CHEMISTRY

BOOKS - NCERT CHEMISTRY (ENGLISH)

AMINES

Mcq

1. Which of the following is a 3° amine

A. 1-methylcyclohexylamine

B. Triethylamine

C. Tert-butylamine

D. Propan-2-amine

Answer: B

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2. The correct IUPAC name for $CH_2 = CHCH_2NHCH_3$ is

A. allyl methylamine

B. 2-amiono-4-pentane

C. 4-aminopent-1-ene

D. N-methylprop-2-ene-1-amine

Answer: D

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3. Amongst the following, the amongst base in aquesous medium is....

A. CH_3NH_2

B. $NCCH_2NH_2$

C. $(CH_3)_2NH$

D. $C_6H_5NHCH_3$

Answer: C

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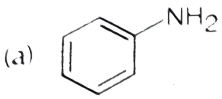
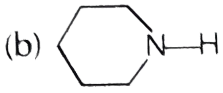
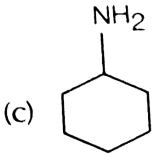
4. Which of the following is the weakest Bronsted base?

A. (a) 

B. 

C. 

D. CH_3NH_2

Answer: A

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5. Benzylamne may be alkylated as shown in the following equation?

$C_6H_5CH_2NH_2 + R - X \rightarrow C_6H_5CH_2NHR$

Which of the followng alkyl haldies is best suited for this reaction through S_N1 mechanism?

A. CH_3Br

B. C_6H_5Br

C. $C_6H_5CH_2Br$

D. C_2H_5Br

Answer: C

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6. Which of the following reagents would not be a good choice for reducing an aryl nitro compound to an amine?

A. $H_2(\text{excess}) / Pt$

B. $LiAlH_6$ in ether

C. Fe and HCl

D. Sn and HCl

Answer: B

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7. In order to prepare a 1° amine from an alkyl halide with simultaneous addition of one CH_2 group in the carbon chain, the reagent used as source of nitrogen is.....

A. Sodium amide, $NaNH_2$

B. sodium azide, NaN_3

C. potassium cyanide, KCN

D. potassium pthalimide

$C_6H_4(CO)_2N^-K^+$

Answer: C

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8. The source of nitrogen in Gabriel syntheisis of amine is..

A. sodium azide, NaN_3

B. sodium nitrite, $NaNO_2$

C. potassium cyanide, KCN

D. potassium pthalimide

$C_6H_4(CO)_2N^-K^+$

Answer: D

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9. Amongst the given set of reactants, the most appropriate for preparing 2° amine is..

A. $2^{\circ} R - Br + NH_3$

B. $2^{\circ} R - Br + NaCN \text{followed by} H_2 / Pt$

C. R-NH2+R-CHO gives R-NH-CH2-R

D. None of these

Answer: C

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10. The best reagent for converting 2-phenylpropanamide into 2-phenylpropanamine is....

A. excess H2

B. Br_2 in aqueous NaOH

C. iodine in the presence of red phosphorus

D. $LiAlH_4$ in ether

Answer: D

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11. The best reagent for converting, 2-phenylpropanamide into 1-phenylethanemine is....

A. excess H_2 / Pt

B. $NaOH / Br_2$

C. $NABH_4$ / methanol

D. $LiAlH_4$ ether

Answer: B

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12. Hofman bromamide degradation reaction is shown by.....

A. $ArNH_2$

B. $ArCONH_2$

C. $ArNO_2$

D. $ArCH_2NH_2$

Answer: B

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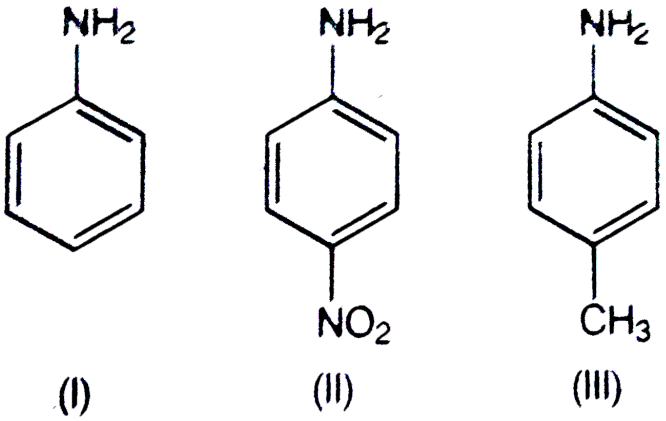
13. The correct increasing order is basic strength for the following compounds is...



(I) (II) (III)

A. $I < III < I$

B. $III < III < II$

C. $III < II < I$

D. $II < I < III$

Answer: D

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14. Methylamine reacts with HNO_2 to form....

A. $CH_3 - O - N = O$

B. $CH_3 - O - CH_3$

C. CH_3OH

D. CH_3CHO

Answer: C

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15. The gas evolved when methylamine reacts with nitrous acid is....

A. NH_3

B. N_2

C. H_2

D. C_2H_6

Answer: B

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16. In the nitration of benzene using a mixture of conc. H_2SO_4 and conc. HNO_3 , the species which initiates the reaction is...

A. NO_2

B. NO^+

C. NO_2^+

D. NO_2^+

Answer: C

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17. Reduction of aromatic nitro compounds using Fe and HCl gives...

A. aromatic oxime

B. aromatic hydrocarbon

C. aromatic primary amine

D. aromatic amide

Answer: C

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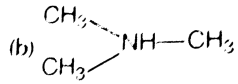
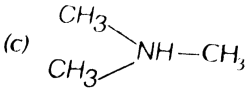
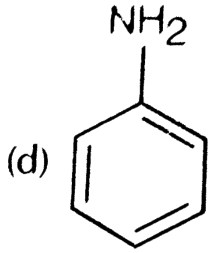
18. The most reactive amine towards dilute hydrochloric acid is...

A. $CH_3 - NH_2$

B. 

C. 

D. 

Answer: B

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19. Acid anhydrides on reaction with primary amine gives...

A. amide

B. imide

C. secondary amine

D. imine

Answer: A

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20. The reaction $Ar\overset{+}{N}_2Cl \xrightarrow{Cu\,/\,HCl} ArCl + N_2 + CuCl$ is named as....

A. Sandmeyer reaction

B. Gattermann reaction

C. Claisen reaction

D. Carbylamine reaction

Answer: B

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21. Best method for preparing primary amines from alkyl halides without changing the number of carbon atoms in the chain is

A. Hofmann bromamide reaction

B. Gabriel phthalimide

C. Sandmeyer reaction

D. reaction with Nnh_3

Answer: B

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22. Which of the following compounds will not undergo azo coupling reaction with benzene diazonium chloride?

A. Aniline

B. Phenol

C. Anisole

D. Nitrobenzene

Answer: D

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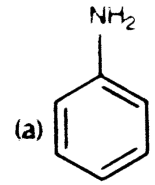
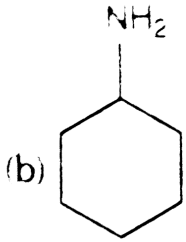
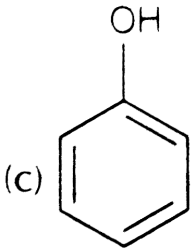
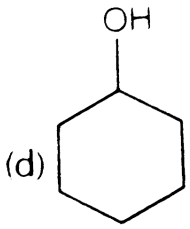
23. Which of the following compounds is the weakest Bronsted base?

A. 

B. 

C. 

D. 

Answer: C

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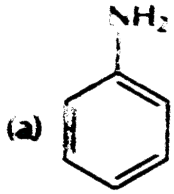
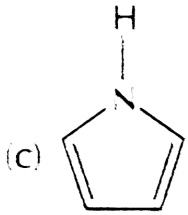
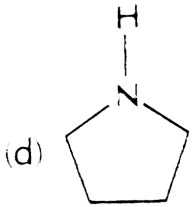
24. Among the following amines, the strongest Bronsted base is....

A. 

B. NH_3

C. 

D. 

Answer: D

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25. The correct decreasing order of basic strength of the following species is .....

H_2O, NH_3, OH^-, NH_2^-

A. $NH_2^- > OH^- > NH_3 > H_2O^-$

B. $OH^- > NH_2^- > H_2O > NH_2^-$

C. $NH_3 > H_2O > NH_2^- > OH^-$

D. $H_2O > NH_3 > OH^- > NH_2^-$

Answer: A

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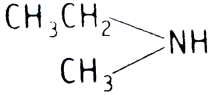
26. Which of the following should be most volatile?

I. $CH_3CH_2CH_2NH_2$

II. $(CH_3)_3N$

III. 

IV. $CH_3CH_2CH_3$

A. II

B. IV

C. I

D. III

Answer: B

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27. Which of the following methods of preparing of amines will give some number of carbon atoms in the chain of amines as in the reactant?

A. Reaction of nitrite with $LiAlH_4$

B. Reaction of amide with $LiAlH_4$ followed by treatment with water

C. Heating alkylhalide with potassium salt of phthalimide followed by hydrolysis

D. Treatment of amide with bromine in aqueous solution of sodium hydroxide.

Answer: A::B::C

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28. Which of the following cannot be prepared by Sandmeyer's reaction?

A. Chlorobenzene

B. Bromobenzene

C. Iodobenzene

D. Fluorobenzene

Answer: C::D

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29. Reduction of nitrobenzene by which of the following reagent gives aniline?

A. Sn / HCl

B. Fe / HCl

C. $H_2 - Pd$

D. Sn / NH_4OH

Answer: A::B::C

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30. Which of the following species are involved

A. $R - NC$

B. $CHCl_3$

C. $COCl_2$

D. $NaNO_2 + HCl$

Answer: A::B

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31. The reagents that can be used convert benzenediazonium chloride to benzene are....

A. $SnCl_2 / HCl$

B. CH_3CH_2OH

C. H_3PO_2

D. $LiAlH_4$

Answer: B::C

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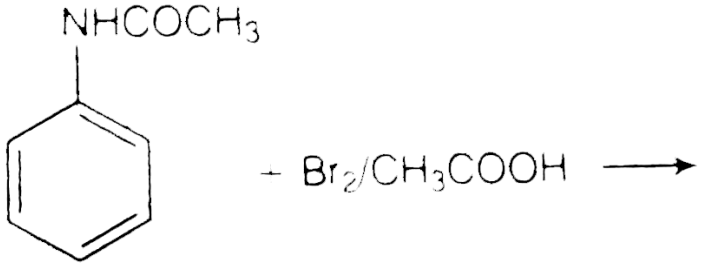
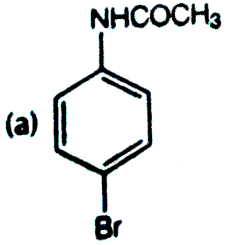
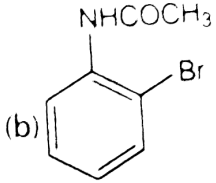
32. The product of the following reaction is ...



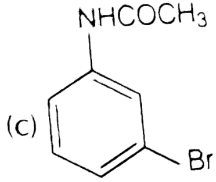
A.



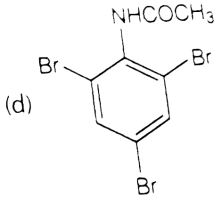
B.



C.



D.



Answer: A::B

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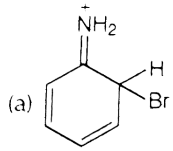
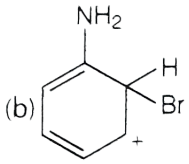
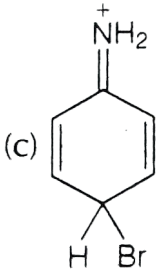
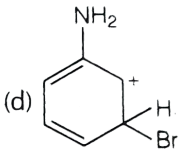
33. Arneium ion involved in the bromination of aniline is....

A. 

B. 

C. 

D. 

Answer: A::B::C

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34. Which of the following can be prepared by Garbriel synthesis?

A. Isobutyl amine

B. 2-phenylethylamine

C. N-methylbenzylamine

D. Aniline

Answer: A::B

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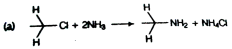
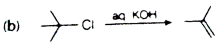
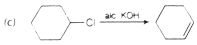
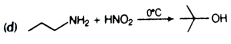
35. Which of the following reaction are correct?

A. 

B. 

C. 

D. 

Answer: A::C

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36. Under which of the following reaction condidiotns, aniline give p-nitro derivative as the major product?

A. Acetyl chloride/pyridine followed by reaction with conc. $H_2SO_4 + \text{conc.} HNO_3$

B. Acetic anhydride/pyridine followed by conc. $H_2SO_4 + \text{conc.} HNO_3$

C. Dil. HCl followed by reaction with conc. $H_2SO_2 + \text{conc.} HNO_3$

D. Reaction with conc. $HNO_3 + \text{conc.} H_2SO_4$

Answer: A::B

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37. Which of the following reaction belong to electrophilic aromatic substitution

A. Bromination of acetanilide

B. Coupling reaction of aryldiazonium salts

C. Diazotisation of aniline

D. Acylation of aniline

Answer: A::B

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1. What is the role of HNO_3 in the nitrating mixture used for nitration of benzene?

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2. Why is NH_2 group of aniline acetylated before carrying our nitration

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3. What is the product when $C_6H_5CH_2NH_2$ reacts with HNO_3?

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4. What is the best reagent to convert nitrile to primary amine

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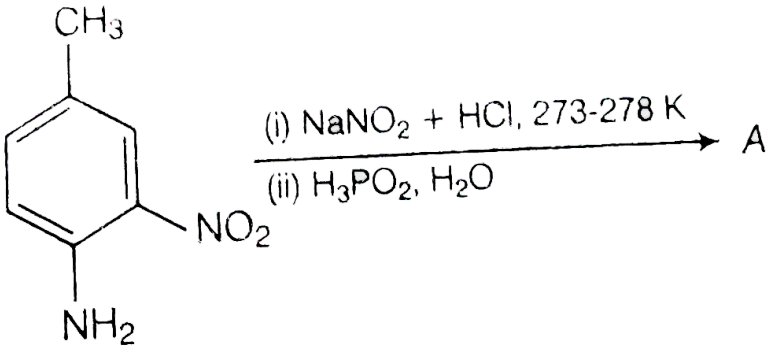
5. Give the structure of 'A' in the following reaction.



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6. What is Hinsberg reagent?

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7. Why is benzene diazonium chloride not stored and is used immediately after its preparation?

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8. Why does acylation of $-NH_2$ of aniline reduces its activating effect?

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9. Explain why $MeNH_2$ is stronger base than $MeOH$?

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10. What is the role of pyridine in the acelation reaction of amines?

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11. Under the reaction condition (acidic, basic) the coupling reaction of aryl diazonium chloride with aniline is carried out?

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12. Predict the product of reaciton for aniline with bromine in non-polar solvent such as CS_2

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13. Arraange the following compounds in increasing order of dipole moment?

$CH_3CH_2CH_3. CH_3CH_2NH_2, CH_3CH_2OH$

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14. What is the structure and IUPAC name of the compound, allyl amine?

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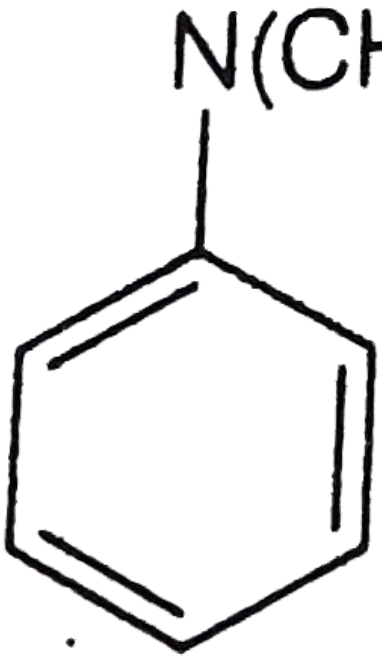
15. Write down the IUPAC name of



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16. A compound Z with molecular formula C_3H_9N reacts with $C_6H_5SO_2Cl$ to give a solid, insoluble in alkali. Identify Z.

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17. A primary amine, RNH_2 can be reacted with $CH_3 - X$ to get secondary amine, $R - NHCH(3)$, but the only disadvantage is that 3° amine and quaternary ammonium salts are also obtained as side products. Can

your suggest a method where RNH_2 forms only 2° amine?

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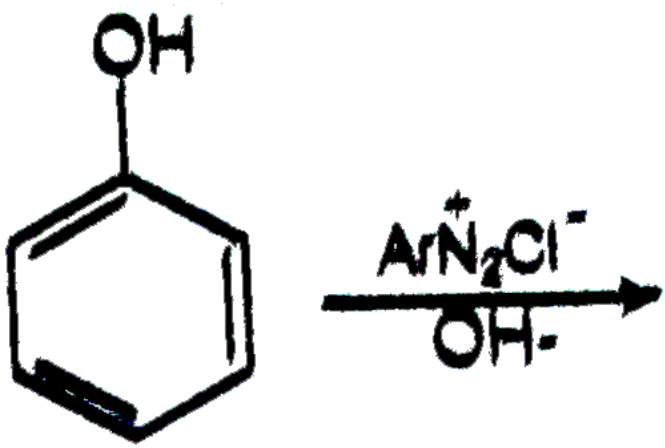
18. Complete the following reaction



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19. Why is aniline soluble in aqueous HCl?

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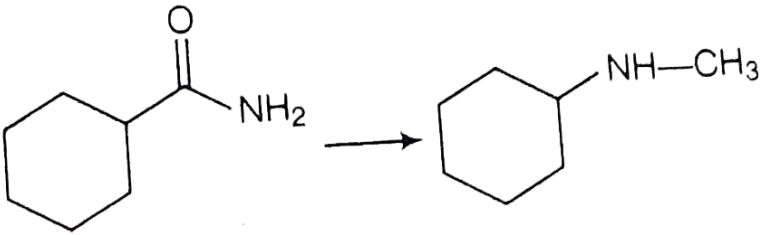
20. Suggest a route by which of the following conversion can be accomplished.



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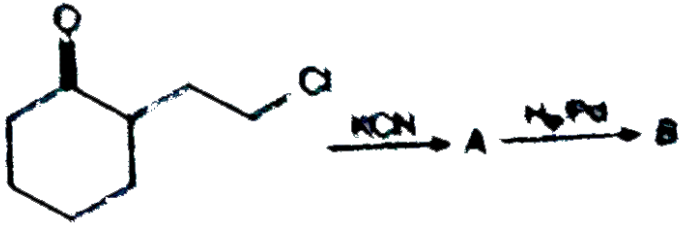
21. Identfy A and B in the following reactions.



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22. How will you carry out the follwing conversion?

(i) Toluene -p-toluidine

(ii) p-toluidine diazonium chloride -p-toulic acid

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23. Write following conversions

(i) Nitrobenzene-Acetanilide

(ii) Acetanilide-p-nitroaniline

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24. A solution contains 1g mol. Each of p-toluene diazonium chloride and p-nitrophenyl diazonium cholride. To this 1g mol.of alkaline

solution of phenol is added. Predict the major product. Explain your answer.

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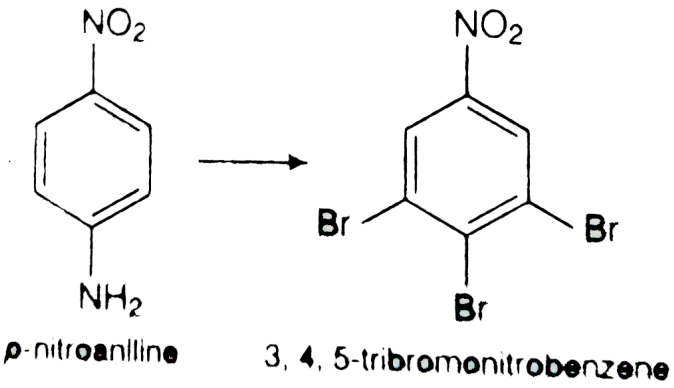
25. How will you bring out the following conversion?



p-nitroaniline 3, 4, 5-tribromonitrobenzene

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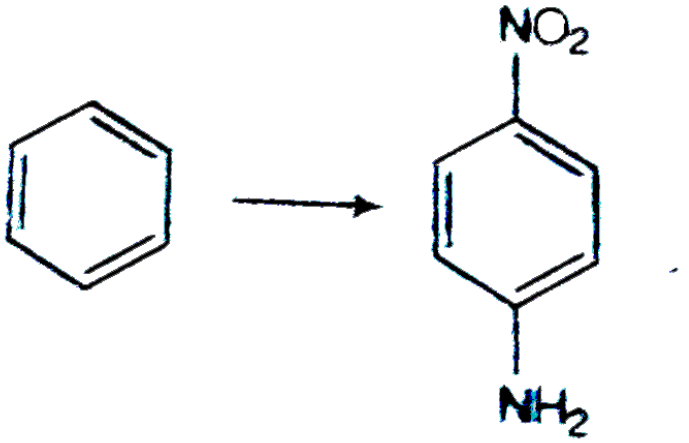
26. How will you carry out the following conversion?



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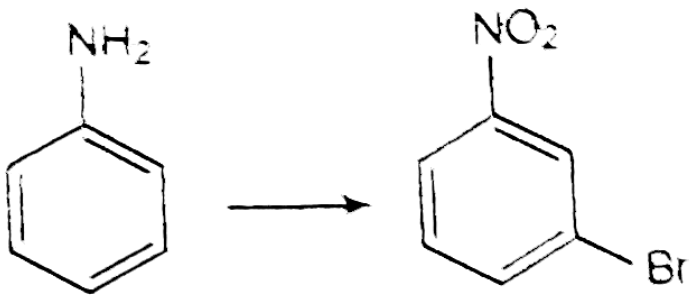
27. How will you carry out the following conversion?



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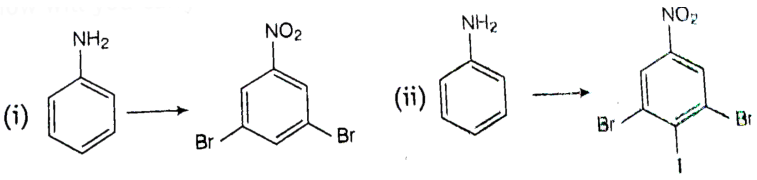
28. How will you carry out the following conversion?



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29. Match the reactions given in Column I with the statements given in Column II

	Column I		Column II
A.	Ammonolysis	1.	Amine with lesser number of carbon atoms
B.	Gabriel phthalimide synthesis	2.	Detection test for primary amines.
C.	Hofmann bromamide reaction	3.	Reaction of phthalimide with KOH and $R—X$
D.	Carbylamine reaction	4.	Reaction of alkylhalides with NH_3

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30. Match the reactions given in Column I with the statements given in Column II

	Column I		Column II
A.	Benzene sulphonyl chloride	1.	Zwitter ion
B.	Sulphanilic acid	2.	Hinsberg reagent
C.	Alkyl diazonium salts	3.	Dyes
D.	Aryl diazonium salts	4.	Conversion to alcohols

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31. Assertion(A) Acylation of amines gives a monsubstituted product whereas alkulation of amines gives polysubstitues product.

Reason(R) Acyl group sterically hinders the apprach of further acyl group

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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32. Assertion (A): Hofmann's bromamide reaction is given by primary amines.

Reason: Primary amines on more basic than secondary amines.

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of

assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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33. Assertion (A): N-ethylbenzene sulphonamide is solube in alkali.

Reason (R): Hydrogen attached to nitrogen In sulphonamide is strongly acidic.

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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34. Assertion(A): N,N-diethylbenzene sulphonamide is insoluble in alkali.

Reason(R): Sulphonyl group attached to

nitrogen atoms is strong electron withdrawing group.

A. Both assertion and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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35. Assertion(A): Only a small amount of HCl is required in the reduction of nitro compound with iron scrap and HCl in the presence of steam.

Reson(R): $FeCl_2$ formed get hydrolysed to release HCl during the reaction.

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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36. Assertion(A): Aromatic 1° amines can be prepared by Gabriel phtalmide synthesis.

Reason (R): Aryl halides undergo nucleophilic substitution with anion formed by pthalimide.

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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37. Assertion(A): Acetanilide is less basic aniline.

Reson(R): Acetylation of aniline results in decrease of electron density on nitrogen.

A. Both assertio and reason are worng

B. Both assertion and reason are correct statement but reason is not correct

explaination of assertion.

C. Assertion is correct statements and reason is correct explanation of assertion.

D. Both asseration and reason are correct statements and reason is correct explanation of assertion .

Answer:

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Long Answer

1. A hydrocarbon 'A' (C_4H_8) on reaction HCl gives a compound 'B', (C_4H_9Cl) which on reaction with 1 mol of NH_3 gives compounds 'C' $(C_4H_{11}N)$. On reacting with $NaNO_2$ and HCl followed by treatment with water compound 'C' yields an optically active alcohol, 'D'. Ozonolysis of 'A' given 2mols of acetyldehyde. Identify compound 'A' to 'D'. Explain the reaction involved.

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2. A colours substance 'A' (C_6H_7) is sparingly soluble in water and gives a water soluble comound 'B' on treating with mineral acid. On reaction wih $CHCl_3$ and alcoholic potash 'A' produces an obnoxious smell due to the formation of compound 'C'. Reaction of 'A' with benzensulphonyl chloride gives compound 'D' which is soluble in alkali. WIth $NaNO_2$ and HCl, 'A' forms compound 'E' which reacts with phenol in alkaline medium to give an orange dye 'F'. Identify compounds 'A' to'F'.

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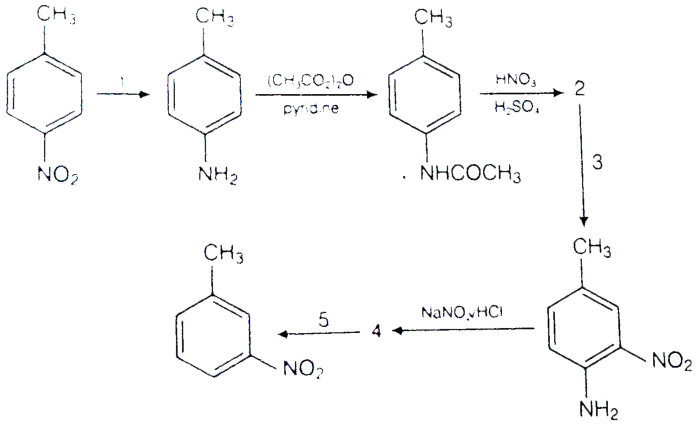
3. Predict the reagent or the product in the following reaction sequence.



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