



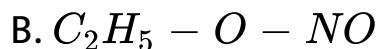
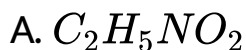
CHEMISTRY

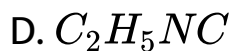
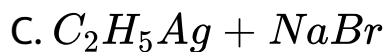
NCERT - FULL MARKS CHEMISTRY(TAMIL)

ORGANIC NITROGEN COMPOUNDS

Self Evaluation A Choose The Correct Answer

1. Bromo ethane reacts with silver nitrite to give



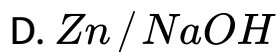
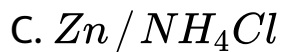
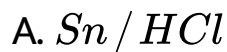


Answer:



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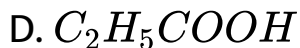
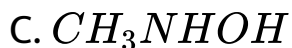
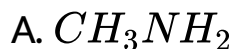
2. In nitro alkanes $-NO_2$ group is converted to $-NH_2$ group by the reaction with



Answer:

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3. When nitromethane is reduced with Zn dust + NH_4Cl in neutral medium, we get



Answer:

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4. The compound that is most reactive towards electrophilic nitration is

A. Toluene

B. benzene

C. benzoic acid

D. nitrobenzene

Answer:



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5. Nitromethane condenses with acetaldehyde to give

- A. nitro propane
- B. 1-nitro-2-propanol
- C. 2-nitro-1-propanol
- D. 3-nitro propanol

Answer:



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6. Which of the following compounds has the smell of bitter almonds?

A. aniline

B. nitro methane

C. benzene sulphonic acid

D. nitrobenzene

Answer:



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7. Nitroation of nitrobenzene results in

A. o-dinitro benzene

B. 1,3,5-trinitro benzene

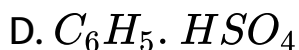
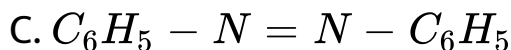
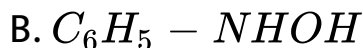
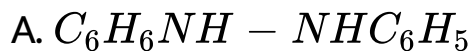
C. p-dinitro benzene

D. m-dinitro benzene

Answer:

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8. Nitrobenzene on electrolytic reduction in con. sulphuric acid, the intermediate formed is



Answer:



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9. Electrophile used in the nitration of benzene is

A. hydronium ion

B. sulphonic acid

C. nitronium ion

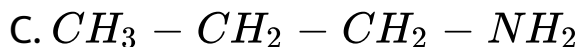
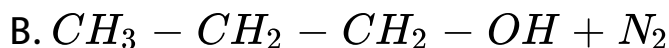
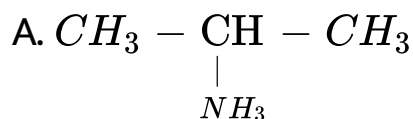
D. bromide ion

Answer:



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10. The reduction of $CH_3 - CH_2 - C \equiv N$ with sodium and alcohol results in the formation of



Answer:



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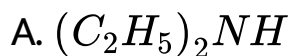
11. The basic character of amines is due to the

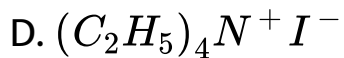
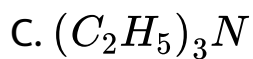
- A. tetrahedral structure
- B. presence of nitrogen atom
- C. lone pair of electrons on nitrogen atom
- D. high electronegativity of nitrogen

Answer:

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12. The organic compound that undergoes carbylamine reaction is





Answer:



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13. Primary amine acts as

A. Electrophile

B. Lewis base

C. Lewis acid

D. Free radical

Answer:



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14. Oxidation of aniline with acidified potassium dichromate gives

A. p-benzo quinone

B. benzoic acid

C. benzaldehyde

D. benzyl alcohol

Answer:



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15. Which one of the following is a secondary amine?

A. aniline

B. diphenyl amine

C. sec.butylamine

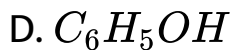
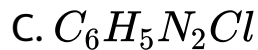
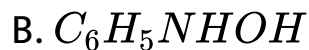
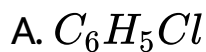
D. tert.butylamine

Answer:



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16. $C_6H_5NH_2 \xrightarrow{NaNO_2/HCl} X$ Identify X.



Answer:



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17. Which of the following will not undergo diazotisation?

A. m-toluidine

B. aniline

C. p-amino phenol

D. benzyl amine

Answer:



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18. Aniline differs from ethylamine by the reaction with

A. metallic sodium

B. an alkyl halide

C. chloroform and caustic potash

D. nitrous acid

Answer:

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19. When aqueous solution of benzene diazonium chloride is boiled the product formed is

A. benzyl alcohol

B. benzene + N_2

C. phenol

D. phenyl hydroxylamine

Answer:

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Self Evaluation B Answer In One Or Two Sentence

1. How are nitro alkanes prepared ?

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2. Write about the functional isomerism of nitro methane ?

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3. Give the reduction of nitromethane in (a) acid medium, (b) neutral medium.

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4. How will you convert benzene to m-dinitro benzene ?

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5. Explain the electrolytic reduction of nitro benzene ?

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6. What are amines ? How are they classified ?

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7. Give the structural formula of (i) 2-amino-2-methyl propane. (ii) 2-(N, N-dimethyl) amino butane

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8. Write the name and structure of four isomeric amines having the molecular formula C_3H_9N .

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9. Write short notes on the following

Gabriel phthalimide synthesis

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10. How is nitrobenzene converted to aniline ?

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11. What happens when aniline is treated with bromine ?

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12. What happens when aniline is treated with phosgene ?

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13. How is benzene diazonium chloride prepared?

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14. Write a note on Sandmeyer reaction.

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15. How will you synthesise, benzylamine from aniline ?

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16. What happens when ethylamine is treated with

(a) $CHCl_3 / NaOH$ (b) CS_2 (c) $COCl_2$ (d)

C_6H_5CHO

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17. How can the following conversions be effected ?

(a) Nitro benzene \rightarrow Nitrosobenzene

(b) Nitro benzene \rightarrow azoxy benzene

(c) Nitrobenzene \rightarrow Hydrazobenzene



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Self Evaluation C Answer Not Exceeding Sixty Words

1. Write the methods of preparation of nitro methane

?



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2. Explain the reduction of nitro methane in different medium.



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3. Write a note on the 'reduction of nitro benzene under different conditions.



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4. Write the differences between nitro methane and nitro benzene.



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5. Give three methods of preparing ethylamine from aceto nitrile ?

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6. How will you distinguish between primary secondary and tertiary aliphatic amines.

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7. Write the mechanism of 'Hoffmann's bromamide reaction'.

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8. How do primary, secondary and tertiary amines react with nitrous acid ?

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9. Write any three methods of preparing benzylamine ?

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10. How are the following compounds obtained from benzene diazonium chloride ?

(i) phenol, (ii) ester, (iii) p-hydroxy azo benzene.



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Self Evaluation D Solve The Problems

1. Nitrobenzene does not undergo Friedel-Crafts alkylation. Give reasons.



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2. Boiling points of nitroalkanes are much higher than those of hydrocarbons of comparable mass - give reasons.



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3. Explain why amines are more basic than amides.



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4. An organic compound (A) with molecular formula C_6H_7N gives (B) with HNO_2/HCl at 273 K. The aqueous solution of (B) on heating gives compound (C) which gives violet colour with neutral $FeCl_3$. Identify the compounds A, B and C and write the equations.



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5. Outline the preparation of

(a) para nitroaniline from aniline

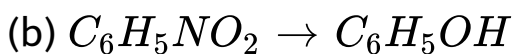
(b) tri bromo aniline from aniline

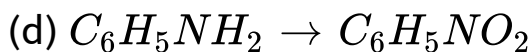
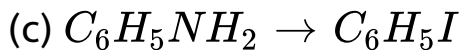


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Diazonium Chloride

1. How are the following conversions effected ?





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2. Starting from aniline how can the following be prepared ?

(a) Chloro benzene

(b) p-hydroxy azobenzene

(c) Benzonitrile

(d) p-amino azo benzene

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3. How can the following conversion be effected ?

(a) Nitrobenzene to anisole

(b) Chloro benzene to phenyl hydrazine

(c) Aniline to benzoic acid

(d) Benzene diazonium chloride to Ethyl benzene

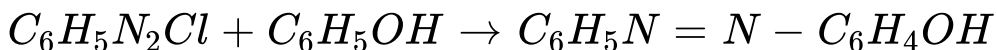


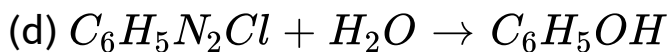
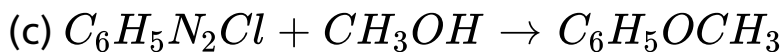
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4. Identify the electrophile and nucleophile in the following reactions :



(b)





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Evaluation Choose The Correct Answer

1. Which of the following reagent can be used to convert nitrobenzene to aniline

A. Sn/HCl

B. ZnHg/NaOH

C. $LiAlH_4$

D. All of these

Answer: A



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2. The method by which aniline cannot be prepared is

A. degradation of benzamide with $Br_2 / NaOH$

B. potassium salt of phthalimide treated with chlorobenzene followed by hydrolysis with aqueous NaOH solution.

C. Hydrolysis of phenylcyanide with acidic solution

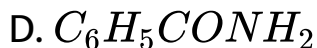
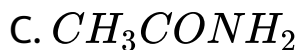
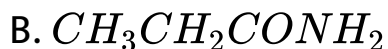
D. reduction of nitrobenzene by Sn / HCl .

Answer: B



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3. Which one of the following will not undergo Hofmann bromamide reaction



Answer: A



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4. Assertion : Acetamide on reaction with KOH and bromine gives acetic acid

Reason : Bromine catalyses hydrolysis of acetamide.

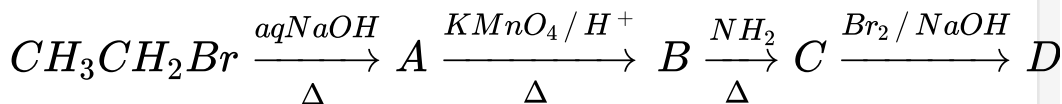
- A. if both assertion and reason are true and reason is the correct explanation of assertion.
- B. if both assertion and reason are true but reason is not the correct explanation of assertion.
- C. assertion is true but reason is false
- D. both assertion and reason are false.

Answer: D



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5.



'D' is

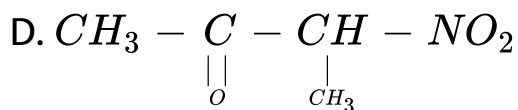
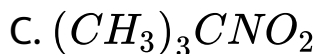
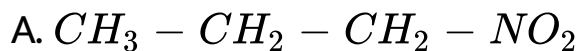
- A. bromomethane
- B. α - bromo sodium acetate
- C. methanamine
- D. acetamide

Answer: C



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6. Which one of the following nitro compounds does not react with nitrous acid



Answer: C



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7. Aniline + benzoylchloride



known as

- A. Friedel – crafts reaction
- B. HVZ reaction
- C. Schotten – Baumann reaction
- D. none of these

Answer: C



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8. The product formed by the reaction an aldehyde with a primary amine

A. carboxylic acid

B. aromatic acid

C. schiff 's base

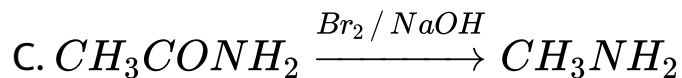
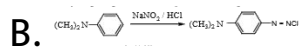
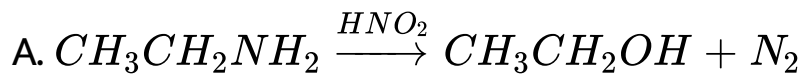
D. ketone

Answer: C



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9. Which of the following reaction is not correct.



D. none of these

Answer: B

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10. When aniline reacts with acetic anhydride the product formed is

A. o - aminoacetophenone

B. m-aminoacetophenone

C. p - aminoacetophenone

D. acetanilide

Answer: D



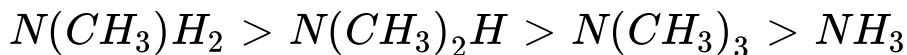
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11. The order of basic strength for methyl substituted amines in aqueous solution is

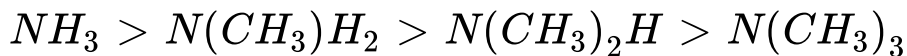
A.



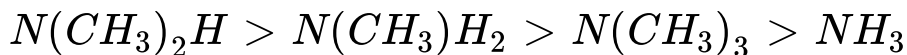
B.



C.

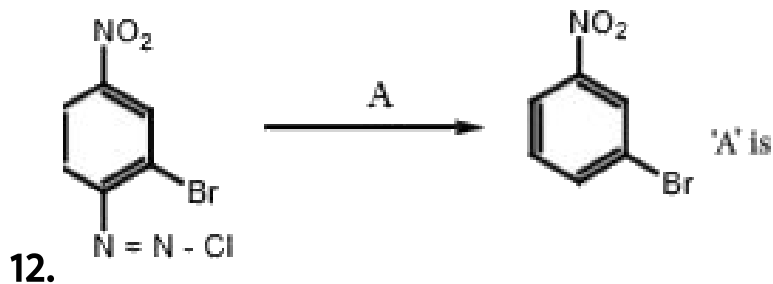


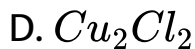
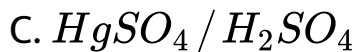
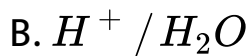
D.



Answer: D

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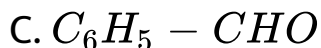
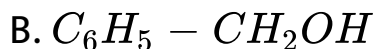
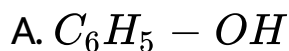
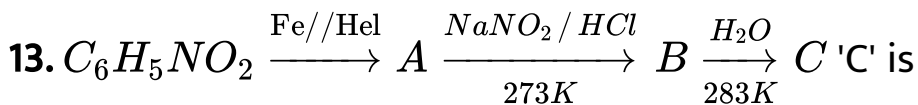


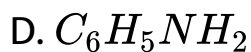


Answer: A



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Answer: A



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14. Nitrobenzene on reaction with at $80 - 100^\circ C$ forms which one of the following products?

- A. 1,4 - dinitrobenzene
- B. 2,4,6 - trinitrobenzene
- C. 1,2 - dinitrobenzene
- D. 1,3 - dinitrobenzene

Answer: D



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15. $C_5H_{13}N$ reacts with HNO_2 to give an optically active compound – The compound is

- A. pentan – 1- amine
- B. pentan – 2- amine
- C. N,N – dimethylpropan -2-amine
- D. N – methylbutan – 2-amine

Answer: B



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16. Secondary nitro alkanes react with nitrous acid to form

- A. red solution
- B. blue solution
- C. green solution
- D. yellow solution

Answer: B



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17. Which of the following amines does not undergo acetylation?

A. t – butylamine

B. ethylamine

C. diethylamine

D. triethylamine

Answer: D



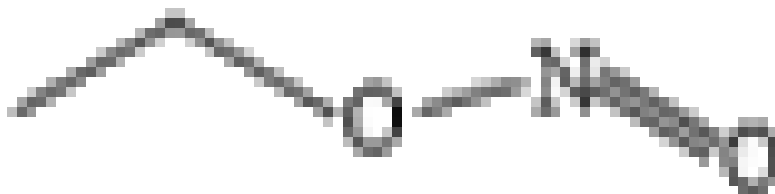
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18. Which one of the following is most basic?

- A. 2,4 – dichloroaniline
- B. 2,4 – dimethyl aniline
- C. 2,4 – dinitroaniline
- D. 2,4 – dibromoaniline

Answer: B

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19. When

is reduced with Sn / HCl the pair of compounds

formed are

A. Ethanol, hydrozylamine hydrochloride

B. Ethanol, ammonium hydroxide

C. Ethanol, NH_2OH

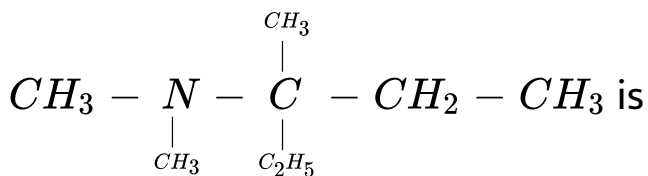
D. $C_3H_5NH_2$, H_2O

Answer: A



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20. IUPAC name for the amine



A. 3 - Bimethylamino - 3 - methyl pentane

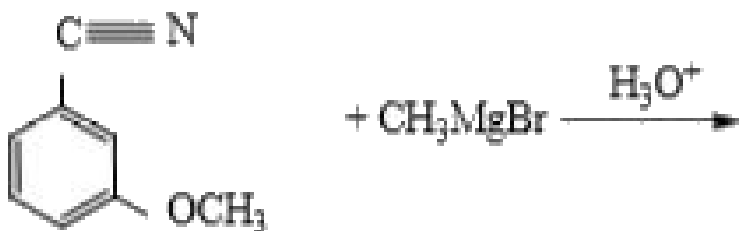
B. 3 (N,N - Triethyl) - 3- amino pentane

C. 3 - N,N - trimethyl pentanamine

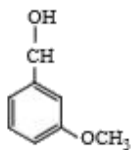
D. 3 - (N,N - Dimethyl amino) - 3- methyl pentane

Answer: D

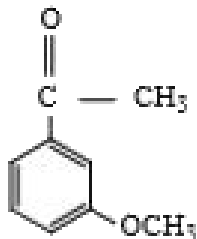
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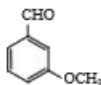
Product 'P' in the above reaction is



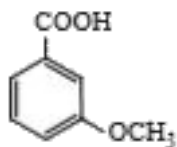
A.



B.



C.



D.

Answer: B



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22. Ammonium salt of benzoic acid is heated strongly with and the product so formed is reduced and then treated with $NaNO_2/HCl$ at low temperature. The final compound formed is

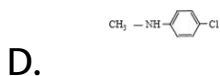
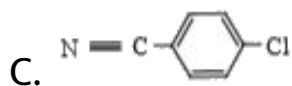
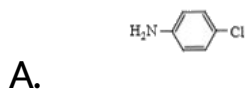
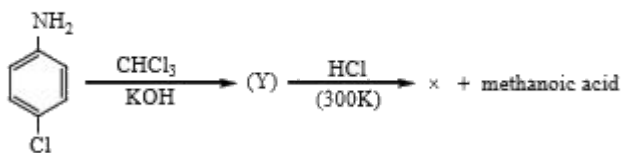
- A. Benzene diazonium chloride
- B. Benzyl alcohol
- C. Phenol
- D. Nitrosobenzene

Answer: B



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23. Identify X in the sequence give below.

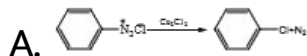


Answer: A



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24. Among the following, the reaction that proceeds through an electrophilic substitution, is :



Answer: B



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