



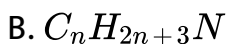
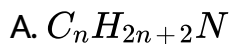
## CHEMISTRY

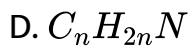
### BOOKS - R SHARMA CHEMISTRY (HINGLISH)

#### AMINES

#### Follow Up Test 1

1. The general formula of the open chain saturated monoamines is .



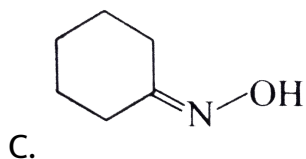
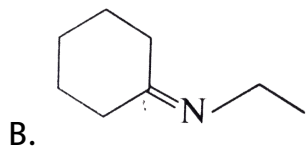
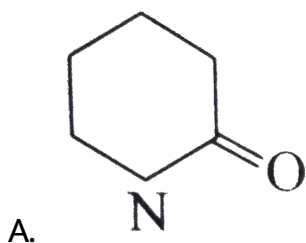


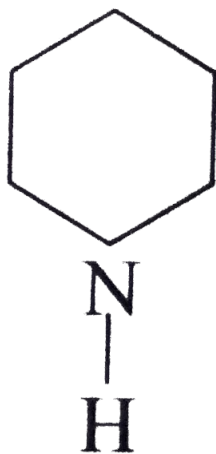
Answer: B

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### Follow Up Test

1. Which of the following compounds is an amine ?





D.

**Answer: D**

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2. A secondary amine is a compound which possesses .

- A. one -  $NH_2$  group bonded to the second carbon of the main carbon chain
- B. one -  $NH_2$  group bonded to a secondary carbon atom
- C. one-NH-group bonded to two alkyl or aryl groups

D. two  $NH_2$  groups

**Answer: C**

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3. Among the following compounds which one is a heterocyclic tertiary amine ? .

A. Pyridine

B. Piperidine

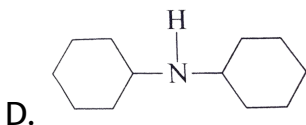
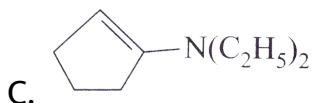
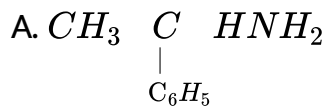
C. Pyrrole

D. N,N-Dimethylaniline

**Answer: A**

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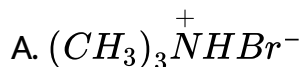
4. Which of the following compounds is a tertiary amine ? .

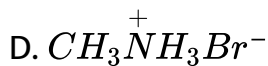
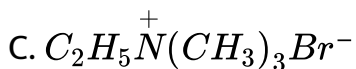
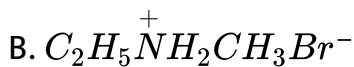


**Answer: C**

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5. Which of the following compounds is a quaternary .

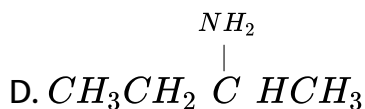
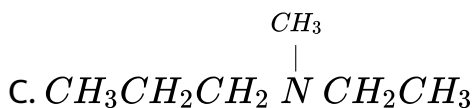
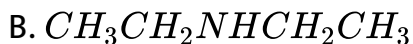
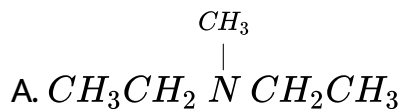




Answer: C

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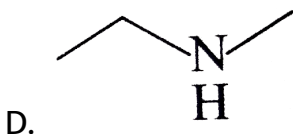
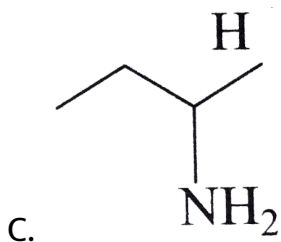
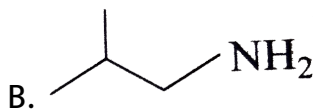
6. Which of the following compounds possesses a chiral nitrogen atom ?



Answer: C

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7. Which of the following compounds exists a nonresolvable racemic mixture .



Answer: D





A.  $sp^2$ ,  $sp^3$  and  $sp^2$

B.  $sp^2$ ,  $sp^2$  and  $sp^2$

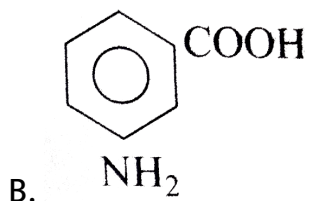
C.  $sp^3$ ,  $sp^3$  and  $sp^3$

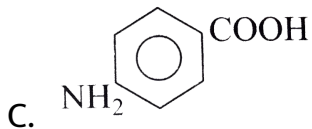
D.  $sp^2$ ,  $sp^3$  and  $sp^3$

**Answer: A**

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10. Which of the following is called anthranilic acid ? .





D. None of these

**Answer: A**

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11. The *IUPA* name of t-butylamine is

A. 1,1-dimethyethanamine

B. 2-methylpropan-1amine

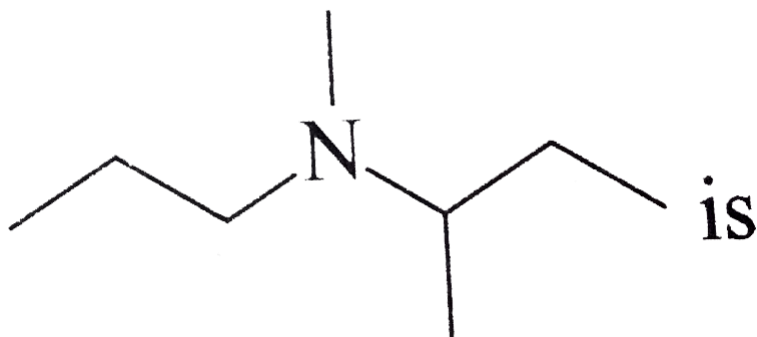
C. N,1-dimethy-1-N-propylpropanamine

D. s-butylmethy1-n-propylamine

**Answer: D**

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12. The *IUPAC* name of the compound



- A. N-Methyl-N-propylbutan-2-amine
- B. N,3-dimethyl-N-propylpropan-3-amine
- C. N,1-dimethyl-N-propylpropanamine
- D. s-butylmethyl-n-propylamine

**Answer: A**



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13. Which of the following is a primary amine .?

- A. t-Butylamine
- B. Isobutylamine
- C. t-Butylamine
- D. All of these

**Answer: D**



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14. The total number of constitutional isomers having the molecular formula  $C_3H_9N$  is .

- A. Five
- B. four

C. two

D. three

**Answer: B**



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**15.** Isobutylamine and t-butylamine are

A. chain isomers

B. position isomers

C. both (1) and (2)

D. functional isomers

**Answer: C**



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16. How many primary amines including stereoisomers are possible for the molecular formula  $C_4H_{11}N$ .

- A. Five
- B. four
- C. three
- D. two

**Answer: A**



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17. Which of the following names are incorrect .

Methylaniline

Propanediamine

N-Penthy-2-Propylamine

m-Xylidine .

A. (i),(ii)

B. (i),(ii),(iii)

C. (i),(ii),(iii),(iv)

D. (i),(iii),(iv)

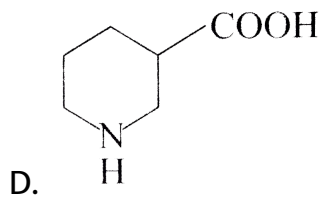
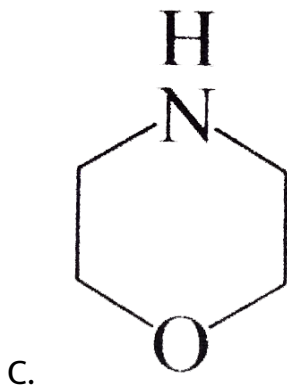
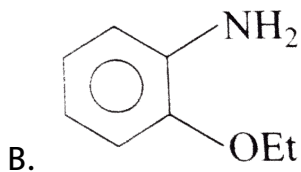
**Answer: C**



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**18.** Which of the following compounds is known is o-phenetidine

?.



**Answer: B**



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19. During the reduction of nitro compound to an amine the oxidation number of nitrogen changes by

- A. six units
- B. five units
- C. four units
- D. three units

**Answer: A**



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20. Reduction of nitrobenzene with zinc dust and aqueous ammonium chloride yields

- A. N-phenylhydroxylamine

B. aniline

C. p-aminophenol

D. azobenzene

**Answer: A**

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21. When reduction of nitrobenzene is carried out in alkaline medium it forms different products depending upon the nature of the reducing agent. Azoxybenzene is obtained when nitrobenzene is reduced with

A.  $LiAlH_4$  in ether

B.  $Na_3AsO_3 / NaOH$

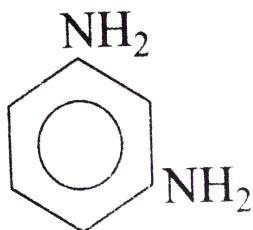
C.  $Zn / NaOH, CH_3OH$

D. Zn/NaOH

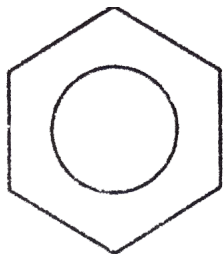
Answer: B

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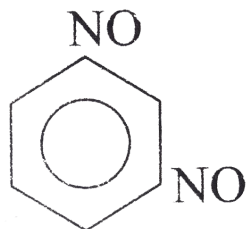
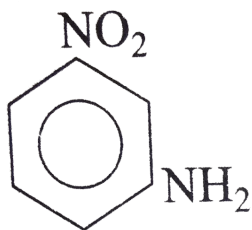
22. The product of the following reaction .



A.



B.



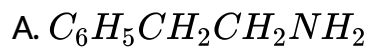
Answer: C

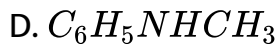
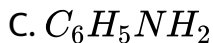
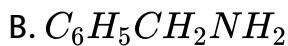
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23. Consider the following sequence of reactions



the final product (*B*) is .





**Answer: A**



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**24.** Acetone oxime on catalytic hydrogenation gives

A. ethylamine

B. ethylmethanamine

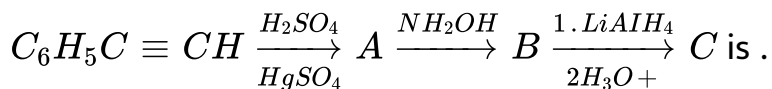
C. isopropylamine

D. n-propylamine

**Answer: A**

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25. The final product formed in the reaction



A. 

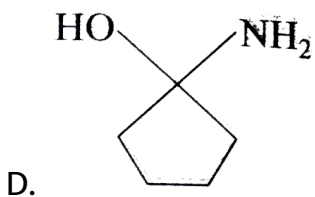
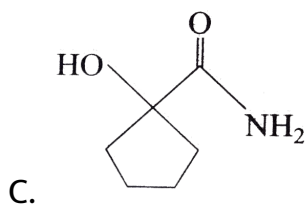
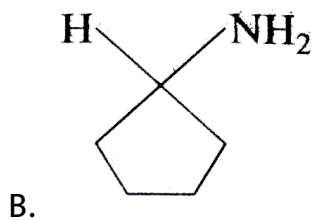
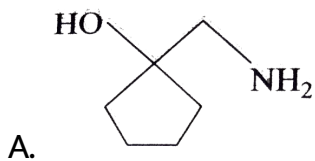
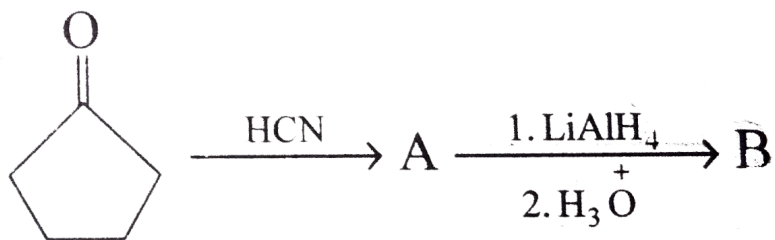
B.  $C_6H_5CH_2NHCH_3$

C.  $C_6H_5CH_2CH_2NH_2$

Answer: B

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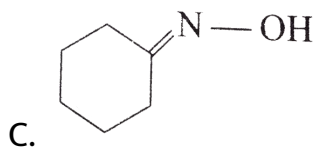
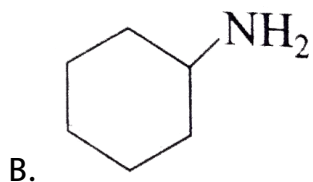
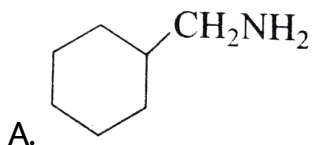
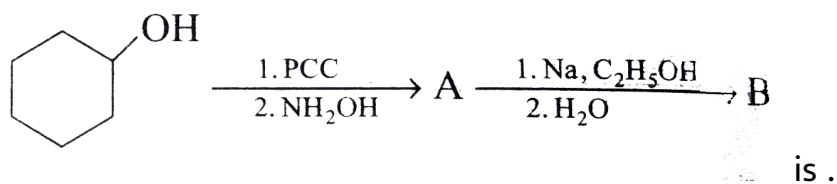
26. The end product (*B*) of the reaction



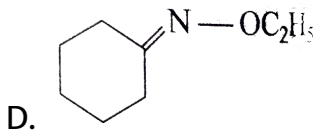
Answer: A

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27. The end product (*B*) of the reaction sequence



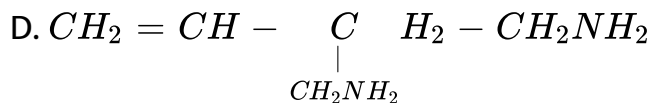
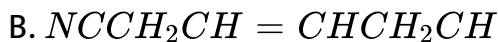
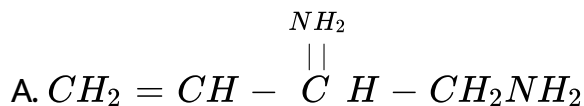
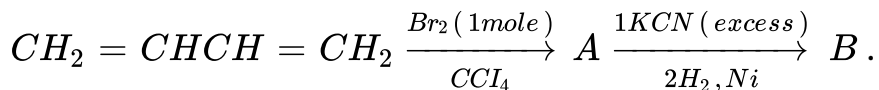




Answer: B

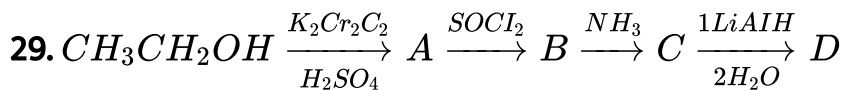
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28. Consider the following sequence of reactions



Answer: C

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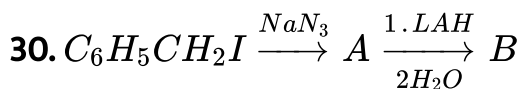


The product  $D$  in the above sequence of reactions is

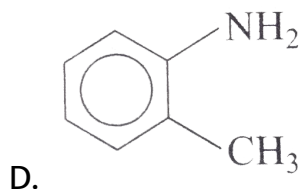
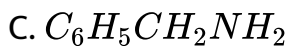
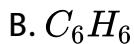
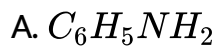
- A.  $\text{CH}_3\text{NH}_2$
- B.  $\text{CH}_3\text{CH}_2\text{NH}_2$
- C.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$
- D.  $(\text{CH}_3)_2\text{CHNH}_2$

**Answer: B**

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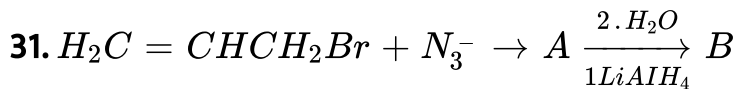


The product  $B$  in the above sequence of reactions is

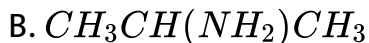
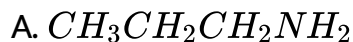


Answer: C

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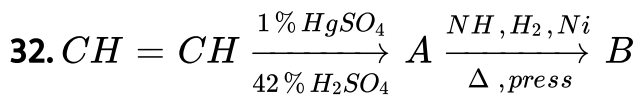
Identify compound  $B$ .



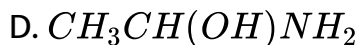
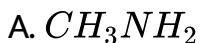


**Answer: C**

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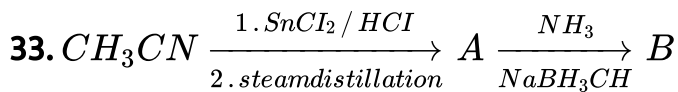


The Product  $B$  in the above sequence of reaction is

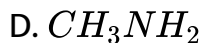
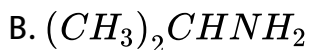


**Answer: B**

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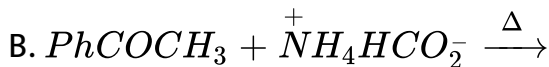
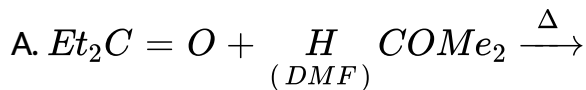
The product  $B$  in the above sequence of reactions is



**Answer: C**

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34. Which of the following reactions leads to the formation of a primary amine ? .



D. All of these

**Answer: B**



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**35.** Gabriel synthesis is not a viable method for preparing

(i) t-butylamine

(ii) neopentylamine

(iii) diethylamine

(iv) p-toluidine .

A. (i),(iv)

B. (i),(ii),(iv)

C. (i),(ii),(iii),(iv)

D. (i),(iii),(iv)

**Answer: C**



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**36.** Acetamide is treated separately with the following reagents

Which one of these would give methylamine ?.

A. Hot conc  $H_2SO_4$

B.  $NaOH + Br_2$

C. Sodalime

D.  $PCl_5$

**Answer: B**

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**37.** Among the following compounds the one which will produce 1-phenylethanamine in Hofmann hypobromite reaction is

- A. N-phenylethanamide
- B. 3-phenylethanamide
- C. 2-phenylethanamide
- D. 2-phenylethanamide

**Answer: D**

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38. The reaction of (*S*) – 2-methylbutanamide with  $Br_2$  and  $OH^-$  produces an optically active amine. The product is .

- A. Rsec-butylamine
- B. (*S*)-sec-butylamine
- C. ( $\pm$ ) sec-butylamine
- D. (*R*)-iso-butylamine

**Answer: B**

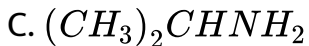
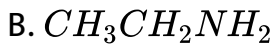


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39. Consider the following sequence of reactions

$CH_3COOH \xrightarrow{SOCl_2} A \xrightarrow{NH_2OH} B \xrightarrow{HCl} C$  The end product 'C' is .

- A.  $CH_3NH_2$

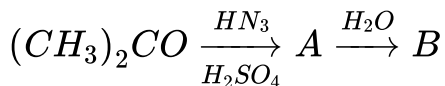


D. A mixture of all the

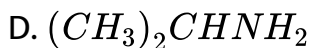
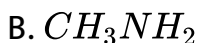
**Answer: A**

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**40.** In the following sequence of reactions



The end product 'B' is .



**Answer: B**

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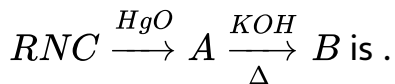
41. Ritter reaction is a good method for preparing primary amines containing a .

- A. primary alkyl group
- B. secondary alkyl group
- C. tertiary alkyl group
- D. quaternary alkyl group

**Answer: C**

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42. The end product ( $B$ ) formed in the reaction

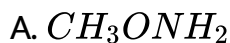


Answer: A



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43. Which of the following reacts with Grignard reagent to yield a primary amine ?



B.  $CINH_2$

C. Both of these

D. None of these

**Answer: C**



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**44.** The reaction  $CH_3I + NH_3(excess) \xrightarrow[2.OH^-]{1.heat} CH_3NH_2 + HI$

is an example of a

A. unimolecular nucleophilic substitution reaction

B. bimolecular nucleophilic substitution reaction .

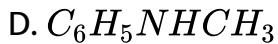
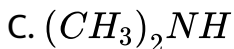
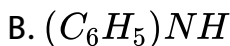
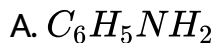
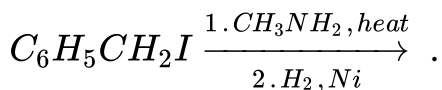
C. unimolecular electrophilic substitution reaction

D. bimolecular electrophilic substitution reaction .

Answer: B

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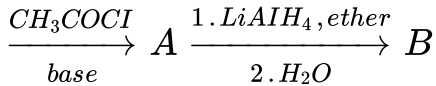
45. Predict the product of the following reaction



Answer: D

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46. Consider the following sequence of reactions



The end product  $B$  is .

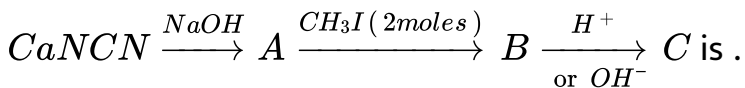
- A.  $\text{CH}_3\text{CH}_2\text{NHCH}_3$
- B.  $\text{CH}_3\text{CH}_2\text{NHCH}_2\text{CH}_3$
- C.  $\text{CH}_3\text{CH}_2\text{NHCOCH}_3$
- D.  $\text{CH}_3\text{CH}_2\text{NHCHO}$

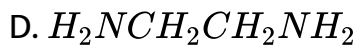
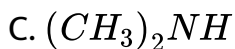
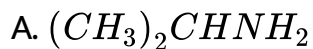
Answer: B



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47. The end product  $C$  in the following sequence of reactions

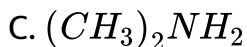
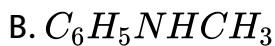
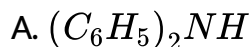
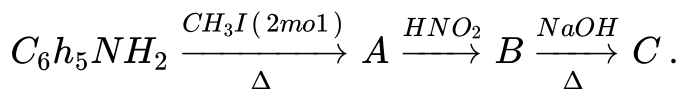




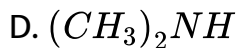
**Answer: C**

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**48.** Predict the end product of the following sequence of reactions



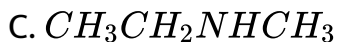
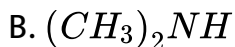
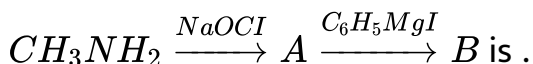




Answer: D

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49. The end product of the following sequence of reactions

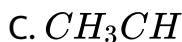
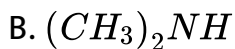
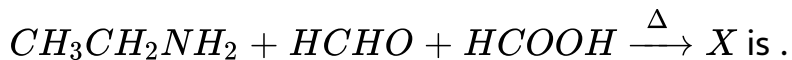


D. A mixture of all the

Answer: A

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50. The major product ( $X$ ) of the reaction



D. A mixture of all the

**Answer: C**



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51. Which of the following compounds gives a tertiary amine on reduction ? .

A. Nitriles

B. Amides

C. Oximes

D. Nitroalkanes

**Answer: B**



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**52.** When tetramethylammonium hydroxide is heated in aqueous solution under pressure the product is .

A.  $CH_3NH_2$

B.  $(CH_3)_2NH$

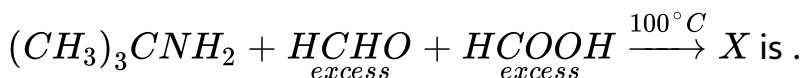
C.  $(CH_3)_3N$

D. A mixture of all the three amines

Answer: C

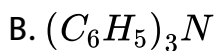
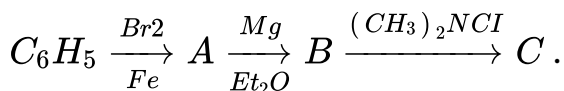
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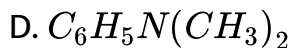
53. The major product ( $X$ ) of the reaction



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54. The end product of the following of reactions is

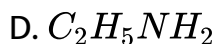
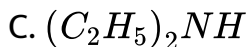
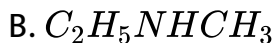
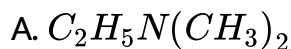




**Answer: D**

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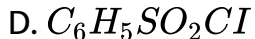
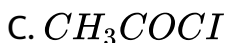
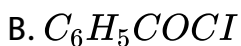
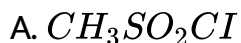
55. An amine ( $X$ ) on being heated with an excess of methyl bromide produces diethyldimethyl ammonium bromide. The amine ( $X$ ) is .



**Answer: C**

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56. Which of the following reagents is used for the Hinsberg method to separate amines ? .



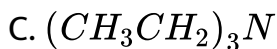
**Answer: D**



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57. A mixture of ethano1 vapour and ammonia is heated under pressure in the presence of alumina as a catalyst The product

formed is .



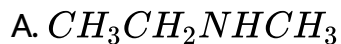
D. A mixture of all three amines

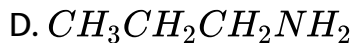
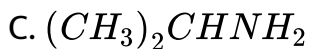
**Answer: D**



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**58.** A compound ( $X$ ) having the molecular formula  $C_3H_9N$  is insoluble in alkalis. The compound ( $X$ ) is .





**Answer: A**



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**59.** Which of the following reagents is employed in the Hofmann's method to separate the three types of amines ? .

A. Ethyl acetate

B. Diethyl oxalate

C. Dimethyl oxalate

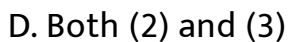
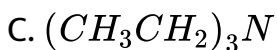
D. Methyl acetate

**Answer: B**



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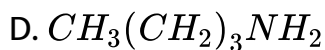
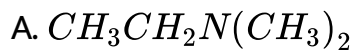
60. In Which of the following compound are intermolecular hydrogen bonds not formed among its molecules .



Answer: C

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61. Among the following isomeric amines which one is expected to have the lowest boiling point ? .

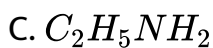
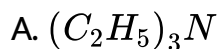


**Answer: A**



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**62.** Which of the following are soluble in water ? .



D. All of these

**Answer: D**

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**63.** Which of the following is incorrect about amines

- A. Aromatic amines are generally very toxic
- B. Aromatic amines are very easily oxidized by air
- C. Amines have higher boiling points than alcohols or carboxylic acids .
- D. Majority of amines have unpleasant odour .

**Answer: C**

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64. If  $pK_b$  for the reaction of  $MeNH_2$  in water is 3.4 the  $pK_a$  for the conjugate acid  $MeNH_3^+$  will be .

A.  $14/3.4$

B.  $14 + 3.4$

C.  $(14)(3.4)$

D.  $14 - 3.4$

Answer: D



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65. Which of the following statements is incorrect .

A. An aqueous solution of  $Me_3N$  is more basic than the same concentration of tetramethylammonium hydroxide



B. Amine salts are typical ionic compounds

C. Amine salts are non-volatile solids

D. When heated amine salts generally decompose before the high temperature required for melting is reached .

**Answer: D**

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66. Which of the following is water soluble .

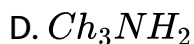
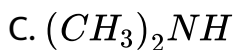


D. All of these

**Answer: B**

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67. Considering the basic strength in the gas phase which one has the smallest  $pK_a$  ? .

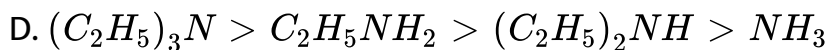
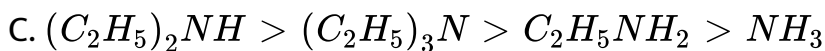
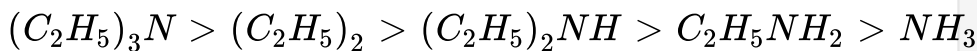


**Answer: B**

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68. Which of the following is the correct order of basicity in aqueous solution ? .

A.



**Answer: C**



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69. Amines are more basic than

A. alcohols

B. ethers

C. esters

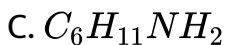
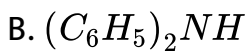
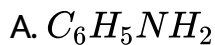
D. All of these

**Answer: D**



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**70.** Among the following the most basic is



**Answer: C**

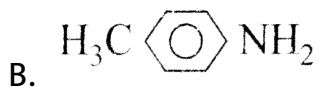


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71. Which of the following has the highest  $pK_a$  ?



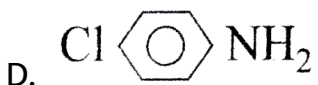
A.



B.



C.

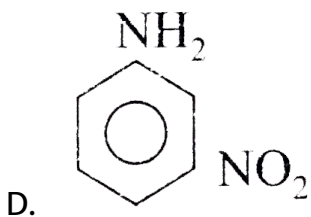
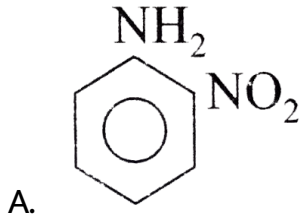


D.

**Answer: B**

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72. Which of the following has the highest  $pK_b$  ? .



**Answer: A**

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**73.** Which of the following is least basic . ?

A. o-Anisidine

B. p-Anisidine

C. m-Anisidine

D. Aniline

**Answer: C**



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**74.** Which of the following has the highest value of  $K_b$  ?

A. o-Toluidine

B. p-Toluidine

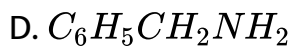
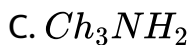
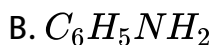
C. m-Toluidine

D. Aniline

**Answer: B**

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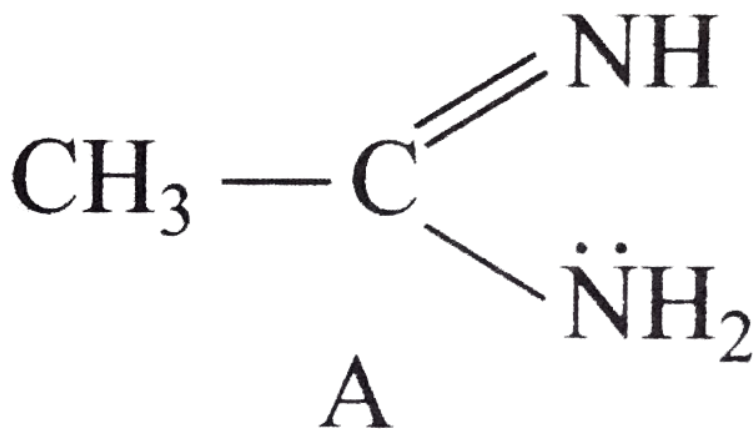
75. Which of the following is most basic ?.



**Answer: C**

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76. The correct order of the basicities of the following comounds is .



A.  $A > B > C > D$

B.  $C > A > B > D$

C.  $B > A > C > D$

D.  $A > C > B > D$

**Answer: D**

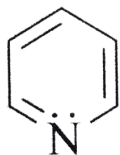
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77. Among the following compounds the correct order of basicity

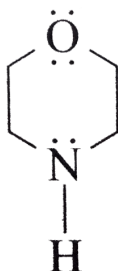
is



(A)



(B)



(C)



(D)

A.  $A > C > B > D$

B.  $B > A > C > D$

C.  $C > A > D > B$

D.  $D > A > C > B$

**Answer: A**

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78. Which of the following is least basic .

A. Resonance

B. Induction

C. Solvation

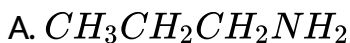
D. All of these

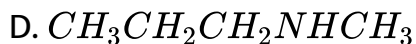
Answer: D



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79. Which of the following is least basic .





Answer: B

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80. Which of the following is incorrect ?

(a) the conjugate acid of  $HO(CH_2)_3NH_2$  is  $H_2\overset{+}{O}(CH_2)_3NH_2$

is

(b) The conjugate base of  $HO(CH_2)_3NH_2$  is  $\bar{O}(CH_2)_3\overset{+}{N}H_2$

(c) The conjugate acid of  $HO(CH_2)_3NH_2$  is  $HO(CH_2)_3NH_2$

(d) The conjugate base of  $HO(CH_2)_3NH_2$  is  $HO(CH_2)_3NH^-$ .

A. (b),(c)

B. (a),(b)

C. (c),(d)



D. (a),(d)

**Answer: A**

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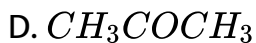
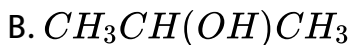
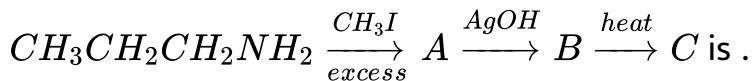
**81.** When treated with excess of methyl iodide methylamine leads to a nucleophilic substitution to yield .

- A. dimethylamine
- B. trimethylamine
- C. tetramethylammonium iodide
- D. a mixture of all of these

**Answer: D**

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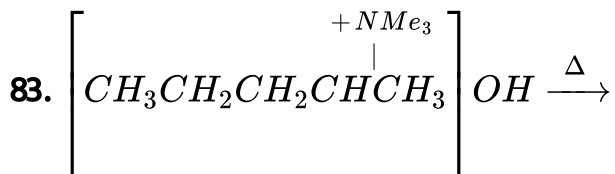
82. The structure of *C* in the following sequence of reactions



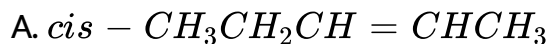
Answer: A



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The product obtained is .

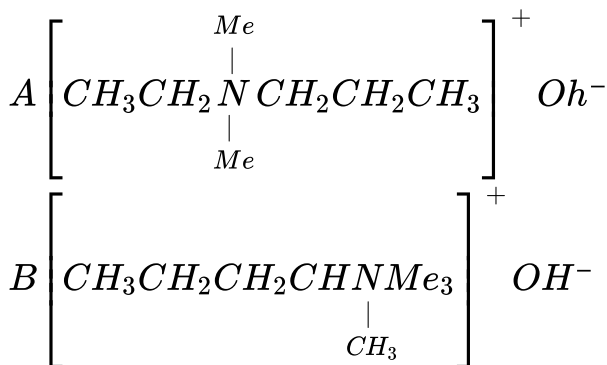


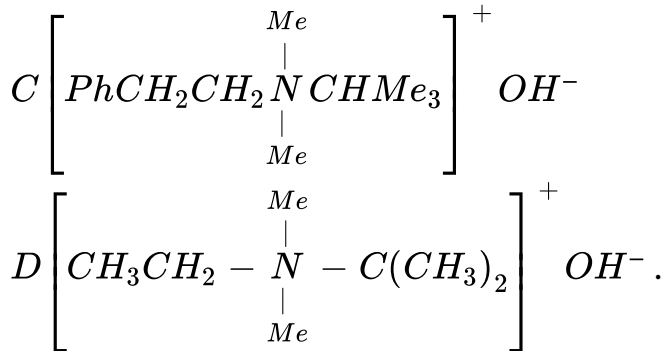
D. a mixture of all of these

**Answer: D**

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**84.** Which of the following quaternary ammonium hydroxides undergoes Saytzeff's elimination ?





A. A,B

B. C,D

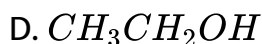
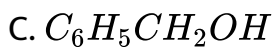
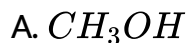
C. B,C

D. A,D

**Answer: B**

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**85.** The thermal decomposition of the hydroxide salt of  $\text{PhNMe}_3^+$  gives .

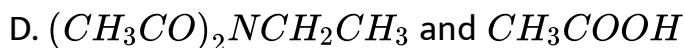
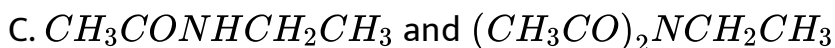
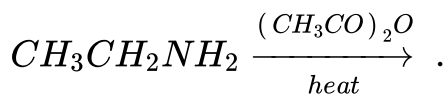


**Answer: A**



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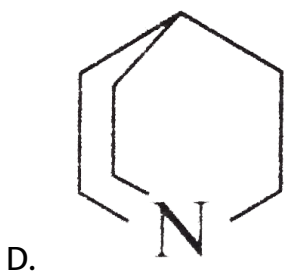
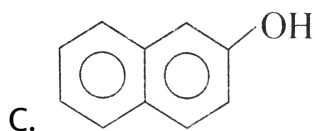
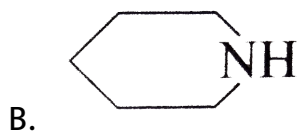
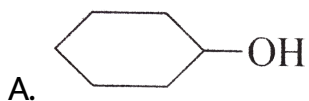
**86.** The products (*A*) and (*B*) of the reaction



Answer: B

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87. Which of the following does not react with benzyl chloride ?



Answer: D

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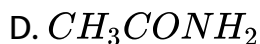
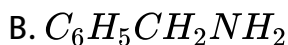
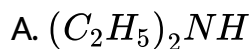
**88.** Benzoylation of primary and secondary amines with benzoyl chloride in the presence of dilute  $NaOH$  to form amides is known as .

- A. Schmidt reaction
- B. Schotten-Baumann reaction
- C. Reimer-Tiemann reaction
- D. Stephen reaction

**Answer: B**

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89. Which of the following compound on treatment with benzenesulphonyl chloride forms an alkali insoluble precipitate ?



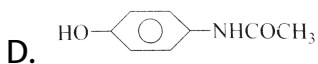
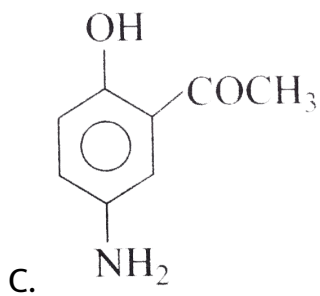
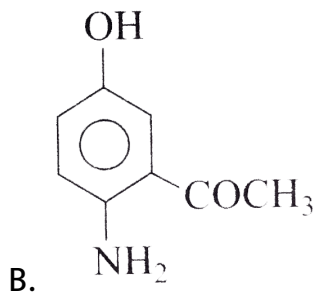
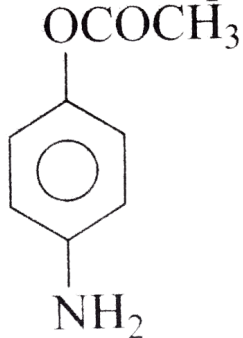
**Answer: A**



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90. The reaction of *p* – aminophenol with one equivalent of acetyl chloride in the presence of pyridine gives .





**Answer: C**

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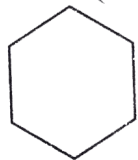
91. Which of the following compounds does not react with  $1^\circ$  and  $2^\circ$  amines to form amides ? .

- A. Acid chlorids
- B. Acid anhydrides
- C. Esters
- D. Carboxylic acids

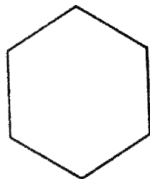
**Answer: D**

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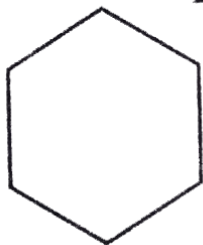
92. Among the following compounds which one will produce a Schiff base on reaction with cyclohexanone ? .



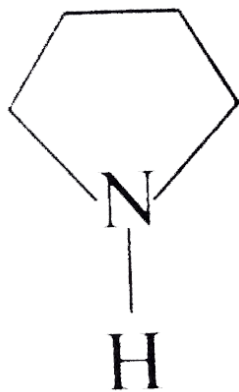
A.



B.



C.

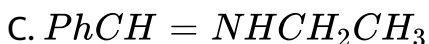
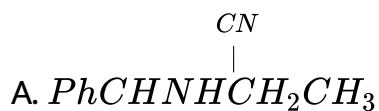
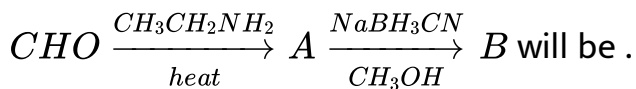


D.

Answer: C

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93. The end product (*B*) formed in the reaction sequence ph



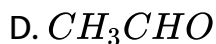
Answer: B

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94. Which of the following does not form enamines with a secondary amine ?



C. both(1)and(2)

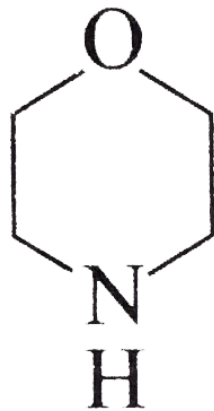


**Answer: C**

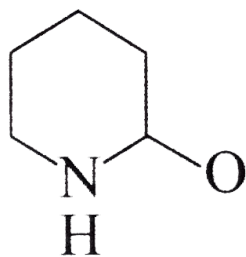


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95. Which of the following compound will react with cyclohexanone to form an enamine ?



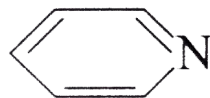
A.



B.



C.



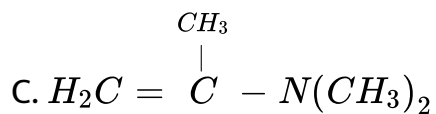
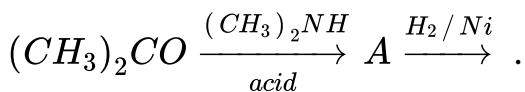
D.

**Answer: A**



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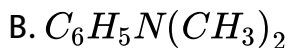
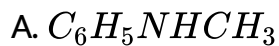
96. Predict the end product of the following sequence of reactions



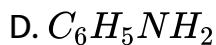
**Answer: B**

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97. Which of the following amines fail to give positive isocyanide test ?



C. Both (1) and (2)



**Answer: C**



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**98.** Which of the following intermediates is formed during the carbylamine reaction ?

A. Nitrene

B. Carbocation

C. Carbanion

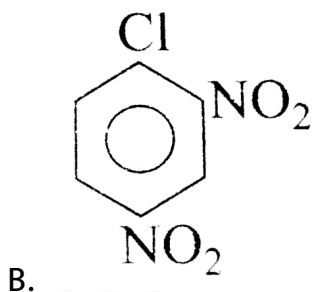
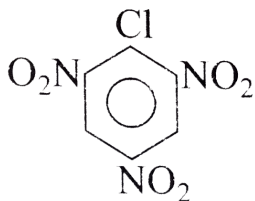
D. Dichloromethylene

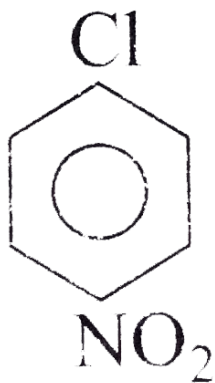


Answer: D

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99. Which of the following aryl halides is most reactive toward reaction with a primary amine ? .





c.



Answer: A

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100. Which of the following compounds is most readily nitrated with  $HNO_3$  .?

A. Nitrobenzene

B. aniline

C. Pheno1

D. Benzene

**Answer: B**



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**101.** Aniline dose not undergo

A. Friedel Carafths alkylaton Friedel Crafts alkylation

B. Friedel Carafths acylation

C. Both of these

D. None of these

**Answer: A**

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**102.** Aniline reacts with bromine in  $CS_2$  [carbon disulphide] at room temperature to yield .

- A. 2,4,6-tribromoaniline
- B. o-bromoaniline
- C. p-bromoaniline
- D. A mixture of (2) and (3)

**Answer: B**

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103. Which of the following is important as a drug in the control of cocci infections ?

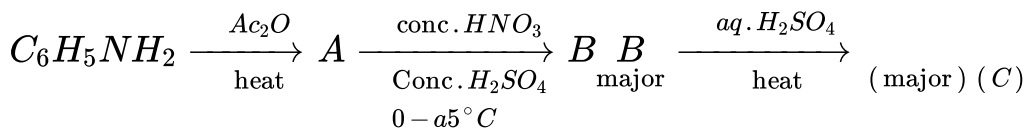
- A. Aspirin
- B. Sulphanilamide
- C. Paracetamol
- D. Phenacetin

Answer: D



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104. Consider the following sequence of reactions



- A. o-nitroaniline
- B. 2,4,6-trinitroaniline
- C. p-nitroacetanilide
- D. p-nitroaniline

**Answer: D**

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**105.** Acetanilide is treated with bromine in acetic acid at room temperature and the product so formed is hydrolyzed by aqueous  $NaOH$  The major end product is .

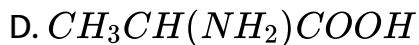
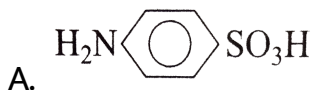
- A. p-bromoaniline
- B. o-bromoaniline
- C. 2,4,6-tribromoaniline

D. p-bromoacetanilide

Answer: A

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106. Which of the following compounds does not exist as a zwitter ion ?



Answer: C

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107. Which of the following is not the characteristic of sulphanilic acid . (A) High melting point (B) Soluble in aqueous HCl (C ) Insoluble in  $H_2O$  and organic solvents (D) Insoluble in aqueous  $NaOH$  .

A. A,D

B. B,D

C. C,D

D. B,C

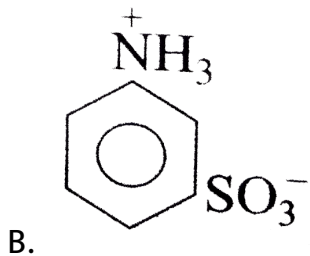
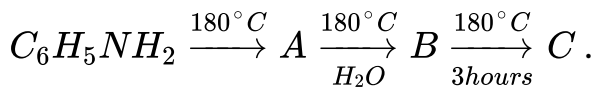
**Answer: B**



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108. Identify the end product of the following sequence of reactions



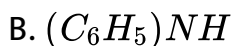
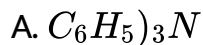
D. A mix of all of these

Answer: C



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109. Which of the following amines is employed to synthesize phenyl isocyanate ?



D. Any of these

**Answer: C**

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110. Which of the following amines are methylated by heating with formaldehyde and an excess of formic acid at  $100^\circ C$  ?

A. Primary amines

B. Secondary amine

C. Both(1)and(2)

D. Tertiary amine

**Answer: C**



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**111.** Which of the following amines form n-halogenoamines with halogen in weakly alkaline solution ? .

A. Primary amine

B. Secondary amine

C. Tertiary amine

D. Both (1) and (2)

**Answer: D**

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**112.** Ethylamine is heated with  $CS_2$  in the presence of  $HgCl_2$

The product formed is .

A. ethyl isothiocyanate

B. ethylthiocyanate

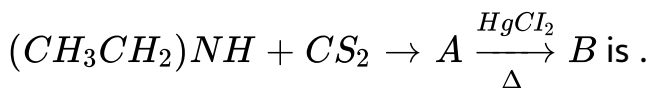
C. diethylsulphide

D. ethanethio1

**Answer: A**

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113. The end product (*B*) of the following sequence of reactions



- A. Isothiocyanate
- B. Dithiocarbamic acid
- C. Thiol
- D. None of these

**Answer: D**



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114. When refluxed with ethanolic carbon disulphide and solid potassium hydroxide aniline forms

- A. N-phenyldithiocarbamic acid

B. N,N-diphenylthiourea

C. phenyl isothiocyanate

D. phenyl thiocyanate

**Answer: B**



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**115.** When diethylamine is oxidized by  $KMnO_4$  the product is .

A.  $(CH_3CH_2)_2NOH$

B.  $(C_2H_5)_2N - N(C_2H_5)_2$

C.  $(CH_3CH_2)_2CO$

D.  $(CH_3CH_2)CHNO$

**Answer: B**

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**116.** Which of the following does not oxidise a tertiary amine to the amine oxide ?

- A. Caro's acid
- B. Ozone
- C. Hydrogen peroxide
- D. Potassium permagnate

**Answer: D**

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**117.** Tertiary amine oxides undergo the elimination of a dialkyihydroxylamine when they are heated This reaction is

called the .

- A. Cope elimination
- B. Hofmann elimination
- C. Saytzeff elimination
- D. Markovnikov' s elimination

**Answer: A**

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**118.** Aniline is oxidized by peroxytrifluoro acetic acid in methylene dichloride to yield mainly .







B.



C.



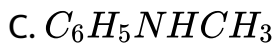
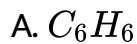
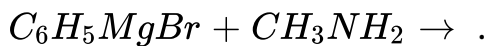
D.

**Answer: B**



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**119.** Predict the product of the following reaction

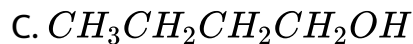
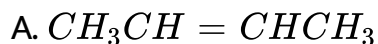


D. A mixture of all these

**Answer: A**

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**120.** Butan-1 amine reacts with nitrous acid at  $0.^\circ C$  to form .



D. All of these

**Answer: D**

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121. Which one of the following compounds will produce a water insoluble yellow oily liquid of nitrosoamine on reaction with  $NaBNO_2$  and dilute  $HNO_3$  at  $0.^\circ C$ .

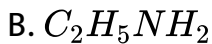
- A. Triethylamine
- B. Diethylamine
- C. Ethylamine
- D. Methylamine

**Answer: B**

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122. Which of the following amines undergo Liebermann's nitroso reaction?

- A.  $C_6H_5NH_2$

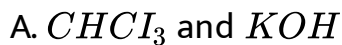


**Answer: C**



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**123.** The presence of a primary amine can be confirmed by its reaction with .

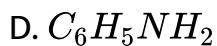
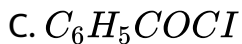
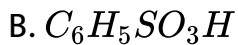
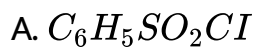


D. Both (1) and (3)

**Answer: D**

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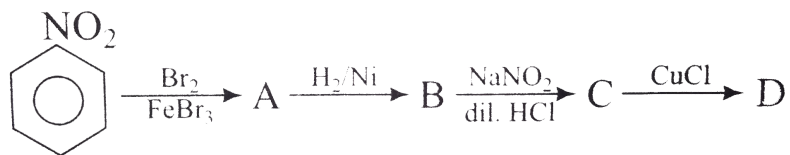
**124.** Which of the following is known as Hinsberg reagent ?



**Answer: A**

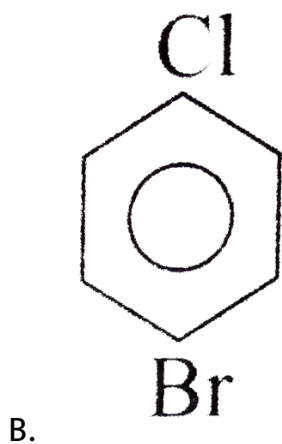
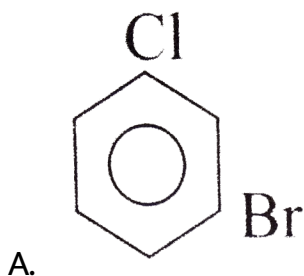
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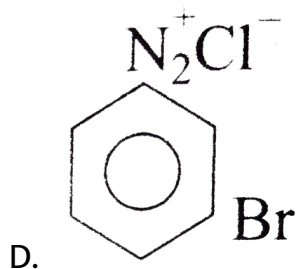
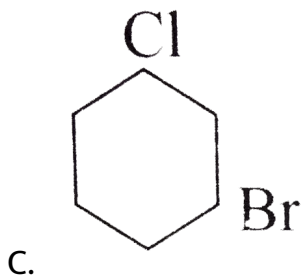
125. Consider the following sequence of reactions  $NO_2$



The end

product (*D*) is .

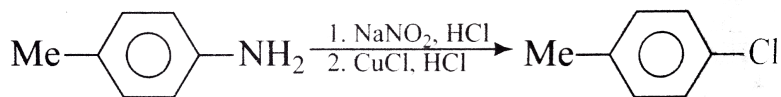




**Answer: A**

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**126.** Consider the reaction The name of the reactions and the intermediate via which it is known to proceed are respectively

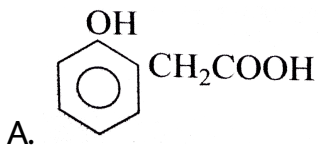
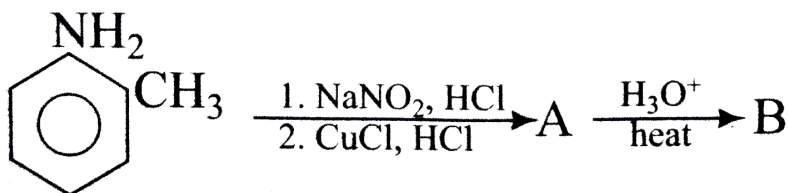


- A. Hunsdiecker and benzyne
- B. Sandmeyer and carbanion
- C. Gattermann and carbocation
- D. Sandmeyer and free radical

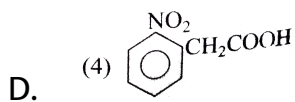
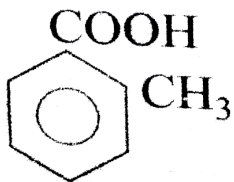
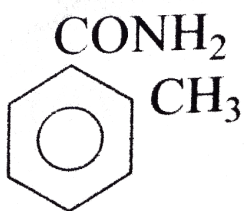
Answer: D

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127. Consider the following sequence of reactions



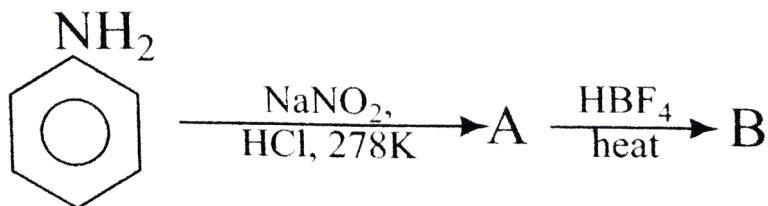




Answer: D

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128. In the chemical reactions



the

compounds (A) and (B) are .

A. benzenediazonium chloride and fluorobenzene

B. nitrobenzene and chlorobenzene

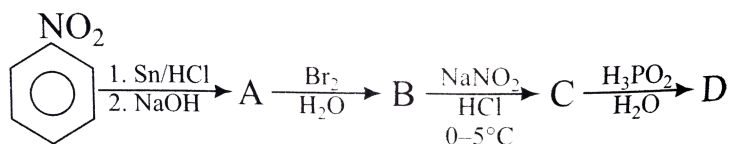
C. phenol and benzene

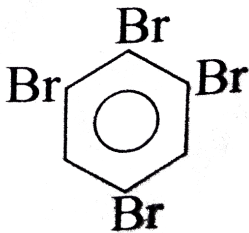
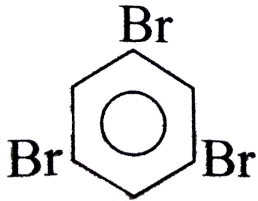
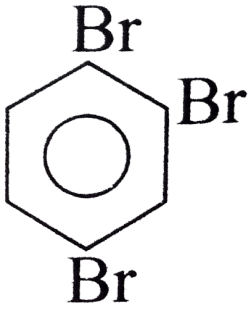
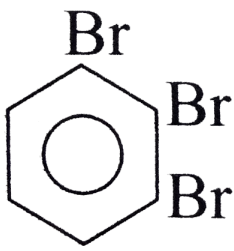
D. nitrobenzene and fluorobenzene

**Answer: A**

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**129.** Predict the final product of the following sequence of reactions





Answer: C



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130. Benzenediazonium chloride does not react with .

- A. 2-Naphthol
- B. toluene
- C. N,N-dimethylaniline
- D. Both (1) and (3)

**Answer: B**



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131. Which of the following conditions is most satisfactory for diazo coupling with amines ?

- A. Strong acidic
- B. Mildly basic

C. Strongly basic

D. Mildly acidic

**Answer: D**



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**132.** Methyl orange an acid-base indicator is prepared by diazo coupling reaction of *N, N* dimethylaniline with

A. sulphanilic acid

B. orthanilic acid

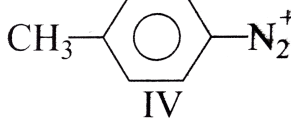
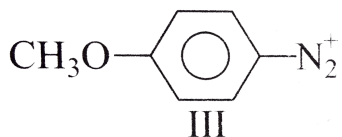
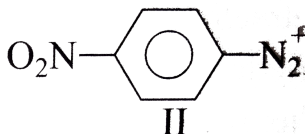
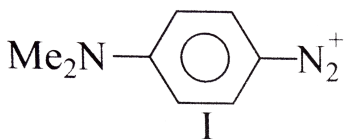
C. metanilic acid

D. picric acid

**Answer: A**



133. Among the diazonium ions the order of reactivity towards diazocoupling with phenol in the presence of dilute  $NaOH$  is .



A.  $III < I < IV < II$

B.  $I < IV < II < III$

C.  $I < III < IV < II$

D.  $III < I < II < IV$

Answer: C

## Follow Up Test 2

1. The shape of amines is

- A. tetrahedral
- B. trigonal pyramidal
- C. trigonal bipyramidal
- D. square pyramidal

**Answer: B**



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## Follow Up Test 3

1. The common of  $CH_2 = CHCH_2NHCH_3$  is

- A. vinylmeth lamine
- B. allymethylamine
- C. benzylmethy lamine
- D. pheny lemethylamine

**Answer: B**



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### Follow Up Test 4

1. Which of the following reducing agents cannot be used to convert  $ArNO_2$  to  $ArNH_2$  ? .

- A. Sn in dil HCl



B.  $\text{SnCl}_2$  in HCl

C.  $\text{H}_2 / \text{Pd} - \text{C}$

D.  $\text{LiAlH}_4$

**Answer: D**



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## Follow Up Test 5

1. Alkyl cyanides are reduced to primary amines by

A. hydrogen and a catalyst

B. lithium aluminium hydride

C. sodium and ethanol

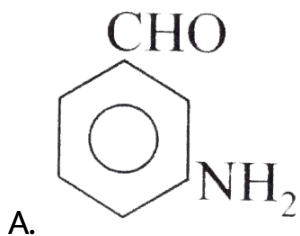
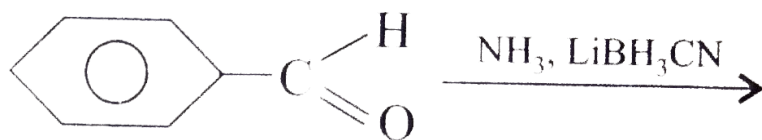
D. all of these

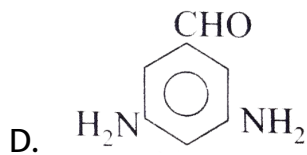
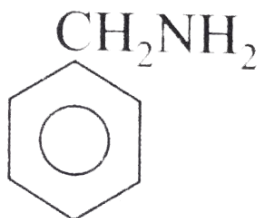
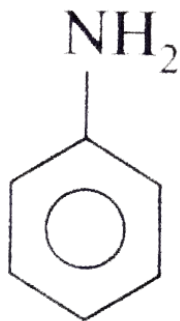
Answer: D

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## Follow Up Test 6

1. The product of the following reaction





**Answer: C**

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**Follow Up Test 7**

1. The Curtius rearrangement is rearrangement that occurs with .

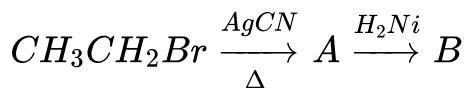
- A. acylhalides
- B. acyl azides
- C. acid anhydrides
- D. acid amides

**Answer: B**

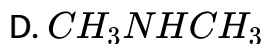
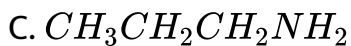
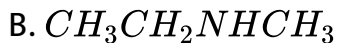
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**Follow Up Test 8**

1. Consider the following sequence of reactions



The final product (*B*) is .



**Answer: B**



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### Follow Up Test 9

1. The *IUPAC* name of the tertiary amine formed by the reaction of dimethylamine with ethyl bromide is .

A. N,N-diethylaminomethane

B. N,N-diethylmethanamine

C. N,N-dimethyl ethanamine

D. N-ethyl -N-methylethanamine

**Answer: C**



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### Follow Up Test 10

1. How many molecules of methyl bromide should react with ethylamine successively to convert the latter into a quaternary ammonium salt ? .

A. Four

B. Three

C. two

D. One

**Answer: B**

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**Follow Up Test 11**

1. To prepare quaternary ammonium compounds we heat \_\_\_\_\_ with a large excess of alkyl halide .

A. ammonia

B. primary amine

C. secondary amine

D. any of these

Answer: D

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2. Which of the following is a gas at room temperature ?

$CH_3NH_2$  (i)  $CH_3CH_2NH_2$  (ii)  $(CH_3)_2$  (iii)  $(CH_3)_3N$  (iv)

A. (i)

B. (i),(ii)

C. (i),(ii),(iii)

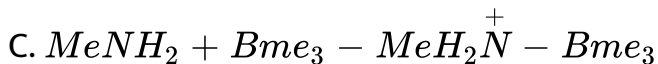
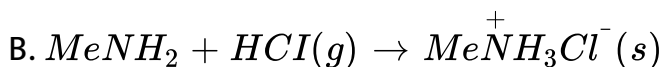
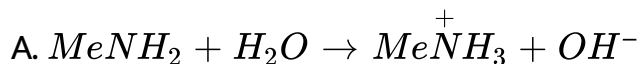
D. (i),(ii),(iii),(iv)

Answer: D

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1. Which of the following chemical equations characterizes the amine as Bronsted base ? .



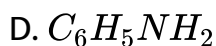
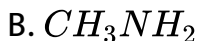
D. Both (1) and (2)

Answer: D



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1. Among the following the least basic compound is



**Answer: D**



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**Follow Up Test 14**

1. Which of the following statements is correct (i) N,N-dimethylaniline is only slightly more basic than aniline (ii) 2,6-Dimethyl-N,N-dimethylaniline is much more basic than 2,6-

dimethylaniline (iii) 4-cyanoniline (iv) 3,4,5-Trinitroaniline is more basic than 4-cyano-3,5 dinitroaniline .

A. (i),(iii)

B. (i),(ii),(iii),(iv)

C. (i),(ii),(iii)

D. (ii),(iv)

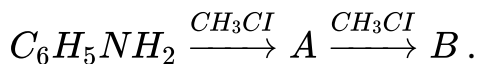
**Answer: B**

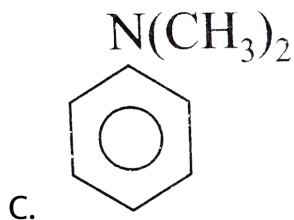
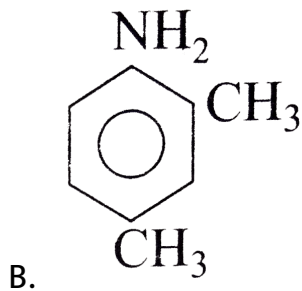
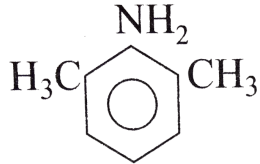


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**Follow Up Test 15**

1. Predict the end product of the following sequence of reactions





D. A mixture of all there

**Answer: C**

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**Follow Up Test 16**

1. Which of the following amines undergo nucleophilic acylation reactions on treatment with acid chlorides or acid anhydrides to form substituted amides ? .

- A. Primary amines only
- B. Secondary amines only
- C. Primary and secondary amines
- D. Primary secondary and tertiary amines .

**Answer: C**

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**Follow Up Test 17**

1. Which of the following compounds are formed when aldehydes or ketones react with primary amines ? .

A. Imines

B. Schiff bases

C. Azomethines

D. All of these

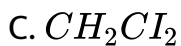
**Answer: A**



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**Follow Up Test 18**

1. Which of the following compounds on being heated with a primary amine and alcoholic  $KOH$  will form a carbylamine ? .



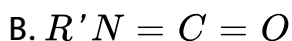
**Answer: B**

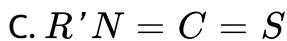


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## Follow Up Test 19

1. Which of the following compounds reacts with primary amine ( $RNH_2$ ) to form a symmetrical disubstituted urea ?





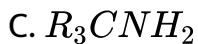
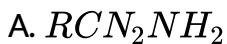
D. None of these

**Answer: A**

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## Follow Up Test 20

1. Which of the following primary amines yields tertiary nitrogen compounds on oxidation with potassium permanganate ?



D. Both (2) and (3)

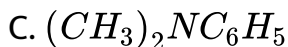
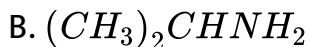
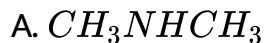


Answer: C

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## Follow Up Test 21

1. Which of the following compounds does not liberate nitrogen gas on treatment with nitrous acid ?



D. Both (1) and (3)

Answer: D

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## Follow Up Test 22

1. Which of the following reacts with  $NaNO_2$  and dilute  $HCl$  at  $0 - 5^\circ$  to form a diazonium salt ?

- A. An aromatic primary amide
- B. An aromatic primary amine
- C. An aromatic nitro compound
- D. An aromatic secondary amine

**Answer: B**



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1. The  $NH_2$  group of aniline acts as a / an \_\_\_\_\_ in electropilic aromatic substitution .

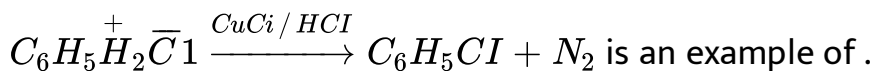
- A. deactivator and meta director
- B. activator and ortho para director
- C. activator and meta director
- D. deactivator and ortho para director

**Answer: B**



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2. The raction



- A. Gattermann reaction

B. Bart reaction

C. diazotisation

D. Sandmeyer reaction .

**Answer: D**



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3. Amides can be converted into amines by a reactions named after .

A. Perkin

B. Claisen

C. Hofmann

D. Kekule

**Answer: C**

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4. Indicate which nitrogen compound amongst the following would undergo Hofmann reaction ? .



**Answer: C**

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5. Mark the correct statement

- A. Methyl amines is slightly acidic
- B. Methyl amines is a stronger base than ammonia
- C. Methyl amine is less basic than ammonia
- D. Methyl amine forms salts with alkalis

**Answer: B**



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6. The electrophile involved in the nitration of benzene is

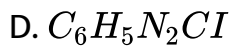
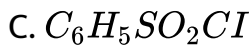
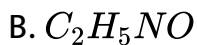
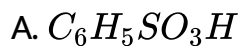
- A.  $NO_2$
- B.  $NO_2^+$
- C. NO



**Answer: B**

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7. Which of the following is known as Hinsberg reagent ?



**Answer: C**

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1. The total number of secondary amines including stereoisomers having the molecular formula  $C_4H_{11}N$  is .

- A. Five
- B. Four
- C. two
- D. Three

**Answer: D**



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2. Aliphatic nitroalkanes are reduced to primary amines by .



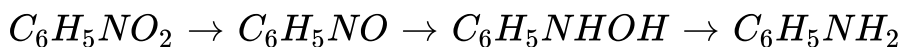
- A. catalytic hydrogenation
- B. lithium aluminium hydride
- C. metal in acid solution
- D. all of these

**Answer: D**



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**3.** The course of the reduction of nitro compounds takes place through the following stages .



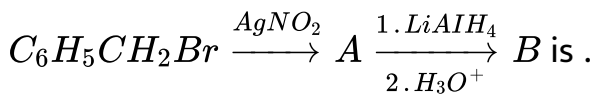
The nature of the final product depends mainly on the *pH* of the solution in which the reduction is carried out Aniline is the product when reduction is carried out in .

- A. alkaline solution
- B. neutral solution
- C. acidic solution
- D. strongly acid solution

**Answer: C**

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4. The major end product *B* in the reaction

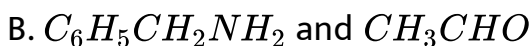
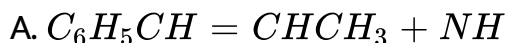


- A.  $(C_6H_5CH_2)_2NH$
- B.  $C_6H_5CH_2NH_2$
- C.  $C_6H_5CH_2NHOH$
- D.  $C_6H_5CH = NOH$

Answer: B

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5. Amphetamine a *CNS* (central nervous system) stimulant has the structural formula  $C_6H_5CH_2CH(NH_2)CH_3$  Which of the following sets of reactants should be hydrogenated in the presence of nickel catalyst to prepare amphetamine ?



Answer: C

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6. The Gabriel synthesis is used the preparation of .

- A. Primary aromatic amines
- B. Primary aliphatic amines
- C. Both of these
- D. none of these

**Answer: B**



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7. Ethyl bromide is heated with a large excess of concentrated ammonia. The major product obtained is .

- A. tetraethylammonium bromide

B. triethylamine

C. diethylamine

D. ethylamine

**Answer: D**



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8. Which of the following compound does not react with acetyl chloride ?

A.  $CH_3NH_2$

B.  $(CH_3)_2N$

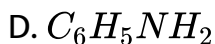
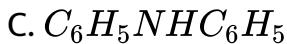
C.  $(CH_3)_2NH$

D. both (2) and (3)

Answer: B

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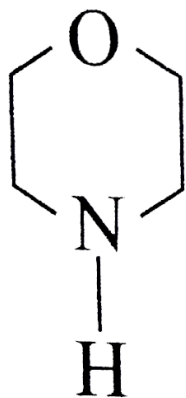
9. Among the following compounds which one will react with acetone to give a product containing a carbon-nitrogen double bond ?



Answer: D



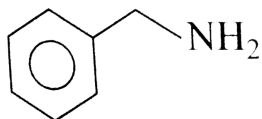
10. Which of the following compounds will not form a Schiff base on reaction with p-nitrobenzaldehyde .



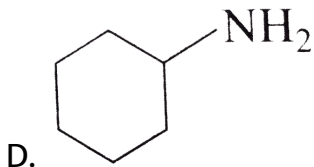
A.



B.



C.



**Answer: A**

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11. Aniline reacts with benzoyl chloride in the presence of dilute NaOH to give .

- A. benzalaniline
- B. o-aminobenzophenone
- C. p-benzophenone
- D. benzanide

**Answer: D**





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12. Which of the following will not liberate nitrogen gas on treatment with  $HNO_2$  at  $0.^\circ C$  ?

A. Benzylamine

B. Urea

C. Aniline

D. Benzamide

Answer: C



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13. Pheny1 isocyanide is prepared from

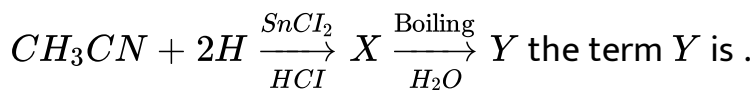
- A. Wurtz reaction
- B. Reimer-Tiemann reaction
- C. Carbylamine reaction
- D. Rosenmund s reaction

**Answer: C**



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**14.** In the reaction



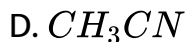
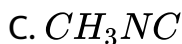
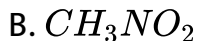
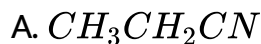
- A. acetones
- B. acetaldehyde
- C. ethanamine
- D. dimethylamine

Answer: B

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15. Consider the following sequence of reactions

Compounds  $[A] \xrightarrow{\text{reduction}} [B] \xrightarrow{HNO_2} CH_3CH_2OH$  The  
compound  $[A]$  is .



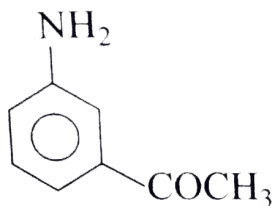
Answer: D

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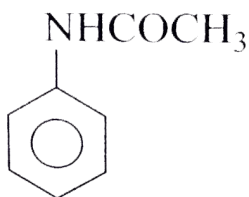
16. Aniline is an activated system for electrophilic substitution

The compounds formed on heating aniline with acetic anhydride

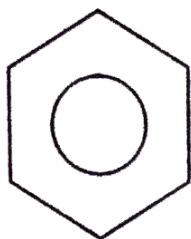
is .



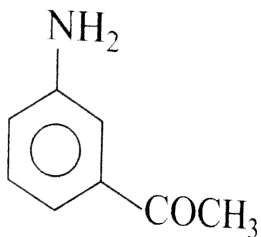
A.



B.



C.



D.

**Answer: B**

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17. Which of the following is formed when acetonitrile is hydrolysed partially with cold conc  $HCl$  ? .

A. Acetic anhydride

B. Acetic acid

C. Methyl cyanide

D. Acetamide

**Answer: D**

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18. Acetamide and ethyl amine can be distinguished by reacting with .

- A. aqueous  $HCl$  and heat
- B. aqueous  $NaOH$  and heat
- C. acidified  $KMnO_4$  .
- D. bromine water

**Answer: B**



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19. The gas leaked from a storage tank of the Union Carbide plant in Bhopal gas tragedy was

- A. Methylamine

B. Ammonia

C. Phosgene

D. Methylisocyanate

**Answer: D**



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20. An organic compound A upon reacting with  $NH_3$  gives B. On heating B gives C. C in presence of  $KOH$  reacts with  $Br_2$  to yield  $CH_3CH_2NH_2$ . A is .

A.  $CH_3CH_2COOH$

B.  $CH_3COOH$

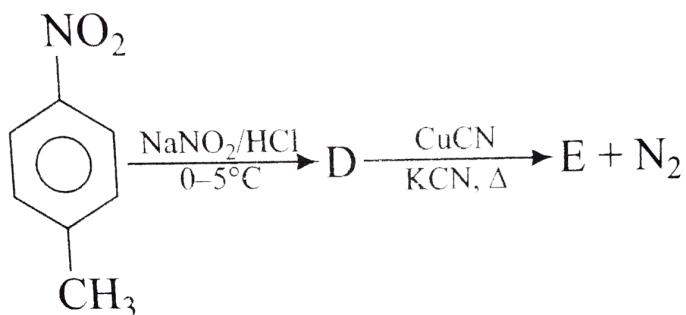
C.  $CH_3CH_2CH_2COOH$

D.  $CH_3CHCOOH$   
|  
 $CH_3$

Answer: A

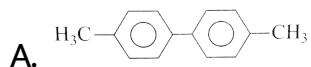
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21. In the reaction

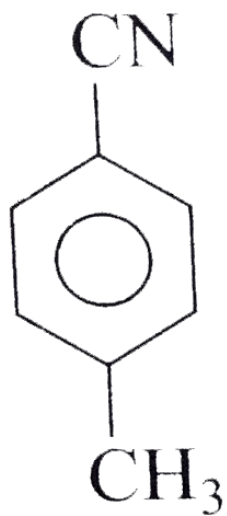


the product

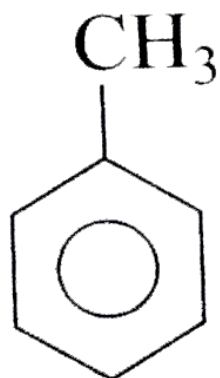
*E* is .



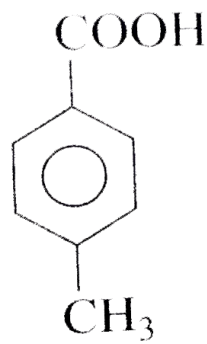




B.



C.



D.

Answer: B

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22. Arrange the following in increasing order of their basic strength

$CH_3NH_2(I)$ ,  $(CH_2NH(II)$ ,  $(CH_3)_3N(III)$ ,  $C_6H_5CH_2NH_2(IV)$

.

A.  $IV < III < II < I$

B.  $IV < III < I < II$

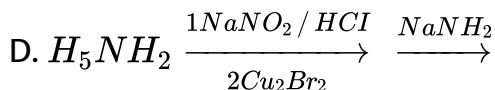
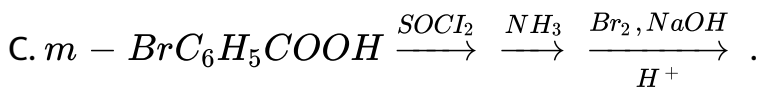
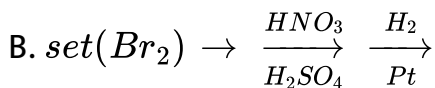
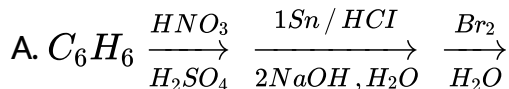
C.  $I < II < III < IV$

D.  $IV < III < I < II$

Answer: B

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23. m- bromoaniline can be prepared by .



Answer: C



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24. Which of the following compounds will exhibit optical isomerism ?

A. ttert-butylamine

B. sec-butylamine

C. Isobutylamine

D. n-butylamine

**Answer: B**



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25. When nitrobenzene is reduced with zinc and methanolic NaOH the product obtained is .

A. Aniline

B. Phenylhydroxylamine

C. p-aminophenol

D. Azobenzene

**Answer: D**

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**26.** Which of the following exists as a zwitter ion ?

A. p-Aminophenol

B. Salicylic acid

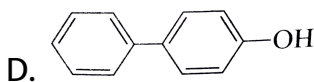
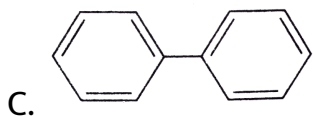
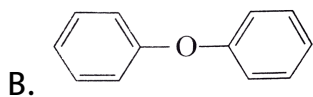
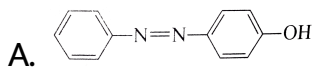
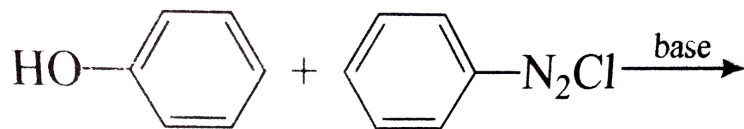
C. Sulphanilic acid

D. Ethanolamine

**Answer: C**

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27. The product of the reaction



Answer: D



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28. The formation of m-dinitrobenzene by heating nitrobenzene with conc  $H_2SO_4$  is a/an .

- A. conjugate acid-base reaction
- B. sulphonation process
- C. nucleophilic substitution
- D. electrophilic substitution

**Answer: C**



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29. Nitration of aniline is achieved by

- A. direct nitration with nitrating mixture under reflux
- B. using fuming  $HNO_3$

C. acetylation followed by nitration and subsequent hydrolysis

D.  $KNO_3$  and conc  $HNO_3$

**Answer: D**

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30. Among the following compounds  $C_3H_7NH_2$ ,  $NH_3$ ,  $CH_3NH_2$ ,  $C_2H_5NH_2$  and  $C_6H_5NH_2$  the least basic compounds is .

A.  $C_3H_7NH_2$

B.  $NH_3$

C.  $CH_3NH_2$

D.  $C_6H_5NH_2$



**Answer: D**

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**31.** Intermolecular hydrogen bonding is strongest in

A. Methylamine

B. Pheno1

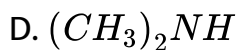
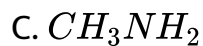
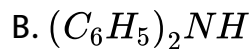
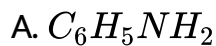
C. Formaldehyde

D. Methano1

**Answer: D**

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**32.** Which of the following is most basic ?

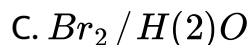
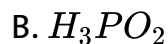
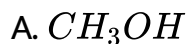


**Answer: D**



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**33.** Which of the following reagents can be used to convert benzenediazonium chloride into benzene ?



**Answer: B**

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**34. Which is more basic**

A. Benzylamine

B. Aniline

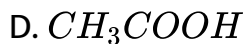
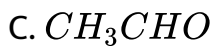
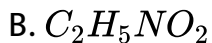
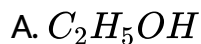
C. Acetamide

D. Benzamide

**Answer: A**

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**35. On reaction with  $HNO_2C_2H_5NH_2$  produces .**



**Answer: A**



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**36.** Reaction of aniline with acetyl chloride in the presence of  $NaOH$  gives .

A. acetanilide

B. p-chloroaniline

C. a red dye

D. aniline hydrochloride

**Answer: A**

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37.  $C_3H_9N$  cannot represent

A.  $1^\circ$

B.  $2^\circ$  amine

C.  $3^\circ$  amine

D. quaternary salt

**Answer: D**

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1. Which of the following are used as surfactants ? .

A. Quaternary ammonium salts

B. Diazonium salts

C. Aminium salts

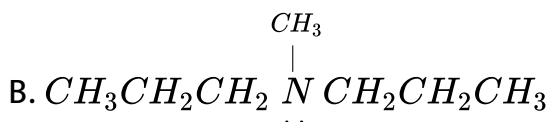
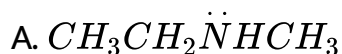
D. Ammonium salts

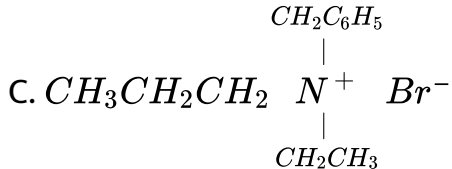
**Answer: A**



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2. Which of the following compounds is chiral? .



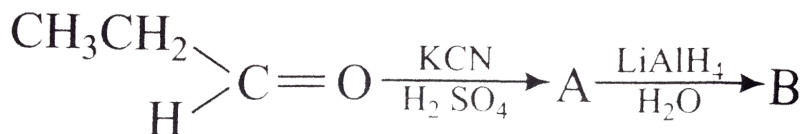


D. all of these

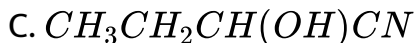
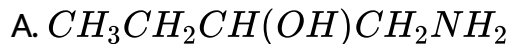
Answer: D

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3. Consider the following sequence of reactions



The final product (*B*) is .

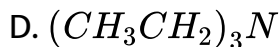
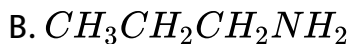
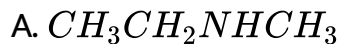
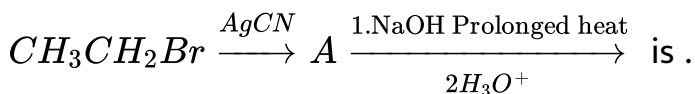




Answer: A

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4. The end product (*B*) formed in the reaction

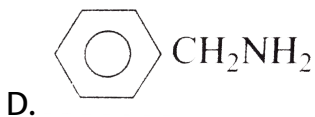
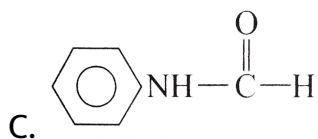
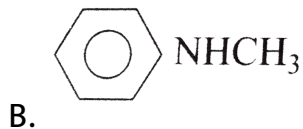
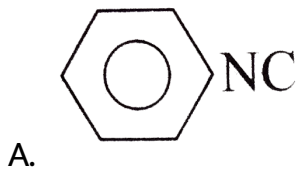


Answer: C

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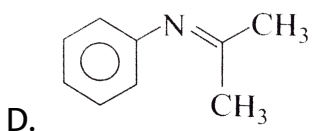
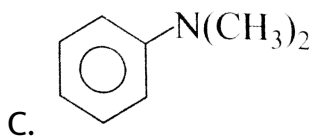
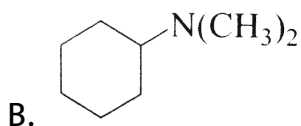
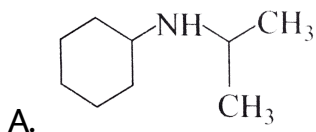
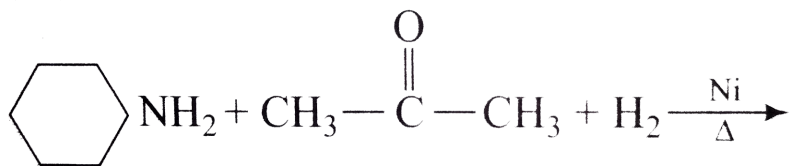
5. The end product (*B*) of the reaction sequence



Answer: B

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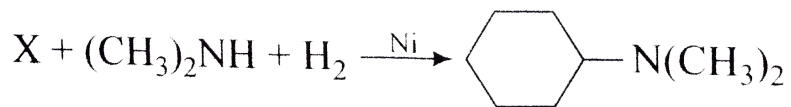
6. The major product formed in the reaction is



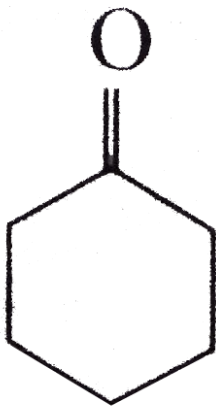
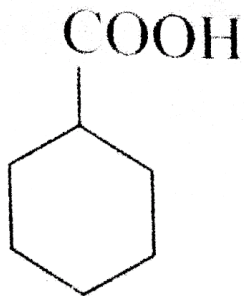
Answer: A

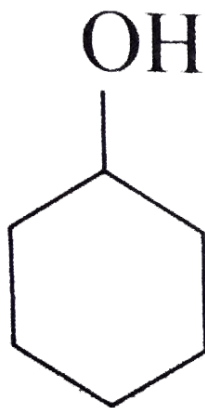
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7. Consider the following reaction



The starting compound ( $X$ ) is





C.

D. 

**Answer: B**

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8. Aniline is reacted with bromine water and the resulting product is treated with an aqueous solution of sodium nitrite in presence of hydrochloric acid. The compound so formed is converted into a tetrafluoroborate which is subsequently heated. The final product is .

- A. 1, 3, 5-tribromobenzene
- B. p-bromofluorobenzene
- C. p-bromofluorobenzene
- D. 2,4,6-tribromofluorobenzene

**Answer: D**



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9. When aniline reacts with oil of bitter almonds ( $C_6H_5CHO$ ) condensation takes place and benzal derivative is formed This is known as .

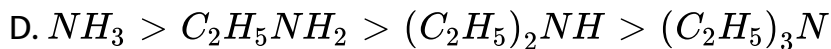
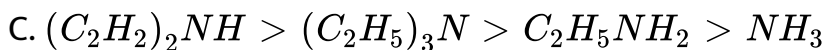
- A. Millon's base
- B. Schiff's reagent
- C. Schiff's base

## D. Benedict s reagent

Answer: C

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10. What is the decreasing order of basicity of  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  ethyl amines and ammonia ?



Answer: C

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11. A compound with molecular mass 180 is acylated with  $\text{CH}_3\text{COCl}$  to get a compound with molecule of the former compound is .

A. 5

B. 4

C. 6

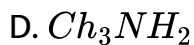
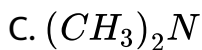
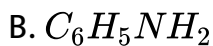
D. 2

**Answer: A**



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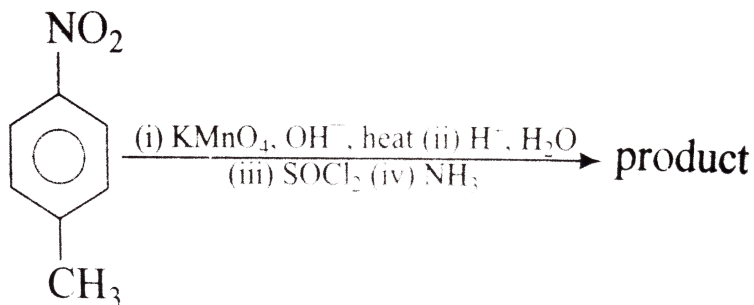
12. Considering the basic strength of amines in aqueous solution which one has the smallest  $pK_b$  value .



Answer: C

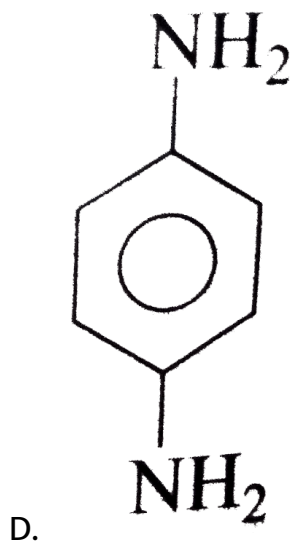
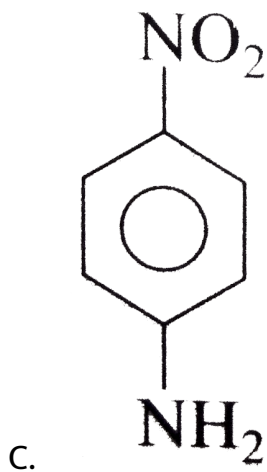
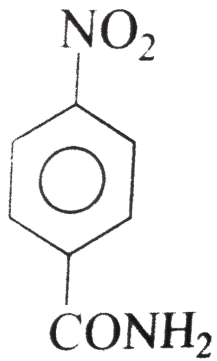
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13. In the above reaction the product is



A. 





**Answer: B**

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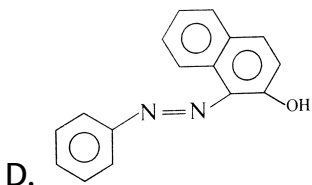
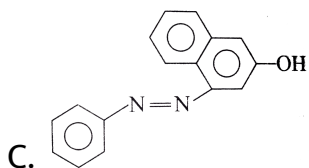
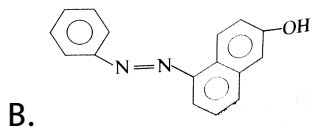
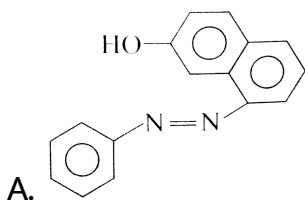
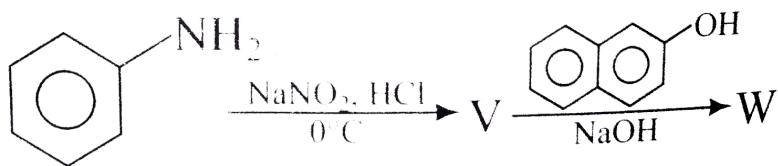
14. For the identification of beta-naphthol using dye test it is necessary to \_\_\_\_\_ of beta-naphthol .

- A. dichloromethane solution
- B. acidic solution
- C. neutral solution
- D. alkaline solution

**Answer: D**

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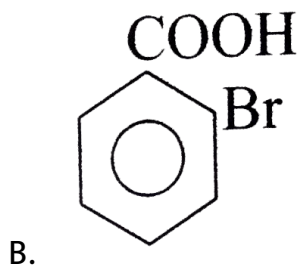
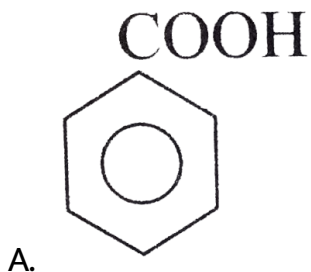
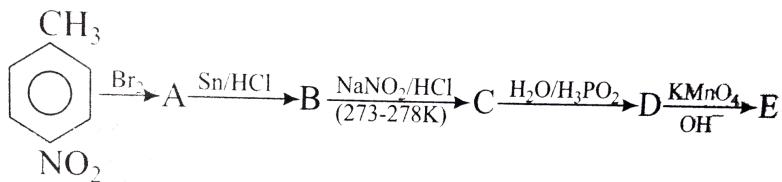
15. In the following reactions the major product *W* is

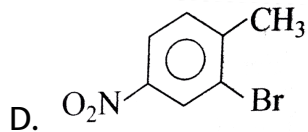


Answer: D

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16. Identify the product (*E*) in the following sequence of reactions

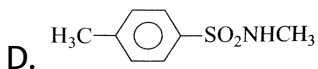
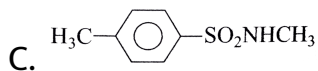
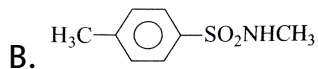
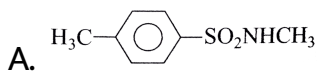




**Answer: B**

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17. Which of the following is soluble in sodium hydroxide ?



**Answer: A**

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18. Which of the following statements is true ?

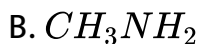
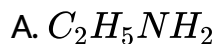
- A. Triethylamine forms a soluble compound with Hinsberg reagent and  $KOH$ .
- B. Dimethylamine reacts with  $KOH$  and phenol to form an azo dye.
- C. Methylamine reacts with nitrous acid and liberates  $N_2$  from aqueous solution.
- D. None of these

**Answer: C**



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19. Which of the following will give  $N_2$  gas on treatment with nitrous acid ( $NaNO_2 + HCl$ ) ?

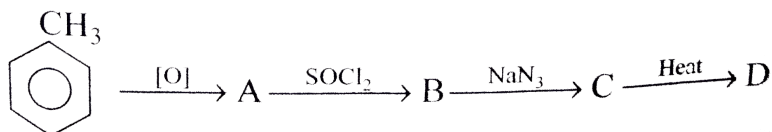


D. All give  $N_2$

Answer: D

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20. In the following sequence of reactions what is D

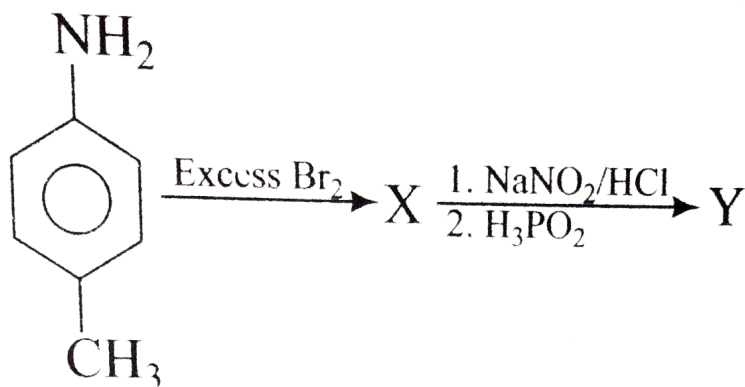


- A. Primary amine
- B. Amide
- C. Phenylisocyanate
- D. Chain lengthened hydrocarbon

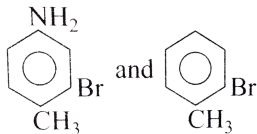
**Answer: C**

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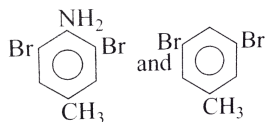
21. In the following reaction sequence predict the compounds  $X$  and  $Y$  and  $Z$



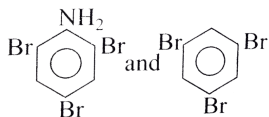




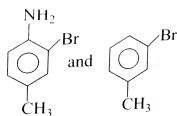
A.



B.



C.



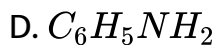
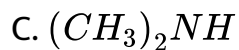
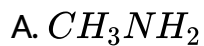
D.

**Answer: B**



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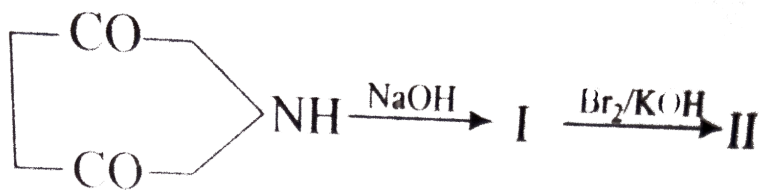
22. Which among the following amines can be directly oxidized to the corresponding nitro compound by potassium permanganate ?



**Answer:**

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23. In the above sequence II is



A. beta-alanine

B. alpha-alanine

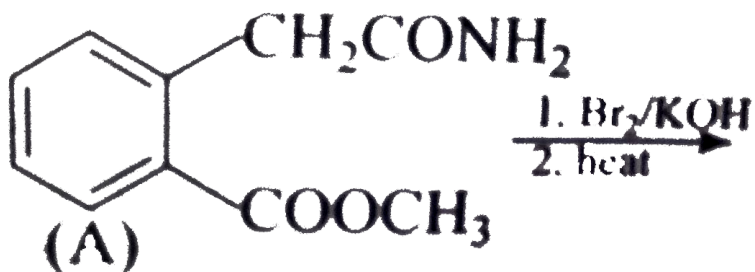
C. Ethylenediamine

D. gamma-aminobutyric acid

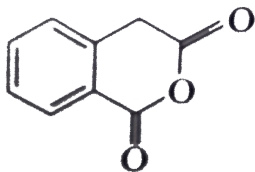
Answer: A

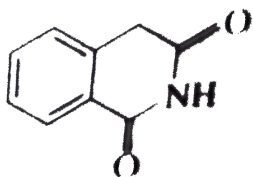
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24. The following sequence of reactions on *A* gives

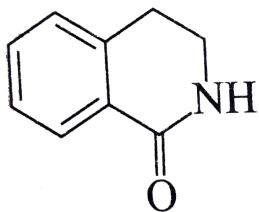


A.

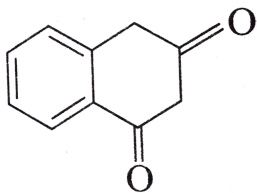




B.



C.



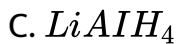
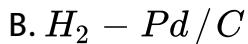
D.

**Answer: C**

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25.  $C_6H_5CONHCH_3$  can be converted into  $C_6H_5CH_2NHCH_3$

by .

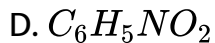
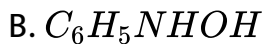
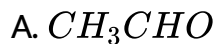


**Answer: C**



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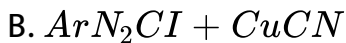
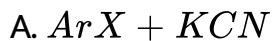
**26.** Which of the following does not reduce Tollens reagent .



Answer: D

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27. Aromatic nitriles ( $ArCN$ ) are not prepared by reaction .



Answer: A

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28. A nitrogen containing organic compound gave an oily liquid on heating with bromine and potassium hydroxide solution. On shaking the product with acetic anhydride an antipyretic drug was obtained. The reactions indicate that the starting compound is .

A. aniline

B. benzamide

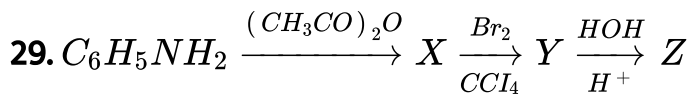
C. acetamide

D. nitrobenzene

**Answer: B**



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The compound  $Z$  is .

- A. p-bromoaniline
- B. bromoacetophenone
- C. p-bromoacetanilide
- D. o-bromoacetopenone

**Answer: A**

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30. Among the following the weakest base is .

- A.  $C_6H_5CH_2NH_2$
- B.  $C_6H_5CH_2NHCH_3$

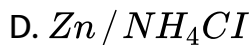
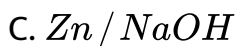
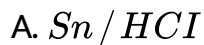




**Answer: D**

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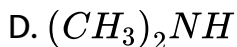
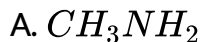
**31.** Nitrobenzene gives N-phenylhydroxylamine by



**Answer: D**

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32. Which is formed when  $(CH_3)NOH$  is heated?



Answer: C



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33. An organic compound (*A*) on reduction gives compound (*B*) which on treatment with  $CHCl_3$  and alcoholic  $KOH$  gives compound (*C*) which on hydrolysis gives aniline but on

compound (*C*) which on hydrolysis gives aniline but on catalytic reduction gives n-methylaniline The compound (*A*) is .

- A. methylamine
- B. nitromethane
- C. nitrosobenzene
- D. nitrobenzene

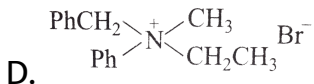
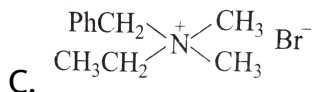
**Answer: D**



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**34.** Which of the following compounds possesses two configurationally stable enantiomers ?

- A.  $CH_3CH_2NHCH_3$



Answer: D

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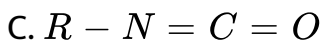
35. When stannous chloride and hydrochloric acid are used as the reducing agents nitrocompound are converted into .

- A. primary amines
- B. N-alkyl hydroxylamine
- C. oxime
- D. A mixture of (2) and (3)

Answer: D

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36. The reaction of  $RCONH_2$  with a mixture of  $Br_2$  and aqueous  $KOH$  gives  $RNH_2$  as the main product. The intermediate (s) involved in this reaction is (are) .

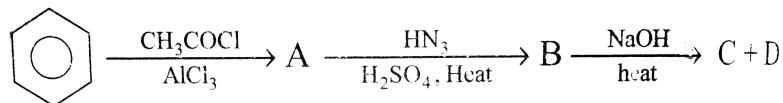


D. all of these

Answer: D

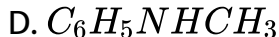
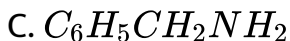
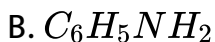
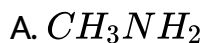
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37. Consider the following sequence of reactions



The product

(C) contains nitrogen but (D) does not the compound (C) is .

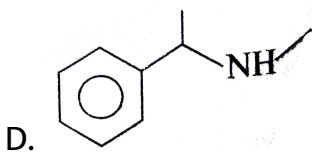
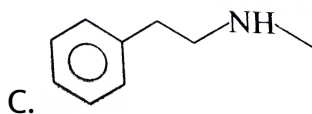
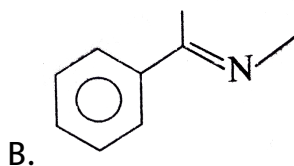
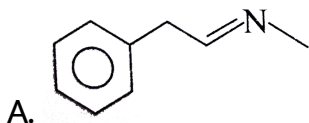
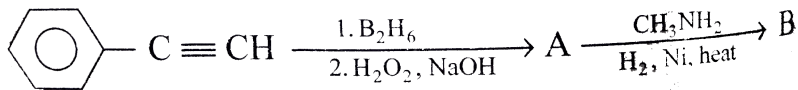


Answer: D



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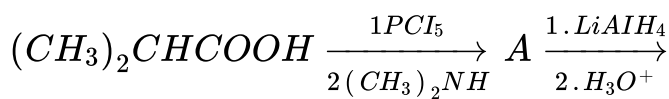
38. Consider the following sequence of reactions The final product (B) is



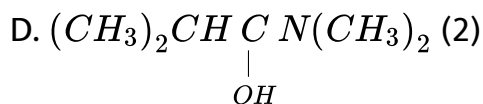
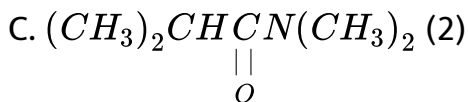
**Answer: B**

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**39.** Consider the following sequence of reactions



The final product  $B$  is .



**Answer: C**

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40. Which of the following is least reactive toward complex formation with  $BM_3$  ?





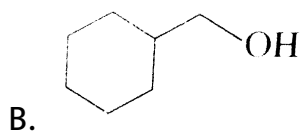
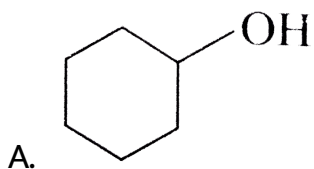
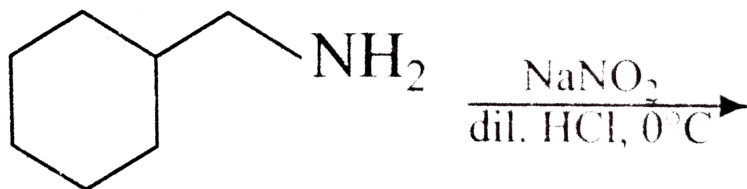
C.  $MeNH_2$

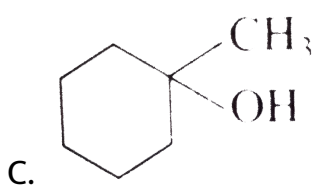
D.  $Me_2NH$

Answer: B

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41. The product formed in the reaction





D. all of these

**Answer: D**

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**42.** Diazonium salts form phenylhydrazines when reduced with zinc and hydrochloric acid

(ii) stannous chloride and hydrochloric acid

(iii) sodium sulphite .

A. (i),(ii),(iii)

B. (ii),(iii)

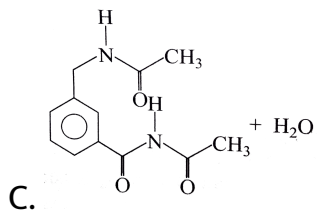
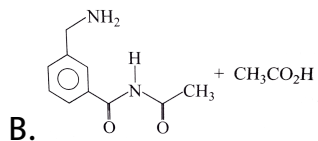
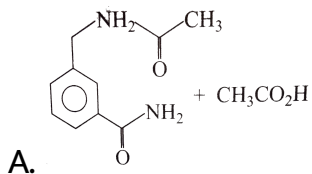
C. (i),(ii)

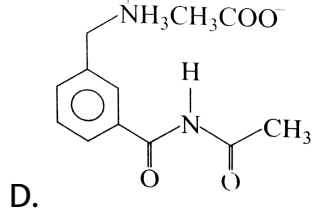
D. (i),(ii)

**Answer: B**

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**43.** In the reaction shown below the major product (s) formed is/are .

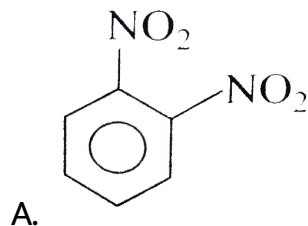
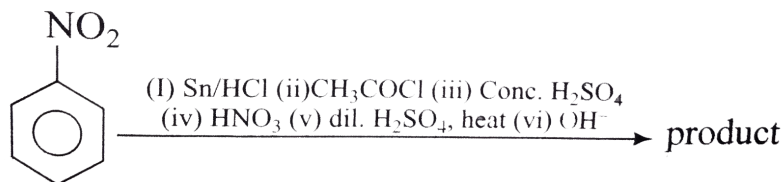


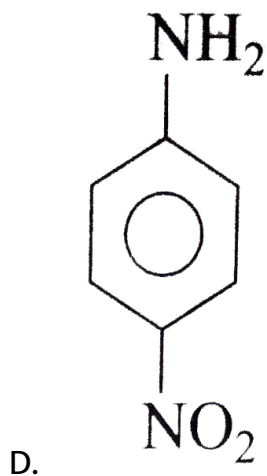
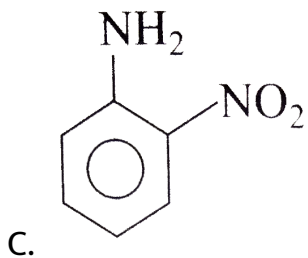
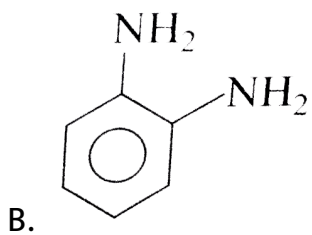


Answer: A

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44. In the above reaction the product is

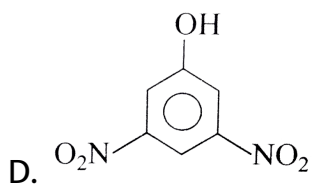
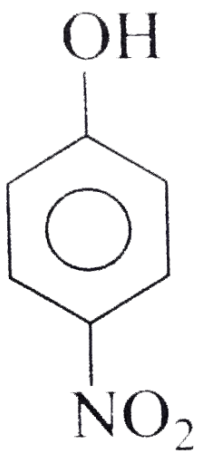




**Answer: C**

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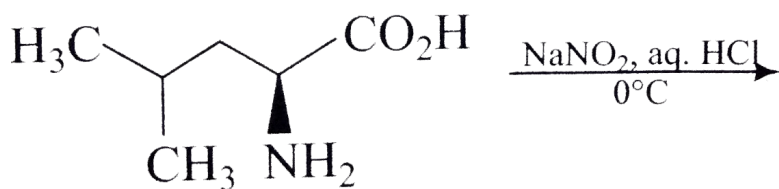


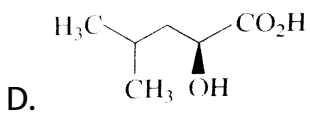
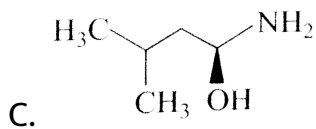
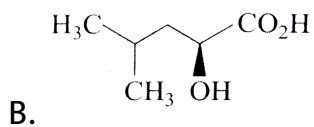
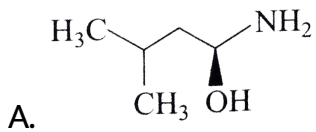


Answer: B

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46. In the following reactions the product *S* is

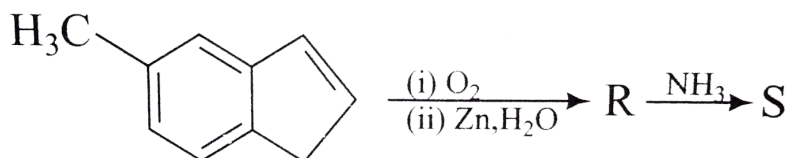




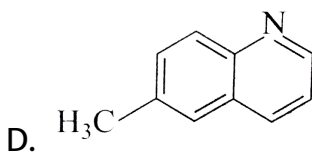
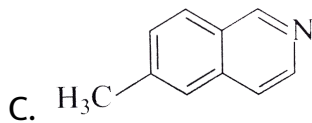
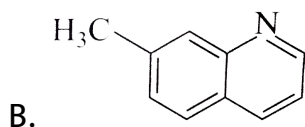
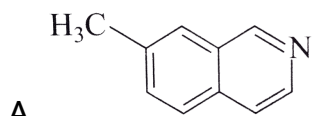
Answer: D

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47. In the following reactions the product *S* is



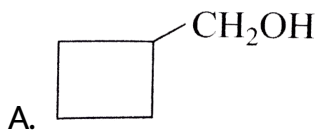


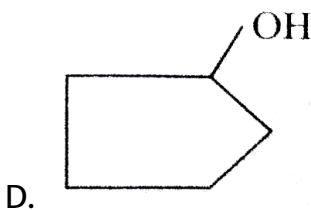
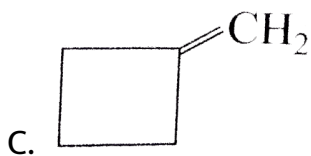
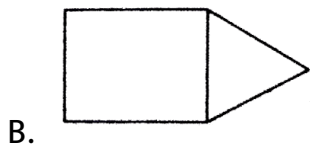


**Answer: A**

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**48.** Treatment of cyclobutylmethanamine with nitrous acid does not give .





**Answer: B**

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**49.** Pyridine is less basic than triethylamine because .

A. pyridine has aromatic character

B. nitrogen in pyridine is  $sp^2$ -hybridized

C. pyridine is a cyclic system

D. in pyridine the lone pair of nitrogen is delocalized .

**Answer: B**



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**50.** Which of the following chemicals are used to manufacture methyl isocyanate that caused Bhopal Tragedy ?

Methylamine

(ii) Phosgene

(iii) Phosphine (iv) Dimethylamine .

A. (1)and(iii)

B. (iii)and(iv)

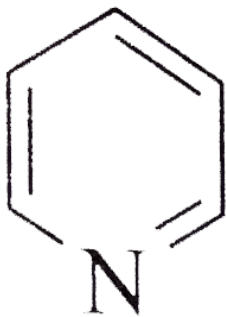
C. (i)and(ii)

D. (ii)and(iv)

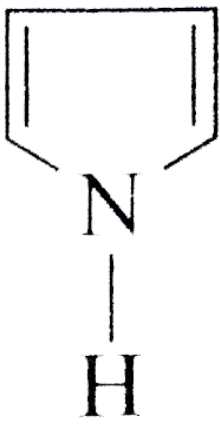
**Answer: C**

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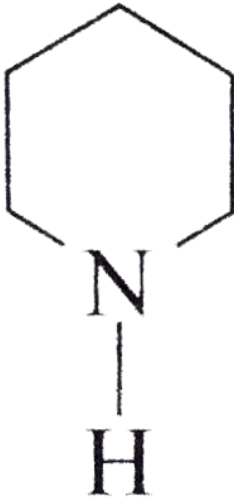
51. The strongest base among the following .



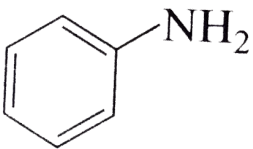
A.



B.



C.

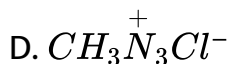
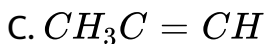
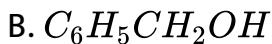
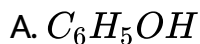


D.

Answer: C



52. Among the following dissociation constant is highest for .

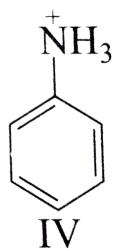
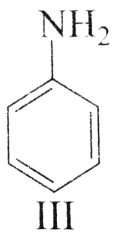
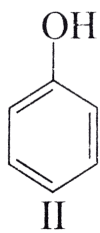
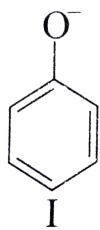


Answer: D



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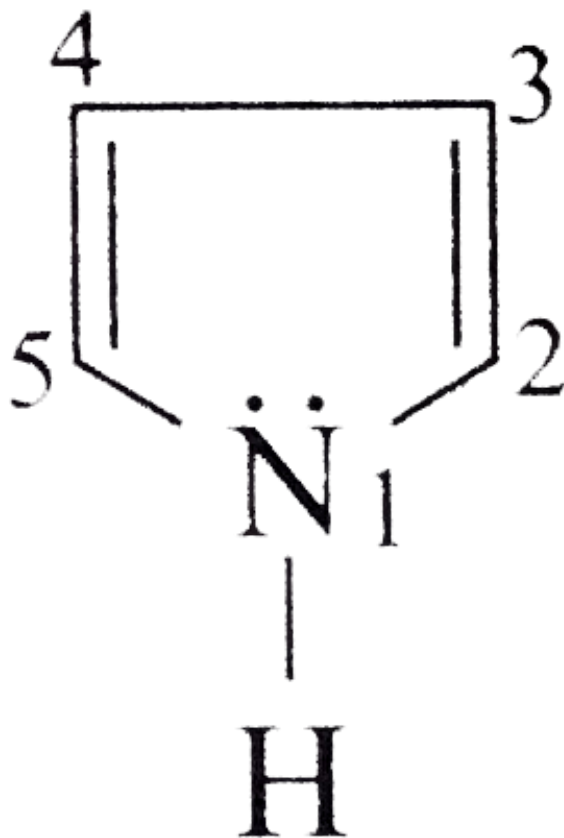
53. Coupling of diazonium salts of following takes place in the order



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Archives

1. In pyrrole the electron density is maximum on



A. 2 and 3

B. 3 and 4

C. 2 and 4

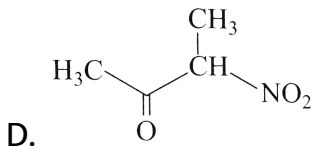
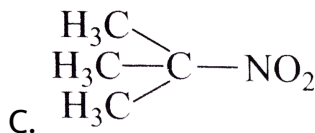
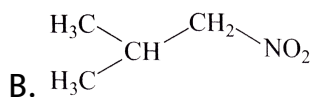
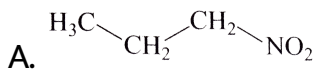


D. 2 and 5

Answer: D

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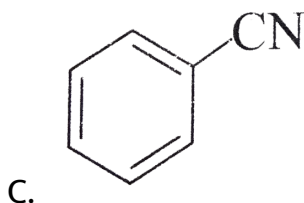
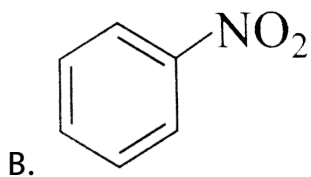
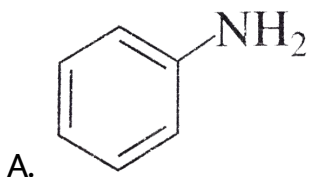
2. Which one of the following -compounds does not react with nitrous acid ? .

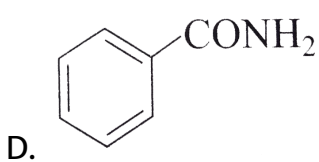


Answer: C



3. A given nitrogen-containing compound *A* reacts with  $Sn/HCl$  followed by  $HNO_2$  to give an unstable compound *B*. *B* on treatment with phenol forms a beautiful coloured compound *C* with the molecular formula  $C_{12}H_{10}N_2O$ . The structure of compound *A* is .





**Answer: B**

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4. The product formed by the reaction of an aldehyde with a primary amine is:

A. Aromatic acid

B. Schiff bases

C. Ketone

D. Carboxylic acid

**Answer: B**

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5. The correct statement regarding the basicity of arylamines is .

A. Arylamines are generally more basic than alkylamines

because the nitrogen atom in arylamines is  $sp$  hybridized .

B. Arylamines are generally less basic than alkylamines

because the nitrogen lone-pair electrons are delocalized by

interaction with the aromatic ring  $\pi$  electron system .

C. Arylamines are generally less basic than alkylamines

because the nitrogen lone pair electrons are delocalized by

interaction with the aromatic ring  $\pi$  electron system .

D. Arylamines are generally more basic than alkylamines

because of aryl group .

**Answer: B**

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6. Consider the nitration of benzene using mixed conc.  $H_2SO_4$  and  $HNO_3$ . If a large amount of  $KHSO_4$  is added to the mixture, the rate of nitration will be :

- A. doubled
- B. faster
- C. slower
- D. unchanged

**Answer: C**

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7. The number of structure isomers possible from the molecular formula  $C_3H_9N$  is:

A. 2

B. 3

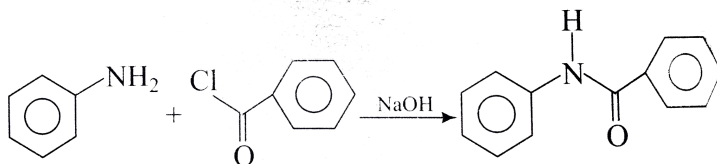
C. 4

D. 5

Answer: C

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8. The following reaction is known by the name



- A. Acetylation
- B. Schotten-Baumann reaction
- C. Friedel-Craft s reaction
- D. Perkin s reaction

**Answer: B**

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9. Method by which Aniline can t be prepared is .

- A. reduction of nitrobenzene with  $H_2Pd$  in ethano1
- B. potassium salt of phthalimide treated with chlorobenzene  
followed by hydrolysis with aqueous  $NaOH$  solution
- C. hydrolysis of phenyisocyanide with acidic solution

D. degradation of benzamide with bromine in alkaline solution

.

**Answer: B**



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10. The electrolytic reduction of nitrobenzene in strongly acidic medium produces .

A. Aniline

B. p-Aminophenol

C. Azoxybenzene

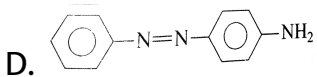
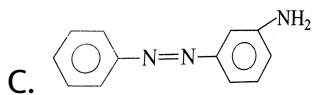
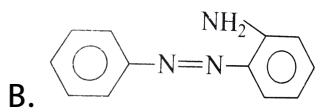
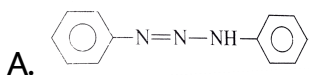
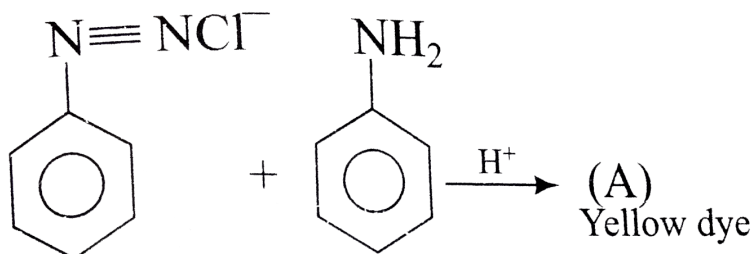
D. Azobenzene

**Answer: B**



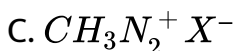
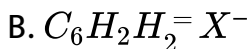
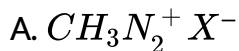


11. In the following reaction the product (A) is



Answer: D

12. Which of the following will be most stable diazonium salt  $RN_2^+ X^-$  ? .



**Answer: B**



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13. Nitrobenzene on reaction with conc  $HNO_3/H_2SO_4$  at  $80 - 100^\circ C$  forms which one of the following products .



B. 1,4-Dinitrobenzene

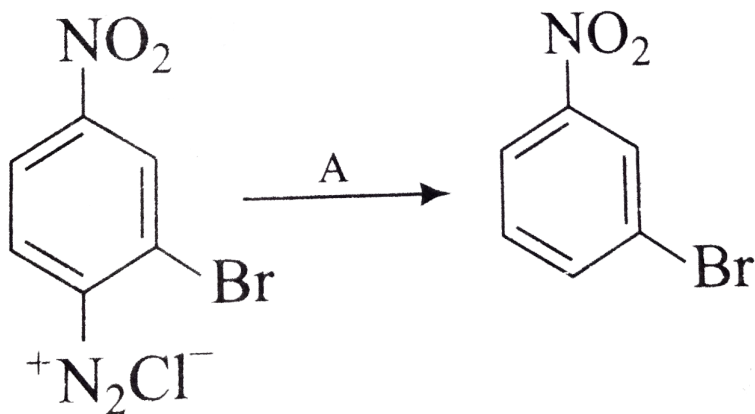
C. 1,2,4-Trinitrobenzene

D. 1,2-Dinitrobenzene

**Answer: A**

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14. In the reaction *A* is



A.  $Cu_2Cl_2S$

B.  $H_3PO_2$  and  $H_2O$  .

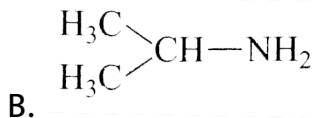
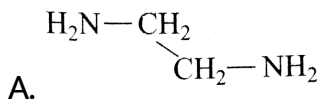
C.  $H^+ / H_2O$

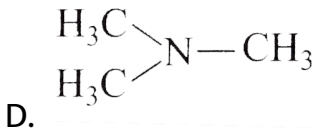
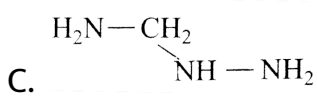
D.  $HgSO_4 / H_2SO_4$  .

**Answer: B**

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15. An organic compound  $A(C_3H_9N)$  when treated with nitrous acid gave an alcohol and  $N_2$  gas was evolved ( $A$ ) on warming with  $CHCl_3$  and caustic potash gave ( $C$ ) which on reduction gave isopropylamine Predict the structure of ( $A$ ) .

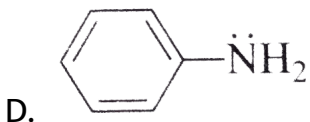
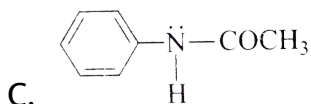
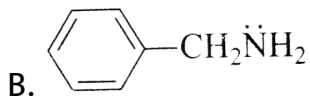
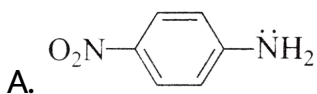




Answer: B

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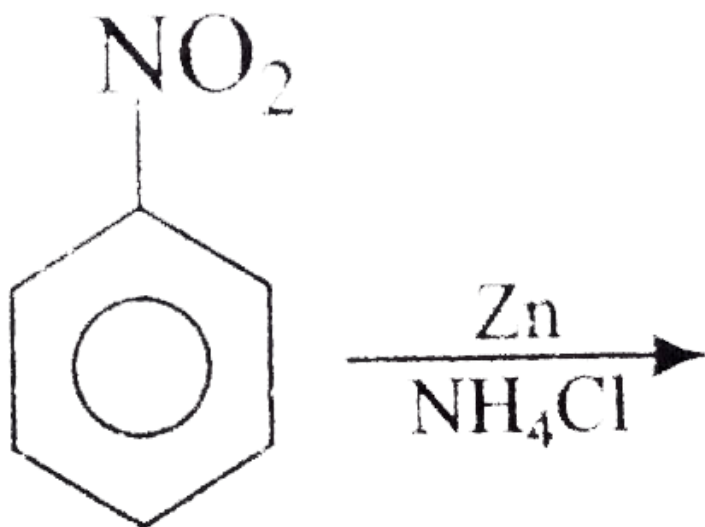
16. Which of the following compounds is most basic ? .



Answer: B

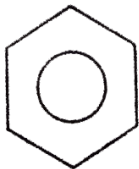
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17. What is the product obtained in the following reaction

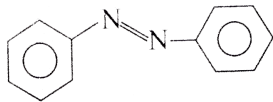


A.

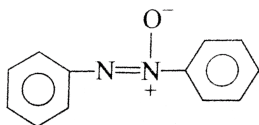
NHOH



B.



C.

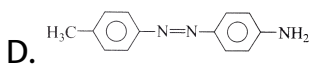
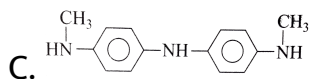
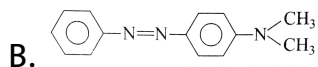
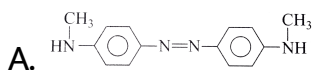
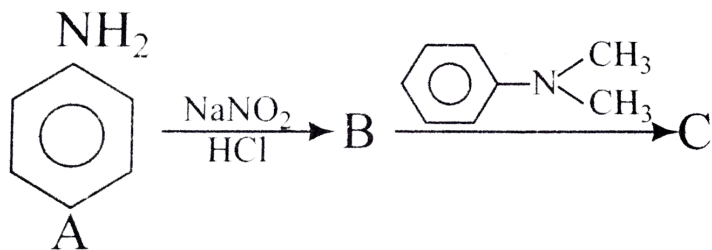


D.

**Answer: B**

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18. In a reaction a coloured product *C* was obtained. The structure of *C* would be



**Answer: B**

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19. Which of the following statements about primary amines is false ? .

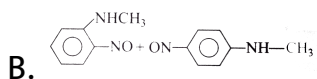
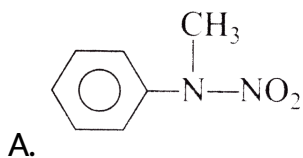


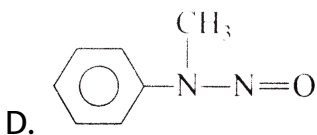
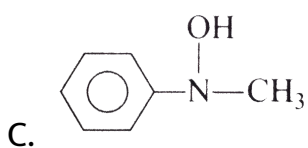
- A. Alky1 amines are stronger bases than ammonia .
- B. Alky1 amines are stronger bases than ary1 amines.
- C. Alky1 amines react with nitrous aci to produce alcohols .
- D. Ary1 amines react with nitrous acid to produce phenols .

**Answer: D**

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**20. Predict the product**





**Answer: D**

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21. Nitrobenzenen can be prepared from benzene by using a mixture of conc  $HNO_3$  and conc.  $H_2SO_4$  in the nitrating mixture. Nitric acid acts as a

A. acid

B. base

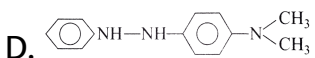
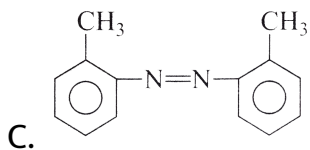
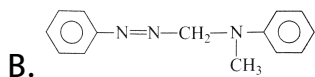
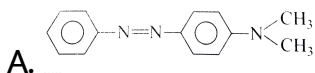
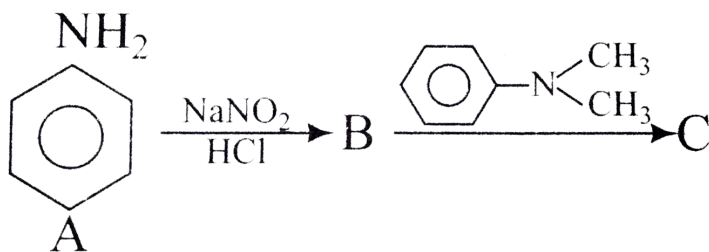
C. catalyst

D. reducing agent

Answer: B

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22. In a reaction a coloured product *C* was obtained. The structure of *C* would be



**Answer: A**

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**23.** Which one of following on reduction with lithium aluminium hydride yields a secondary amine ? .

- A. Methyl cyanide
- B. Nitroethane
- C. Methyl isocyanide
- D. Acetamide

**Answer: C**

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24. Which of the following is more basic than aniline? .

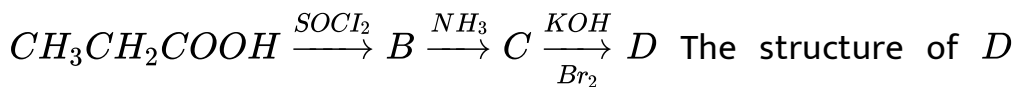
- A. Benzylamine
- B. Diphenylamine
- C. Teriphenylamine
- D. p-nitroaniline

**Answer: A**



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25. In a set of reactions propionic acid yielded a compound  $D$



would be .

- A.  $CH_3CH_2NH_2$

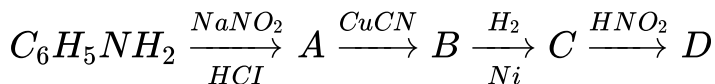


Answer: A

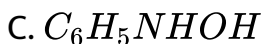
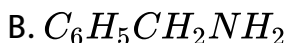
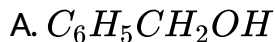


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26. Aniline in a set of reactions yielded a product  $D$



The structure of the product  $D$  would be .



**Answer: A**

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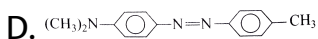
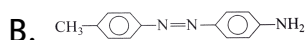
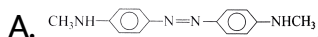
27. Electrolytic reduction of nitrobenzene in weakly acidic medium gives .

- A. aniline
- B. nitrosobenzene
- C. N-phenylhydroxylamine
- D. p-hydroxylamine

**Answer: A**

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28. Aniline when diazotised in cold and then treated with dimethylaniline gives a coloured product Its structure would be



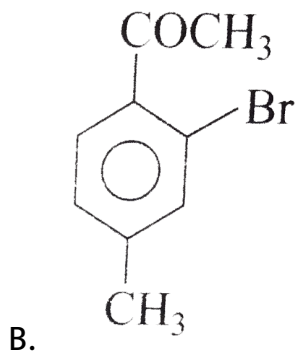
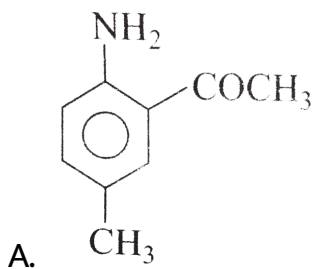
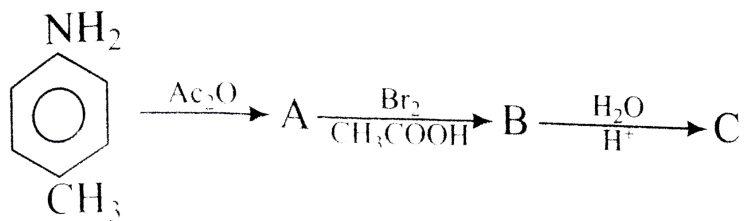
**Answer: C**

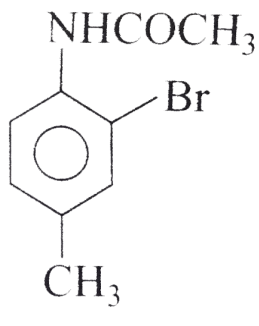
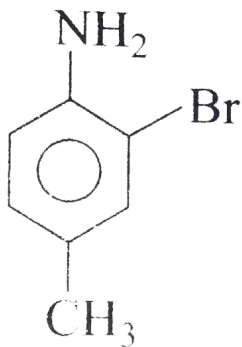


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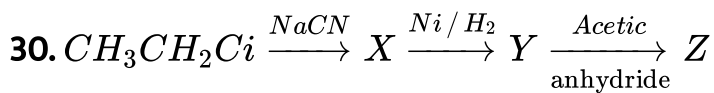
29. Compound *C* would be



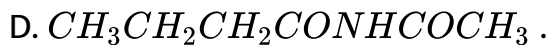
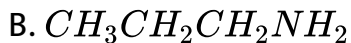


Answer: A

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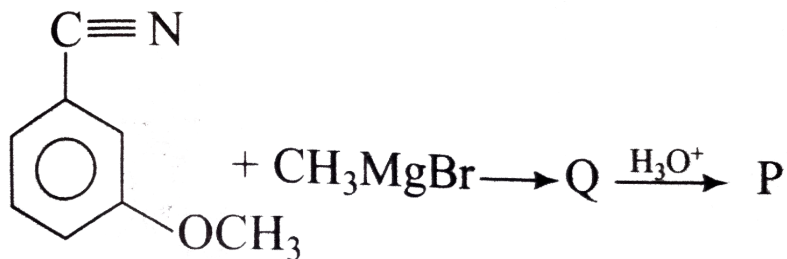
Z in the above reaction sequence is .

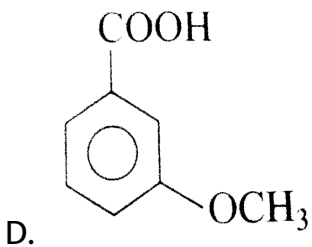
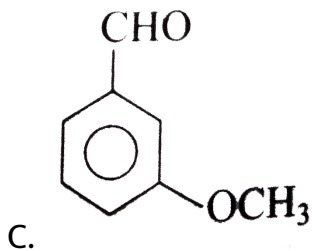
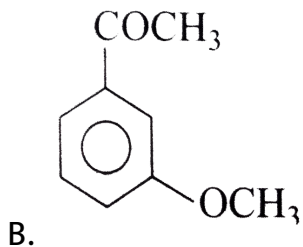
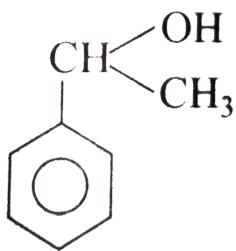


Answer: A

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31. The product 'P' in the above reactions is





**Answer: B**



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32. Intermediate formed during reaction of  $RCONH_2$  with  $Br_2$  and  $KOH$  are .

A.  $RCONHBr$  and  $RNCO$

B.  $RNHCOBr$  and  $RNCO$

C.  $RNHBr$  and  $RCONHBr$

D.  $RCONBr_2$

Answer: A



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33. Match the compounds given in List I with their characteristic reactions given in List II Select the correct option

List I (Compounds)		List II (Reactions)	
(a)	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$	(i)	Alkaline hydrolysis
(b)	$\text{CH}_3\text{C} \equiv \text{CH}$	(ii)	With KOH (alcohol) and $\text{CHCl}_3$ produces bad smell
(c)	$\text{CH}_3\text{CH}_2\text{COOCH}_3$	(iii)	Gives white ppt. with ammoniacal $\text{AgNO}_3$
(d)	$\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$	(iv)	With Leaves reagent cloudiness appears after 5 minutes

A. (ii) (i) (iv) (iii)

B. (iii) (ii) (i) (iv)

C. (ii) (iii) (i) (iv)

D. (iv) (ii) (iii) (i)

**Answer: C**



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34. An organic compound (*A*) on reduction gives compound (*B*) which on treatment with  $CHCl_3$  and alcoholic  $KOH$  gives compound (*C*) which on hydrolysis gives aniline but on compound (*C*) which on hydrolysis gives aniline but on catalytic reduction gives n-methylaniline The compound (*A*) is .

A. nitrobenzene

B. nitromethane

C. Methylamine reacts with nitrous acid and liberates  $N_2$  from aqueous solution .

D. aniline

**Answer: A**



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35. Acetamide is treated separately with the following reagents

Which one of these would give methylamine ?

A.  $\text{NaOH}$ ,  $\text{Br}_2$

B. Sodalime

C. Hot conc.  $\text{H}_2\text{SO}_4$

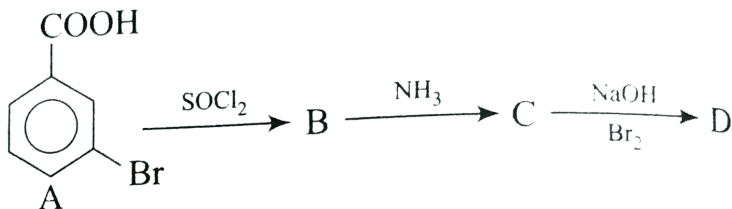
D.  $\text{PCl}_5$

Answer: A

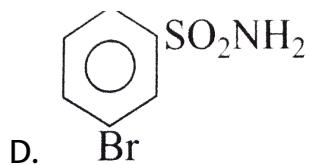
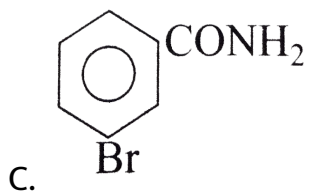
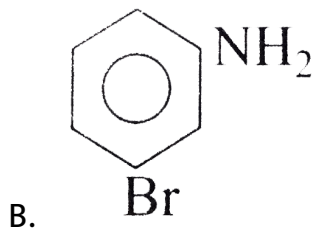
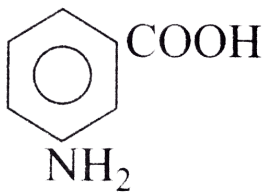
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36. In a set of reaction m-bromobenzoic acid gives a product *D*.

Identify the product *D*







**Answer: B**



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