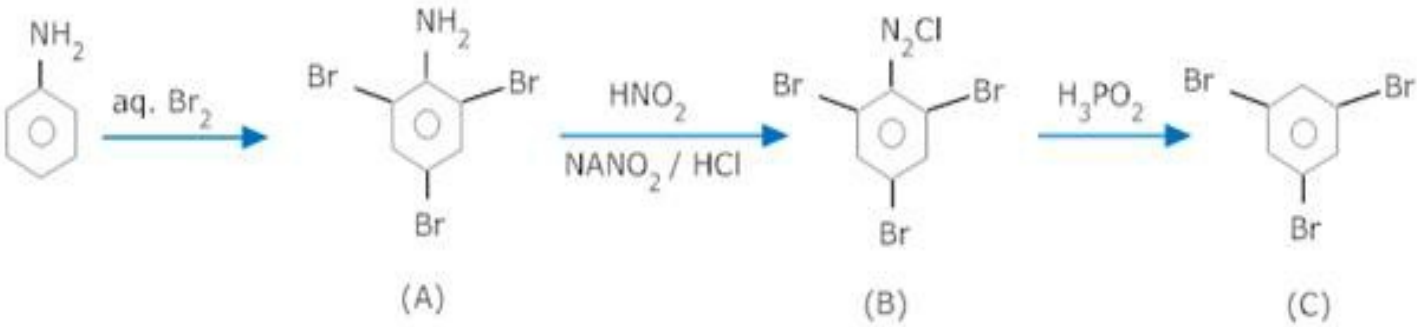
Ans.


CH3 CO NH2
(A)
Br2 /KOH
CH3 NH2
(B)
NaNO2 / HCl
HNO2
CH3 OH
(C)
Red P/
Br2
CH3 Br

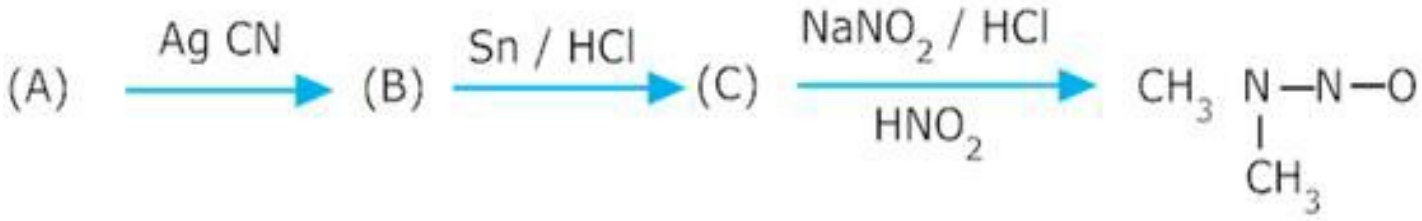
6.


NH2
aq. Br2
(A)
NANO2 / HCl
HNO2
(B)
H3PO2
Δ
(C)

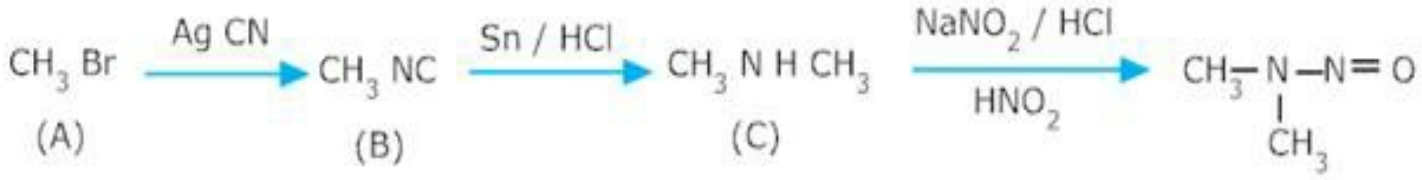
Ans.


NH2
aq. Br2
Br
Br
Br
(A)
HNO2
NANO2 / HCl
N2Cl
Br
Br
Br
(B)
H3PO2
Br
Br
Br
(C)

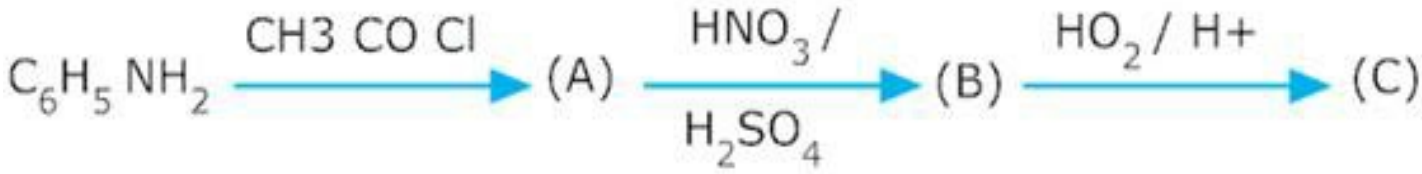
7.


(A)
Ag CN
(B)
Sn / HCl
(C)
NaNO2 / HCl
HNO2
CH3 N—N—O
CH3

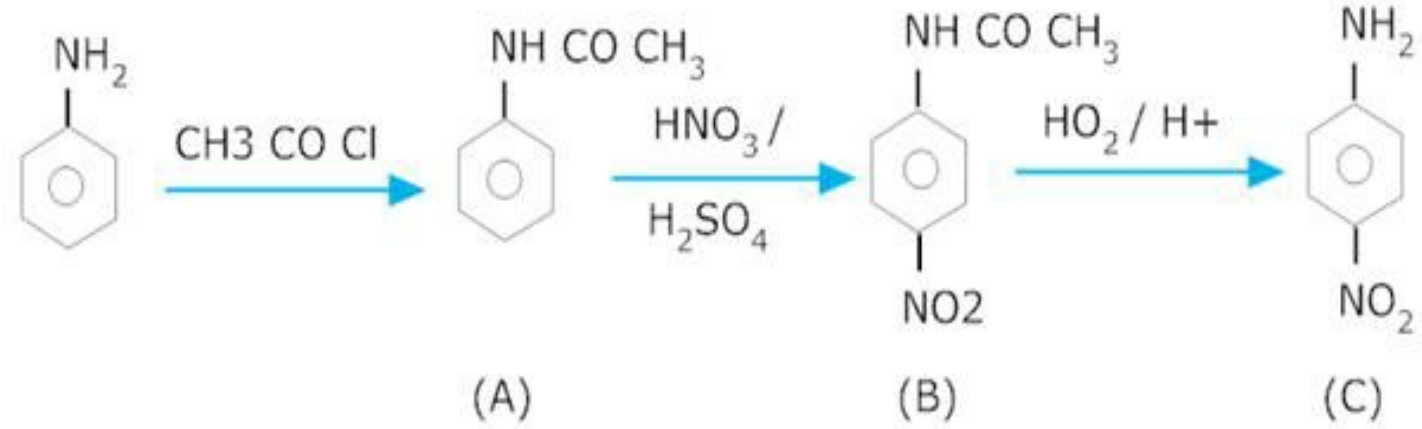
Ans.


CH3 Br
(A)
Ag CN
CH3 NC
(B)
Sn / HCl
CH3 N H CH3
(C)
NaNO2 / HCl
HNO2
CH3—N—N=O
CH3

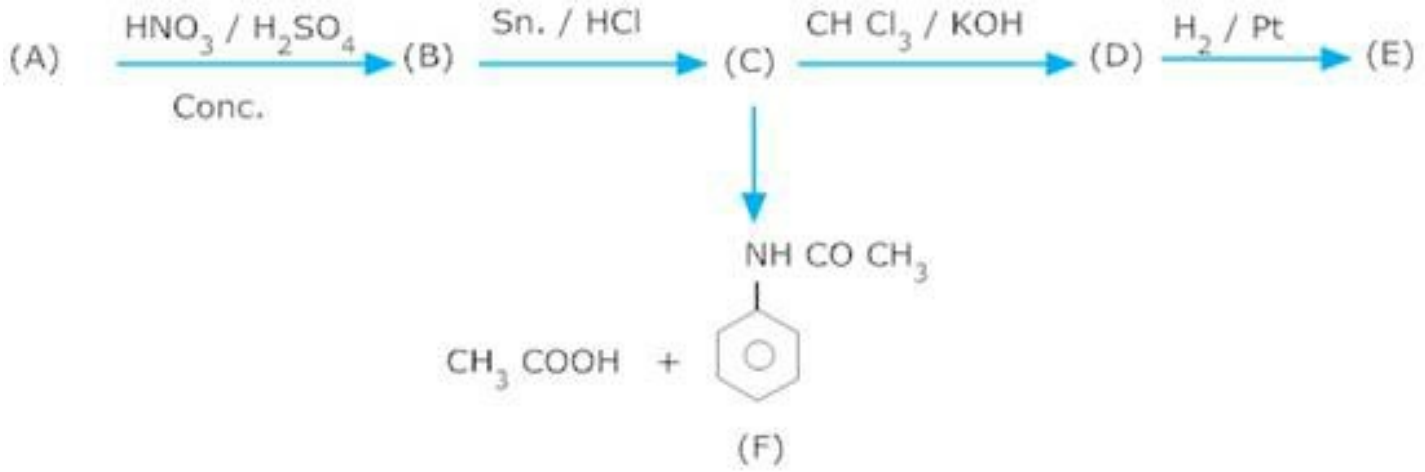
8.


C6H5 NH2
CH3 CO Cl
(A)
HNO3 /
H2SO4
(B)
HO2 / H+
(C)

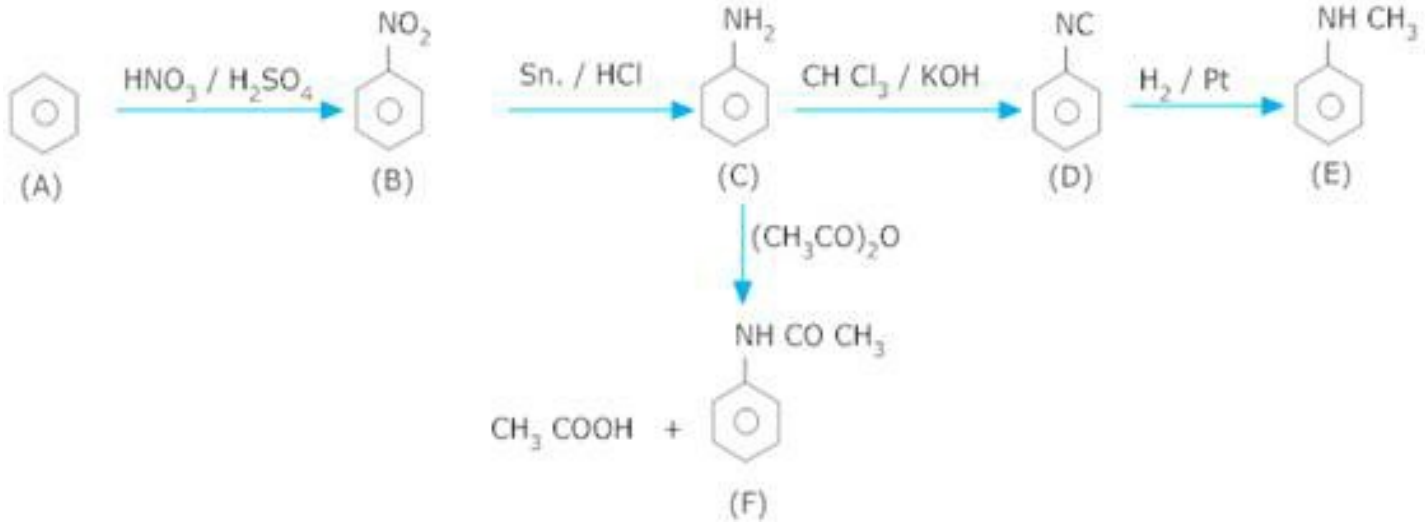
Ans.


NH2
CH3 CO Cl
NH CO CH3
HNO3 /
H2SO4
NH CO CH3
NO2
HO2 / H+
NH2
NO2
(A)
(B)
(C)

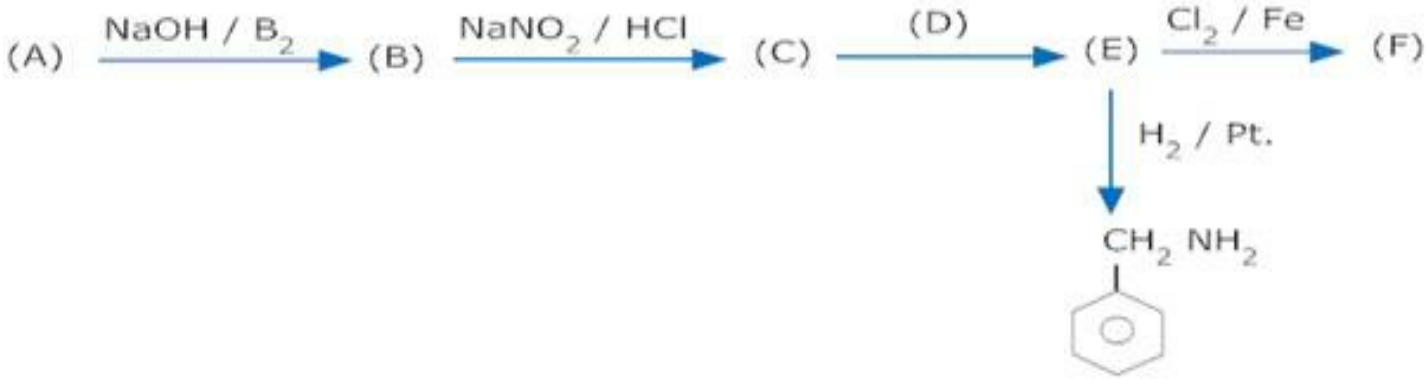
9.


(A)
HNO3 / H2SO4
Conc.
(B)
Sn. / HCl
(C)
CH Cl3 / KOH
(D)
H2 / Pt
(E)
NH CO CH3
CH3 COOH +
(F)

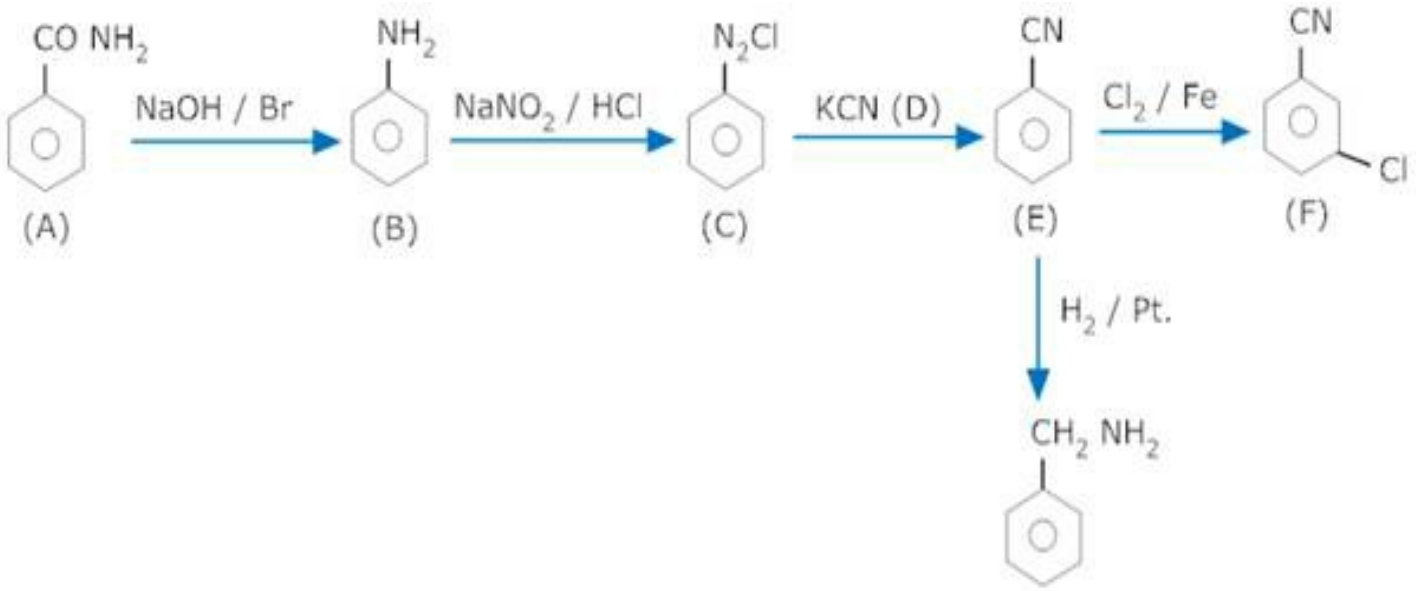
Ans.


(A)
HNO3 / H2SO4
NO2
(B)
Sn. / HCl
NH2
(C)
CH Cl3 / KOH
NC
(D)
H2 / Pt
NH CH3
(E)
(CH3CO)2O
NH CO CH3
CH3 COOH +
(F)

10.


(A)
NaOH / B2
(B)
NaNO2 / HCl
(C)
(D)
(E)
Cl2 / Fe
(F)
H2 / Pt.
CH2 NH2

Ans.



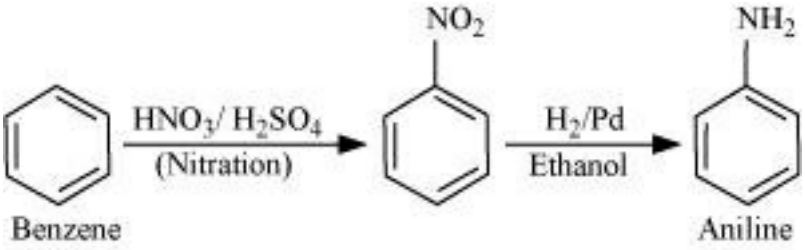
11.How will you convert?

(i) Benzene into aniline

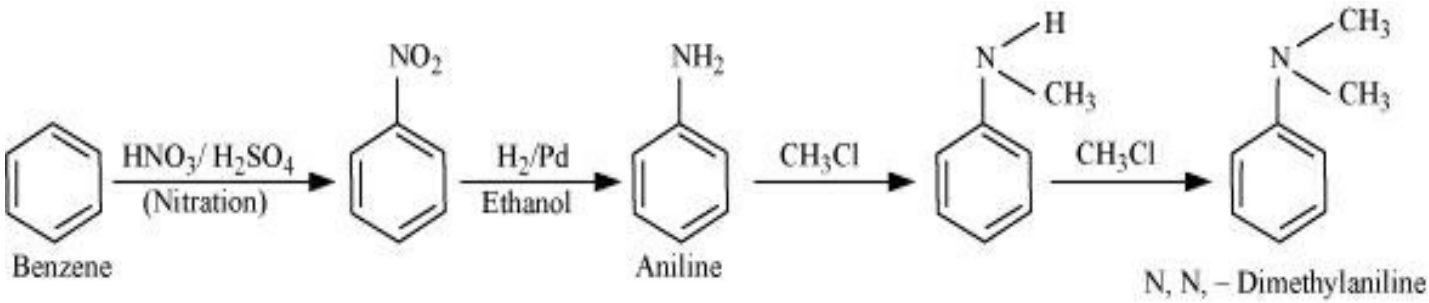
(ii) Benzene into N, N-dimethylaniline

(iii) $Cl\text{-}(CH_2)_4\text{-}Cl$ **into hexan-1, 6-diamine?**

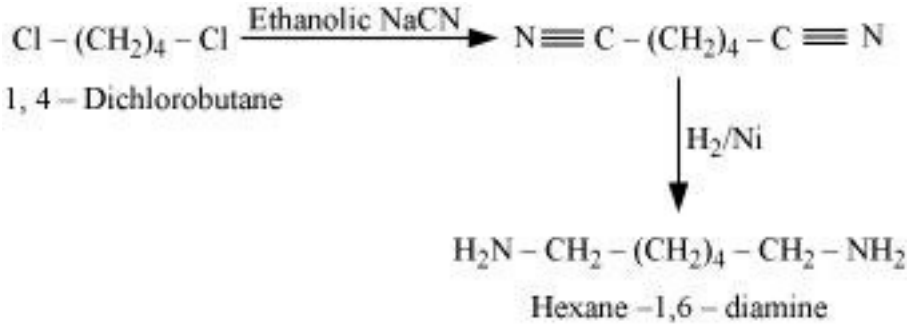
Ans.(i)



(ii)

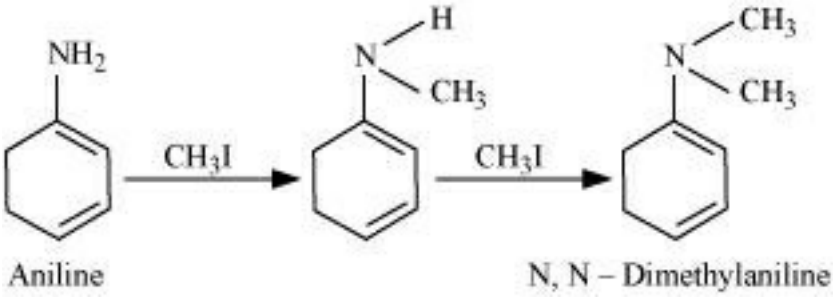


(iii)

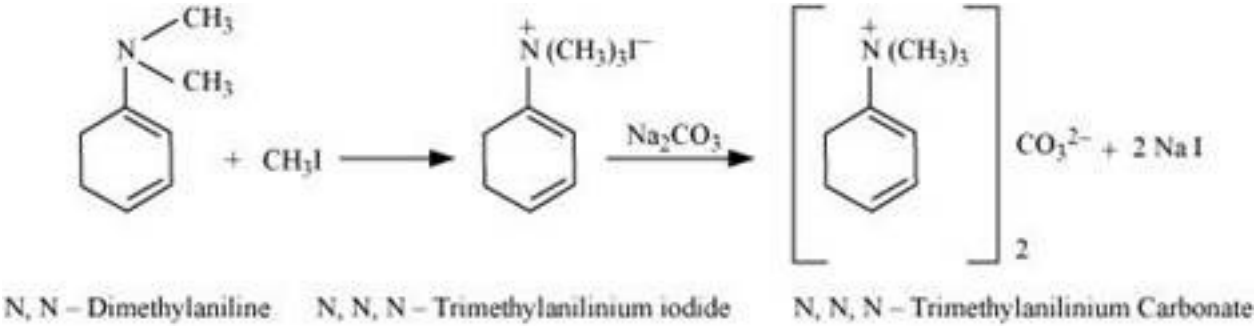


12. Write reactions of the final alkylation product of aniline with excess of methyl iodide in the presence of sodium carbonate solution.

Ans. Aniline reacts with methyl iodide to produce N, N-dimethylaniline.



With excess methyl iodide, in the presence of Na_2CO_3 solution, N, N-dimethylaniline produces N, N, N-trimethylanilinium carbonate.

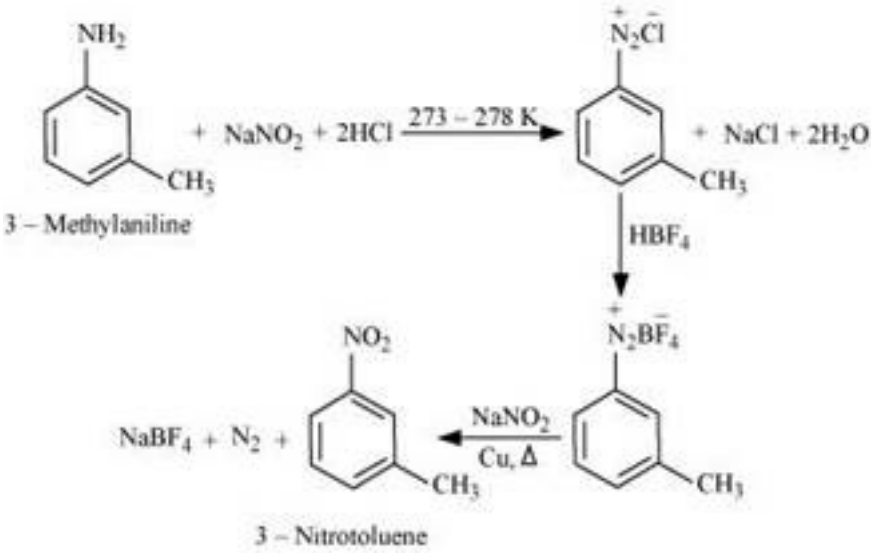


13.Convert

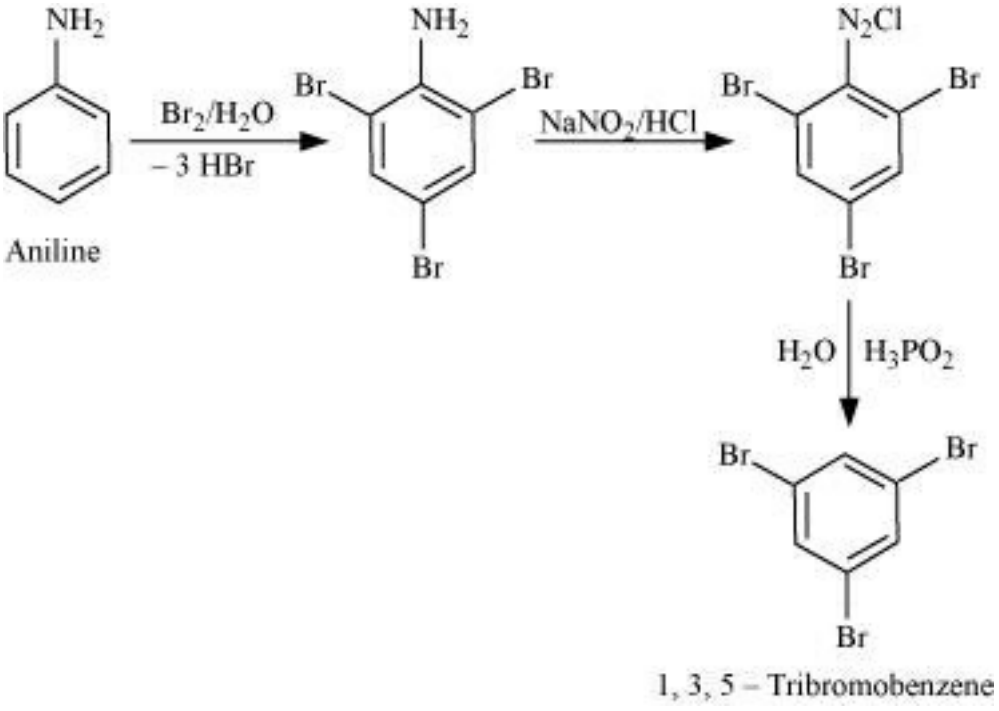
(i) 3-Methylaniline into 3-nitrotoluene.

(ii) Aniline into 1, 3, 5-tribromobenzene.

Ans.(i)


NH2
+ NaNO2 + 2HCl
273 – 278 K
+ NaCl + 2H2O
CH3
3 – Methylaniline
HBF4
NO2
NaBF4 + N2 +
NaNO2
Cu, Δ
3 – Nitrotoluene

(ii)


NH2
Br2/H2O
– 3 HBr
Br
Br
Br
Aniline
NaNO2/HCl
N2Cl
H2O
H3PO2
1, 3, 5 – Tribromobenzene