CHEMISTRY

BOOKS - GR BATHLA & SONS CHEMISTRY (HINGLISH)

AMINES

Level 1 (Q.1 To Q.25)

1. Acetamide is treated separately with the following reagens. Which one of these given methylamine?

A. PCI_5

B. Sodalime

C. $NaOH + Br_2$

D. Hot concentrated H_2SO_4

Answer: C

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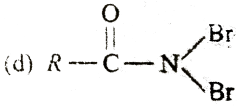
2. Reaction of $RCONH_2$ with a mixture of Br_2 and KOH gives RNH_2 as the main product. The intermediates involved in the reaction are:

A. $R - \overset{OH}{\underset{|}{C}} = N - Br$

B. $R - NHBr$

C. $R - N = C = O$

D. 

Answer: C

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3. Which is the best method of preparing 2° amine ?

A. $CH_3CI + NH_3 \rightarrow$

B. $CH_3CI \xrightarrow{KCN} \xrightarrow{Sn/HCI}$

C. $CH_3CI \xrightarrow{KCN} \xrightarrow{LiAIH_4}$

D. $CH_3NH_2 \xrightarrow[\Delta]{CHCI_3/KOH} \xrightarrow{Sn/HCI}$

Answer: D

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4. Ethyl cyanide (A) can be converted to ethyl amine (B) by:

A. $A \xrightarrow{Sn/HCI} B$

B. $A \xrightarrow{H_3O^+} \xrightarrow{NH_3/\Delta} \xrightarrow{KBrO/\Delta} B$

C. $A \xrightarrow{LiAlH_4} B$

D. both (a),(c) are correct

Answer: B

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5. In Gabriel synthesis, amine is always:

A. alphatic primary amine

B. aliphatic secondary amine

C. aromatic primary amine

D. aromatic secondary amine

Answer: A

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6. In Gabriel synthesis, halide may be:

A. benzyl halide

B. allyl halide

C. both (a), (c) are correct

D. tertiary alkyl halide

Answer: C

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7. In the given reaction sequence

$$C_6H_5 - CH_2 - NH_2 \xrightarrow[\Delta]{CHCl_3 / Alc.KOH} [X] \xrightarrow{H_2O / NaOH} [Y], [Y]$$

will be:

A. $C_6H_5 - CN$

B. C_6H_5NC

C. $C_6H_5 - CH_2 - NH_2$

D. $C_6H_5 - CH_2OH$

Answer: C

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8. Predict the nature of the product $PC_6H_5CONH_2 \xrightarrow{Br_2/PD^-} P$

A. $C_6H_5NH_2$

B. C_6H_5NHD

C. $C_6H_5ND_2$

D. All of these

Answer: C

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9. Which of the following statement is not correct?

A. Aliphatic amines are stronger bases than ammonia

B. Aromatic amines are stronger bases than ammonia

C. The alkyl group in alkyl ammonium ion more stabilizes the ion relative to the amine

D. The aryl group in aryl ammonium ion less stabilizes the ion relative to the amine

Answer: B

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10. The correct sequence regarding base strength of aliphatic amines in aqueous solution is:

A. $R_3N > R_2NH > RNH_2 > NH_3$

B. $R_2NH > RNH_2 > R_3N > NH_3$

C. $R_2NH > R_3N > RNH_2 > NH_3$

D. $RNH_2 > R_2NH > R_3N > NH_3$

Answer: B

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11. Decreasing order of basicity of the three isomers of nitro aniline is:

A. p-nitroaniline $>$ o-nitroaniline $>$ m-nitroaniline

B. p-nitroaniline $>$ m-nitroaniline $>$ o-nitroalinine

C. m-nitroaniline $> p-$ nitroaniline $> o-$ nitroaniline

D. m-nitroaniline $> o-$ nitroaniline $> p-$ nitroaniline

Answer: C

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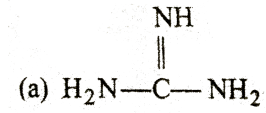
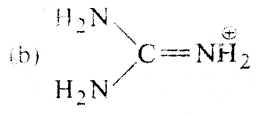
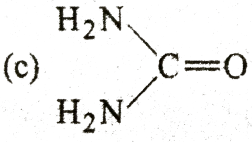
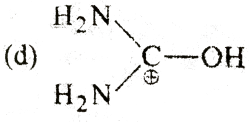
12. Strongest base is:

A. 

B. 

C. 

D. 

Answer: A

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13. Which is the best leaving group ?

A. $-\overset{\oplus}{N} \equiv N$

B. OH^-

C. NH_2^-

D. CH_3COO^-

Answer: A

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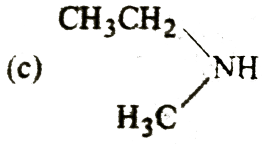
14. Which is most volatile ?

A. $CH_3CH_2CH_2NH_2$

B. $(CH_3)_3N$

C. 

D. CH_3OH

Answer: B

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15. Which one of the following is used as phase transfer catalyst?

A. Primary amine

B. Quaternary ammonium salt

C. Tertiary nitroalkane

D. Tertiary amine

Answer: B

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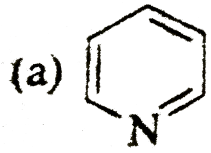
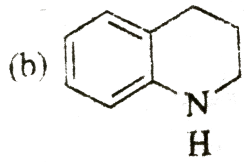
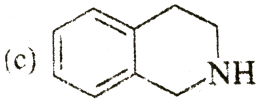
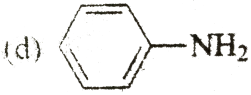
16. Which of the following is most basic?

A. 

B. 

C. 

D. 

Answer: C

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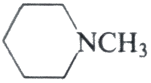
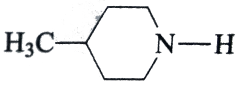
17. Predict about the relative boiling point of the following two amines.

(I)  (II) 

A. Boiling point of $I > II$

B. Boling point of $II > I$

C. Both should have equal boiling points

D. It can't be predicted

Answer: B

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18. Carbylamine test is performed in alcoholic KOH by heating a mixture of:

A. chloroform and silver silver powder

B. chloroform and a primary amine

C. an alkyl halide and a primary amine

D. an alkyl cyanide and a primary amine

Answer: B

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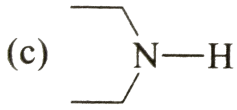
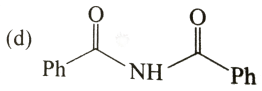
19. Which of the following compounds is an imine ?

A. $Ph - \overset{O}{\overset{||}{C}} - NH_2$

B. $CH_3 - CH_2 - N = CH_2$

C. 

D. 

Answer: B

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20. Which of the following statements is not correct?

A. Primary amines show intermolecular hydrogen bonding.

B. Secondary amines show intermolecular hydrogen bonding

C. Tertiary amines show intermolecular hydrogen bonding

D. Amines have lower boiling points as compared to those of alcohols and carboxylic acids of comparable molar masses.

Answer: C

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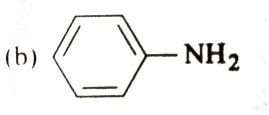
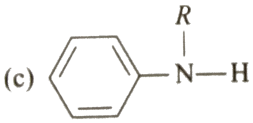
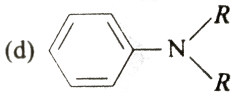
21. Which of the following amines form $N-$ nitroso derivative when treated with $NaNO_2$ and HCI?

A. CH_3NH_2

B. 

C. 

D. 

Answer: C

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22. Hinsberg's reagent is:

A. phenylisocyanide

B. benzensulphonyl chloride

C. p-toluenesulphonic acid

D. o-dichlorobenzene

Answer: B

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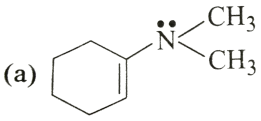
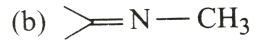
23. Which of the following compounds is an emamine?

A. 

B. 

C. $Ph - N = N - Ph$

D. $Ph - N = N - H$

Answer: A

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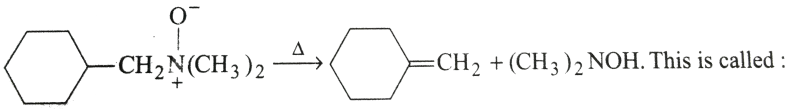
24. Complete the following reaction



A. Hofmann elimination

B. Cope reaction

C. Saytzeff reaction

D. Carbyl amine reaction

Answer: B

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25. Cope reaction is:

A. S_N1 intramolecular

B. S_N2 intramolecular

C. E_1 intramolecular

D. E_c or E_i intramolecular

Answer: D

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Level 1 (Q.26 To Q.41)

1. Which of the following is Hofmann mustard oil reaction?

A. Reaction of primary amine with $CHCI_3$

B. Reaction of primary amine with $CHCI_3 + KOH$

C. Reaction of primary amine with $CS_2 + HgCI_2$

D. Reaction of armoatic amine with iodoform

Answer: C

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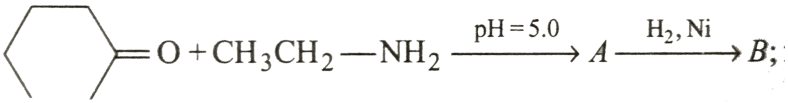
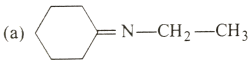
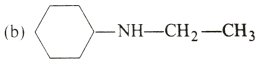
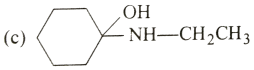
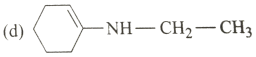
2. 

final product B is:

A. 

B. 

C. 

D. 

Answer: B

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3. In the Hofmann-Bromamide rearrangement intermediate compounds are:

A. $R - CONHBr$

B. $\left[R - \overset{\overset{O}{||}}{C} - \overline{N} - Br\right] Na^+$

C. $R - N = C = O$

D. all of these

Answer: D

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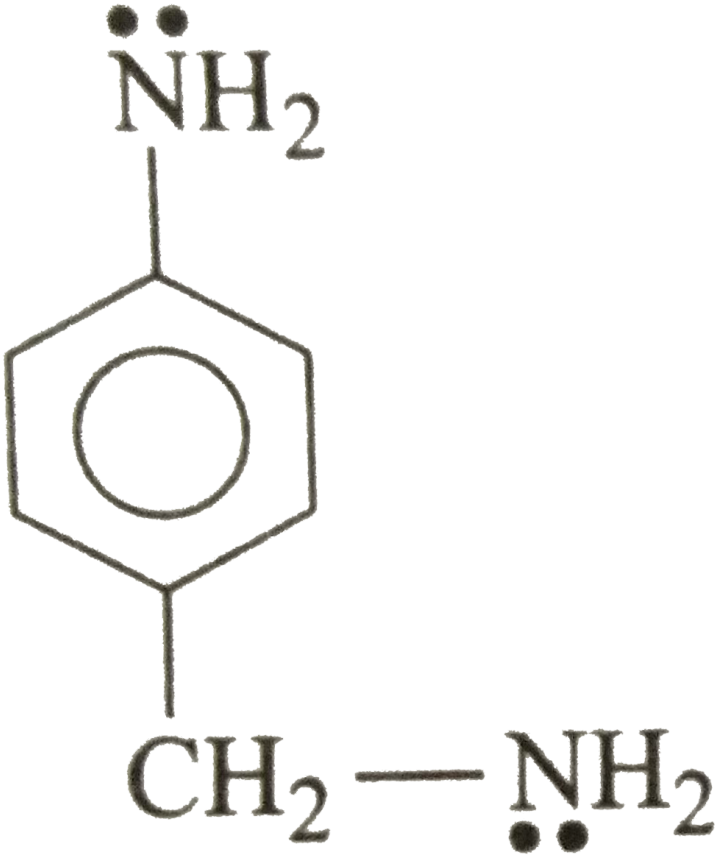
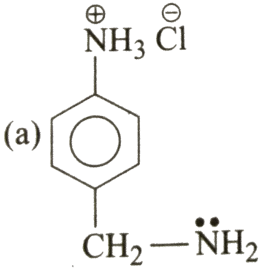


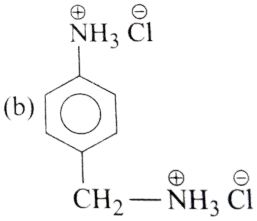
4. $\xrightarrow[(1\text{Mole})]{HCI}$

Product

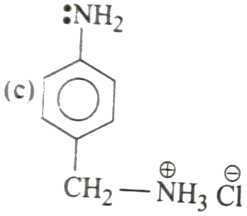
A.



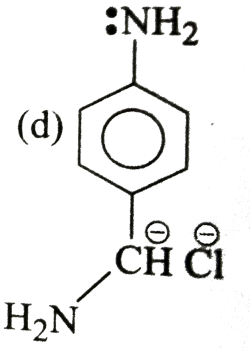
B.



C.



D.



Answer: C

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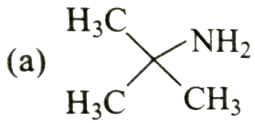
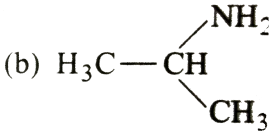
5. Which of the following compounds can form alcohol with $NaNO_2 / HCl$?

A. 

B. 

C. $CH_3 - CH_2 - NH_2$

D. All of these

Answer: D

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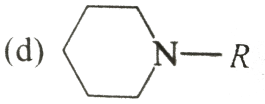
6. Which of the following will not react with CS_2?

A. $C_6H_5 - NH_2$

B. $CH_5 - NH - CH_3$

C. 

D. 

Answer: D

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7. In the given reaction

$$CH_3 - CH_2 - NH - CH_2 - CH_2 - CI \xrightarrow[(ii)\, AgOH\,/\,\Delta]{(i)\, CH_3I\,(\text{excess})} [X]$$

is the major product, [X] will be:

A. $CH_2 = CH_2$

B. $CH_2 = CHCI$

C. 1 : 1 ratio of (a) and (b)

D. $CH_3 - CH_2 - CI$

Answer: B

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8. Predict the nature of P in the following reaction: $Me_3CCH_2NH_2 \xrightarrow{HOMO} P$ (main product)

A. Me_3CCH_2OH

B. $Me_2CCH = CH_2$

C. $Me_2C(OH)C_2H_5$

D. $Me_3CCH_2NH(NO)$

Answer: C

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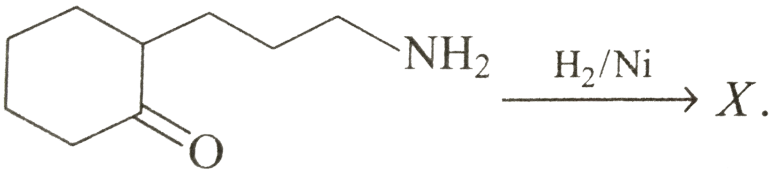
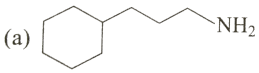
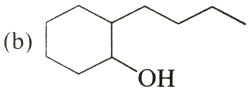
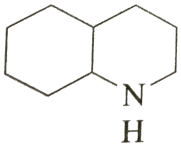
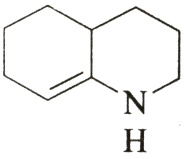
9. 

Here X is:

A. 

B. 

C. (c) 

D. (d) 

Answer: C

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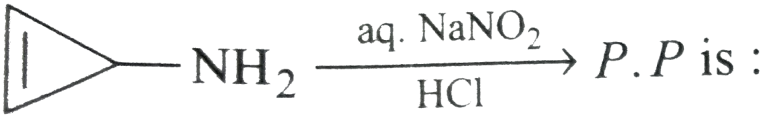
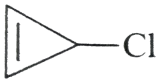
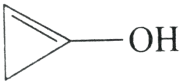
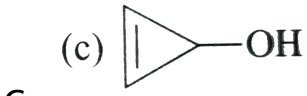
10. 

A. (a) 

B. (b) 

C. 

D. none of these

Answer: C

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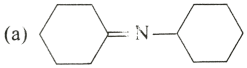
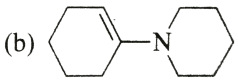
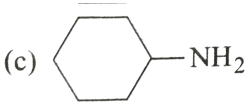
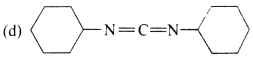
11. Which of the following is an enamine?

A. 

B. 

C. 

D. 

Answer: B

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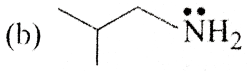
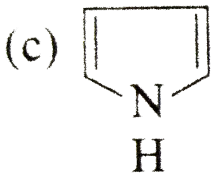
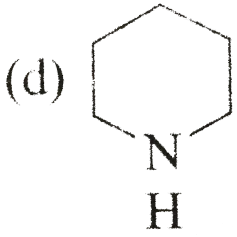
12. Which of the following amines will react with cyclohexanone to give enamine?

A. CH_3NH_2

B. 

C. 

D. 

Answer: D

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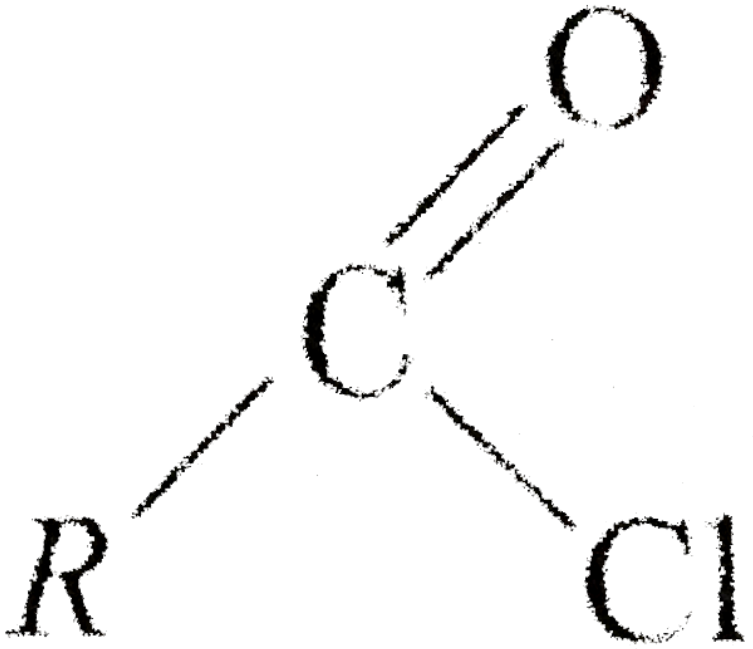
13. The intermediates obtained in the reaction



$\xrightarrow[\text{Heat}]{NaN_3} R - NH_2$ are:

A. $R-\overset{\overset{O}{||}}{C}-\overline{N}-\overset{\oplus}{N}\equiv N$

B. $R-N=C=O$

C. $R-CNO$

D. none of these

Answer: A::B

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14. Compound $[X]C_4H_{11}N$ reacts with p-toluence sulphonyl chloride in aqueous $NaOH$ to give a solid. The compound [X] is:

A. $CH_3-CH_2-CH_2-CH_2-NH_2$

B. $H_3C - \underset{\underset{CH_3}{|}}{CH} - CH_2 - NH_2$

C. $CH_3CH_2 - NH - CH_2 - CH_3$

D. $H_3C - CH_2 - \underset{\underset{CH_3}{|}}{N} - CH_3$

Answer: D

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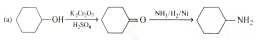
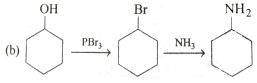
15. Cyclohexanol can be converted into cyclohexylamine by following two routes. Which of the following methods is expected to give good yield of cyclohexyalmine?

A. 

B. 

C. both are equally suitable

D. neither of the two

Answer: A

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16. Which of the following will give unsymmetrical di-substituted urea after reaction with CH_3NH_2?

A. $COCI_2$

B. CH_3CH_2NCS

C. CH_3CH_2NCO

D. all of these

Answer: C

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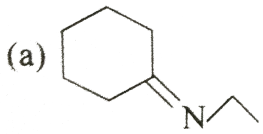
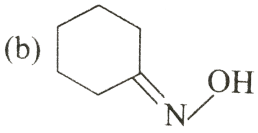
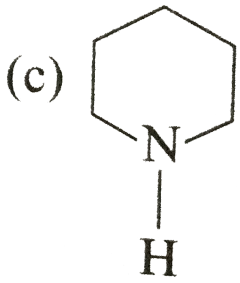
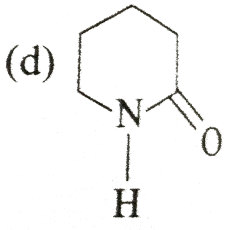
Level 2 (Q.1 To Q.25)

1. Which of the following compounds is an amine?

A. 

B. 

C. 

D. 

Answer: C

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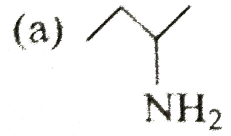
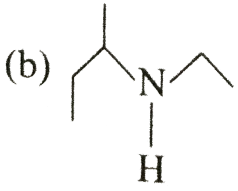
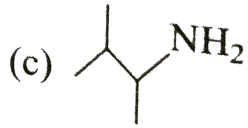
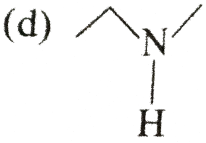
2. Which of following compounds exists as non-resolvable racemic mixture?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: D

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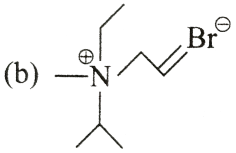
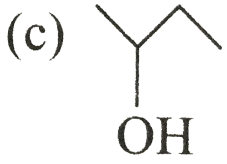
3. Which of the following compounds loses optical activity due to pyramidal inversion?

A. 

B. 

C. 

D. 

Answer: D

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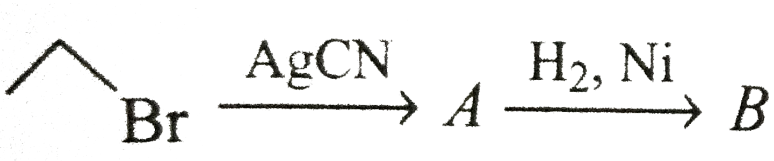
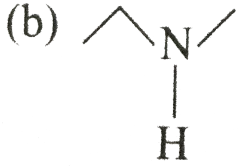
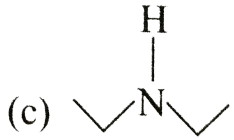


4. The final product (B) is:

A. 

B. 

C. 

D. 

Answer: B

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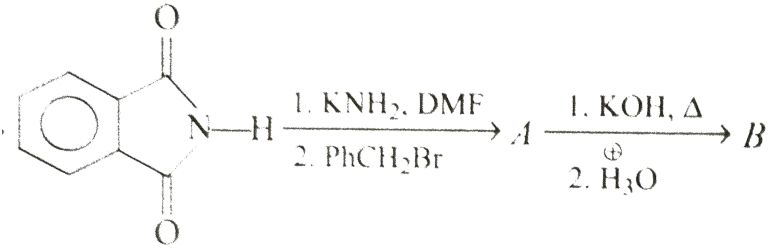
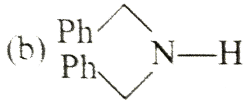
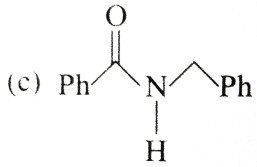
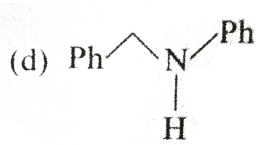
5. 

The end product B of the above reaction is:

A. 

B. 

C. 

D. 

Answer: A

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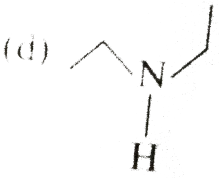
6. $CH_3CH_2Br \xrightarrow{AgCN} A \xrightarrow[\overset{\oplus}{H_3O}]{NaOH\,,\,\Delta} B,\,(B)$ is:

A. $CH_3CH_2NHCH_3$

B. $CH_3CH_2CH_2NH_2$

C. $CH_3CH_2NH_2$

D. 

Answer: C

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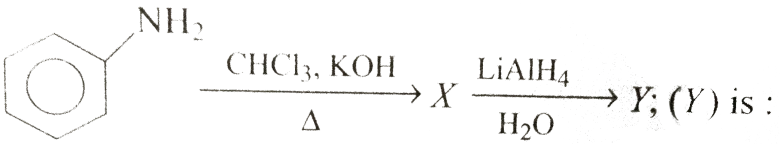
7. Complete the following reaction



A. $Ph - \underset{\underset{H}{|}}{N} - CH_3$

B. $Ph - CH_2 - NH_2$

C. $Ph - \underset{\underset{H}{|}}{N} - \overset{\overset{O}{||}}{C} - H$

D. $Ph - \overset{\oplus}{N} \equiv \overset{\Theta}{C}$

Answer: A

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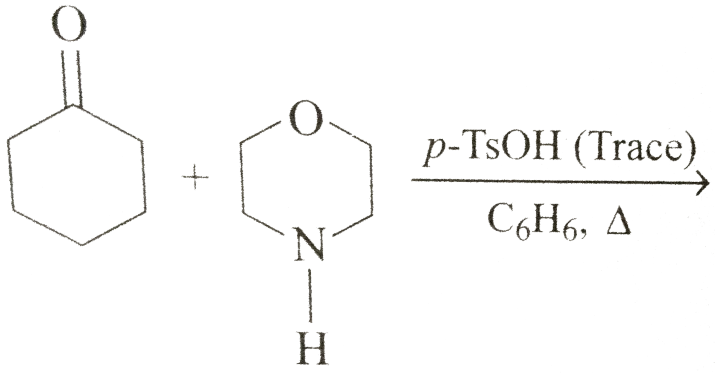
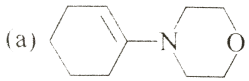
8. The major product formed in the reaction:

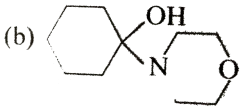


$$\xrightarrow[C_6H_6\,.\,\Delta]{p-TsOH\,(\text{Trace})}$$

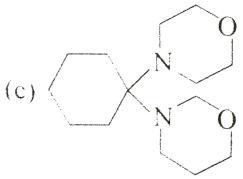
A.

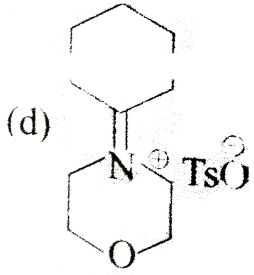


B.



C.



D. 

Answer: A

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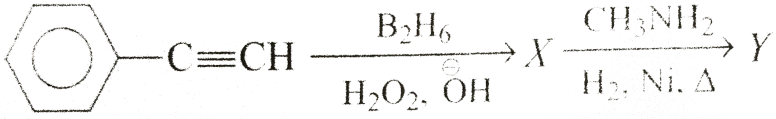
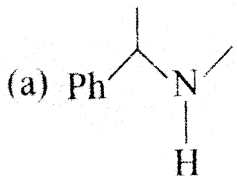
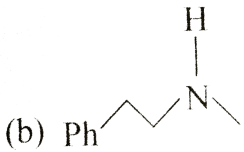
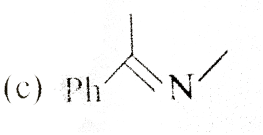
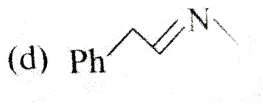
9. 

The final product (Y) is:

A. 

B. 

C. 

D. 

Answer: B

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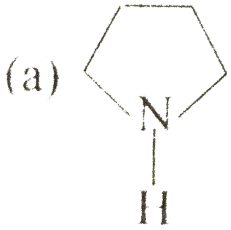
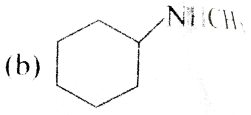
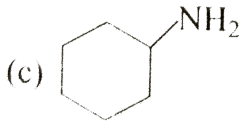
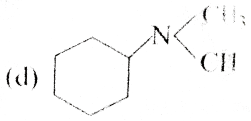
10. Among the following compounds which one will produce a Schiff base on reaction with cyclopentanone?

A. 

B. 

C. 

D. 

Answer: C

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11. In which of the following reactions does the amine behaves as an acid ?

A. $(C_2H_5)_2NH + H_2PtCI_6$

B. $CH_3NH_2 + H_2O$

C. $(Me_2CH)_2NH + n - C_4H_9Li$

D. $(C_2H_5)_3\ddot{N} + BF_3$

Answer: C

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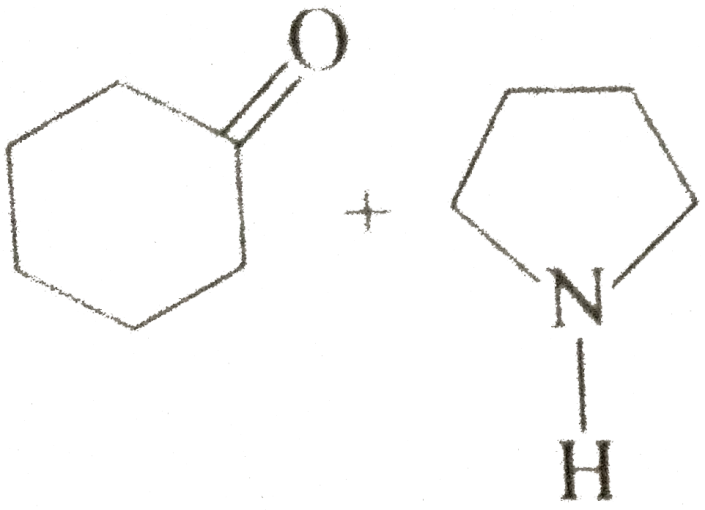
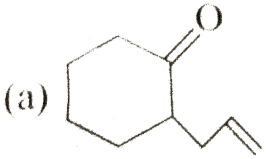
12. Consider the following sequence of reactions:

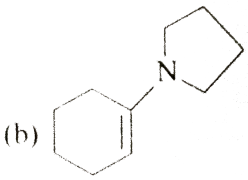


$\xrightarrow[\Delta]{CCI_4} A \xrightarrow[2.H_3O^{\oplus},\Delta]{1.CH_2=CH-CH_2Br} B$ The end product (B) is:

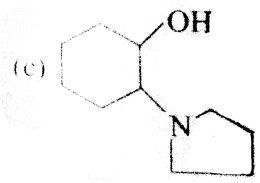
A.



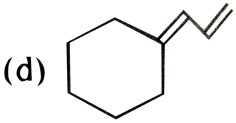
B.



C.



D.



Answer: A

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13. Consider the following sequence of reactions :

$$H_2C = CH - CH = CH_2 \xrightarrow[CCI_4]{Br_1\,(1\text{mole})} A \xrightarrow[2.H_2, NI]{1.KCN\,(\text{excess})} B$$

The end product (B) is:

A. $H_2N - (CH_2)_2 - CH = CH - (CH_2)_2 - NH_2$

B. $H_2N - (CH_2)_6 - NH_2$

C. $NC - CH_2 - CH = CH - CH_2 - CN$

D. $H_2C = CH - \underset{\underset{NH_2}{|}}{CH} - (CH_2)_2 - NH_2$

Answer: B

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14.

$$H_3C - CH_2 - \overset{\overset{CH_3}{|}}{CH} - \underset{\underset{O}{||}}{C} - NH_2 \xrightarrow[\Delta]{Br_2 + KOH} A \xrightarrow[2.\,AgOH\,,\,\Delta]{1.\,CH_3I\,(\text{excess})} B$$

The major product (B) is:

A. $CH_3 - CH_2 - CH = CH_2$

B. 

C. $H_3C - CH = CH - CH_3$

D. 

Answer: A

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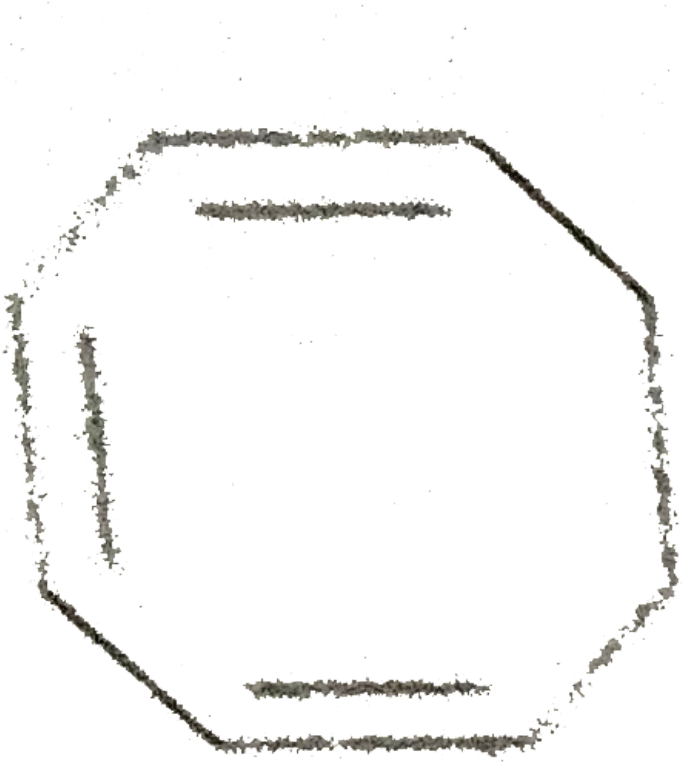
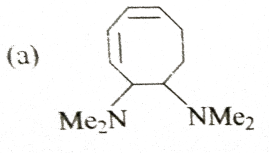


15.

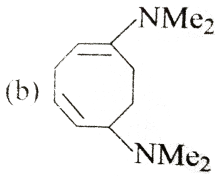
$$\xrightarrow[2.\,(CH_3)_2NH\,(\text{excess})]{1.\,Br_2\,(1\text{mole})\,,CCl_4} A \xrightarrow[2.\,AgOH\,,\,\Delta]{1.\,CH_3I\,(\text{excess})} B \text{ (Major product)}$$

The major product (B) is:

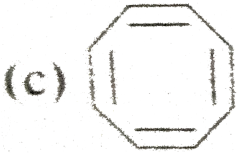
A.



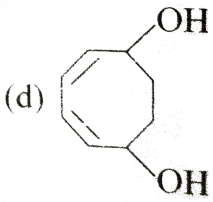
B.



C.



D.



Answer: C

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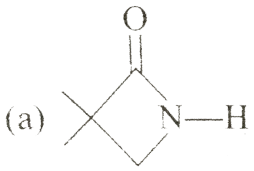
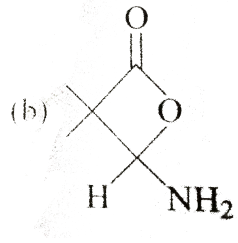
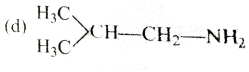
16. Consider the following sequence of reaction:

$$HO-\overset{\overset{O}{||}}{C}-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-C\equiv N \xrightarrow{200^\circ C} A \xrightarrow[H_2O]{LiAlH_4} B, (B) \text{ is:}$$

A. 

B. 

C. $HO - H_2C - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - CH_2 - NH_2$

D. 

Answer: D

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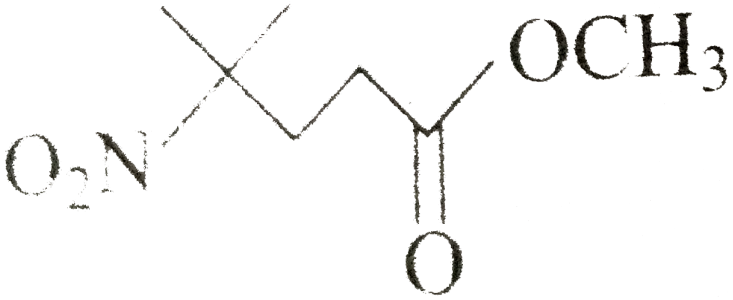
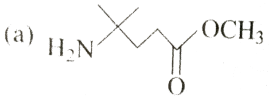
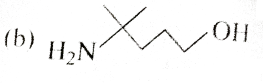
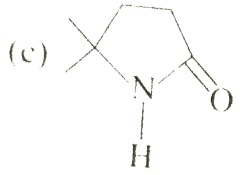
17. The major product (X) of the reaction is:

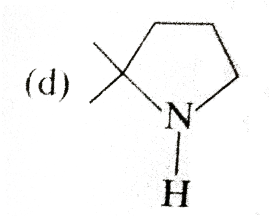


$$\xrightarrow[\Delta]{H_2, Ni} X$$

A. 

B. 

C. 

D. 

Answer: C

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18. Which of the following compounds does not liberate N_2 on treatement with HNO_2?

A. $H_3C - \overset{\overset{O}{||}}{C} - NH_2$

B. $H_2N - \overset{\overset{O}{||}}{C} - NH_2$

C. 

D. $H_3C - \underset{\underset{H}{|}}{N} - CO_3$

Answer: D

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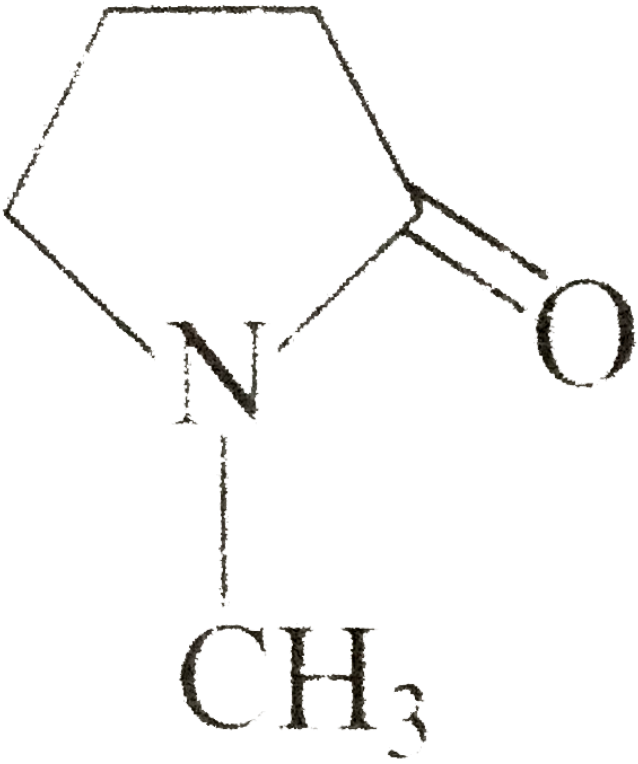
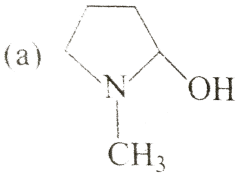
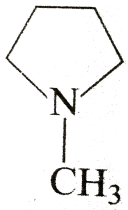
19. The product formed in the reaction is:



$\xrightarrow[2.H_2O]{1.LiAlH_4}$

A. (a)



B. (b) 

C. $H_3C - \underset{\underset{H}{|}}{N} - (CH_2)_3 - \overset{\overset{O}{||}}{C} - H$

D. $H_3C - \underset{\underset{H}{|}}{N} - (CH_2)_3 - CH_2OH$

Answer: B

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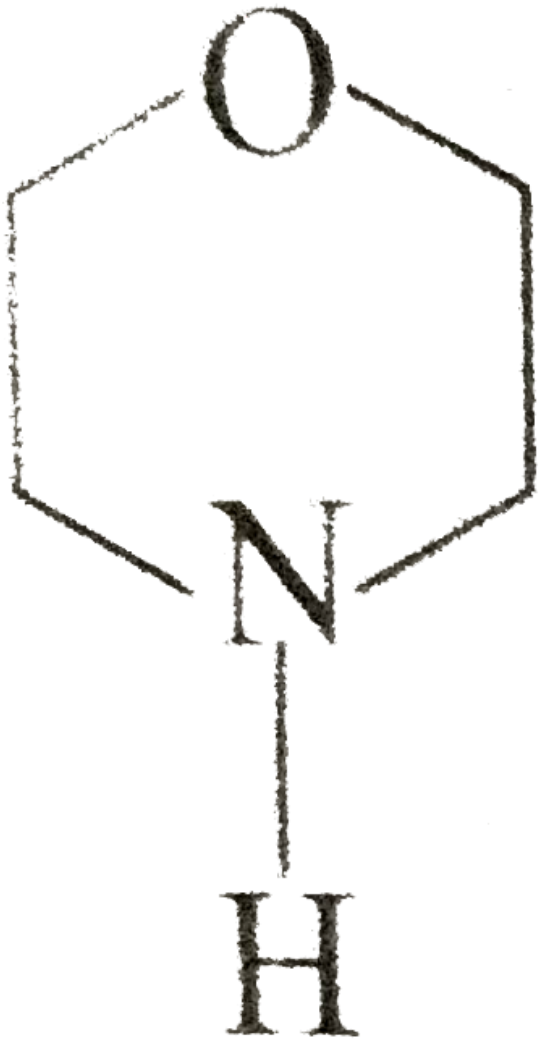
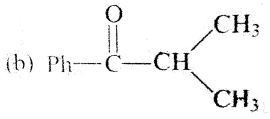
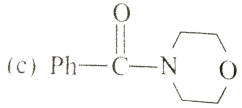
20. The major product (B) formed in the reaction sequence is:

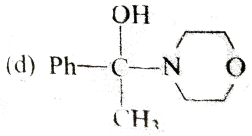


$$\xrightarrow[dil.NaOH]{Ph-\overset{O}{\overset{||}{C}}-CI} A \xrightarrow[2.H_3^{\oplus}O]{1.CH_3MgBr} B$$

A. $Ph - \overset{\overset{O}{||}}{C} - CH_3$

B. 

C. 

D. 

Answer: A

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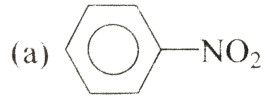
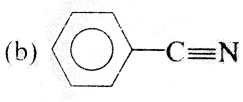
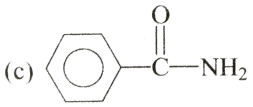
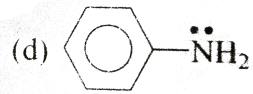
21. An organic compound (A) on reduction gives a compound (B) which on reaction with $CHCI_3$ and $NaOH$

form (C). The compound (C) on catalytic reduction gives N-methylaniline. The compound (A) is:

A. 

B. 

C. 

D. 

Answer: A

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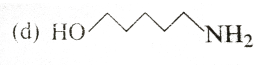
22. The major end product (B) of the reaction:

$$\xrightarrow[ZnCl_2]{HCI} A \xrightarrow[2.H_2, Ni]{1.NaCN\ (\text{excess})} B$$

A. (a) HO, Cl

B. (b) NC, CN

C. (c) H_2N, NH_2

D. 

Answer: C

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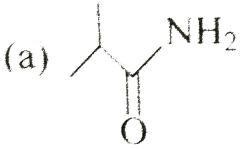
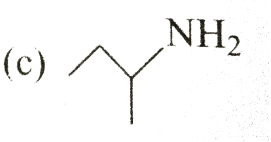
23. Which one among the following is expected to form a secondary alcohol on treatment with HNO_2?

A. 

B. 

C. 

D.

Answer: C

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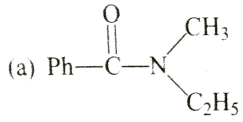
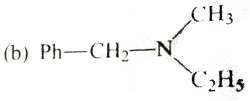
24. The end product (B) of the reaction sequence:

$$C_2H_5 - \underset{\underset{H}{|}}{N} - CH_3 \xrightarrow[NaOH]{Ph - \overset{\overset{O}{||}}{C} - Cl} A \xrightarrow[H_2O]{LiAlH_4} B$$

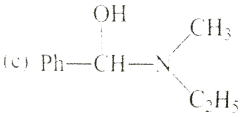
A.

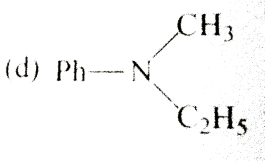


B.



C.



D. 

Answer: B

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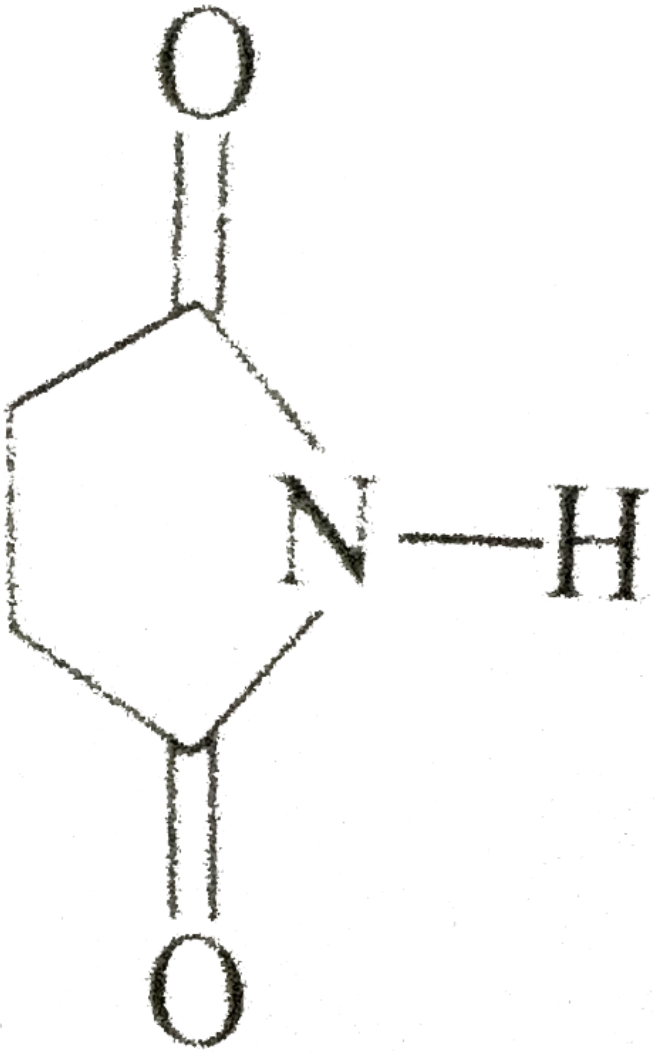
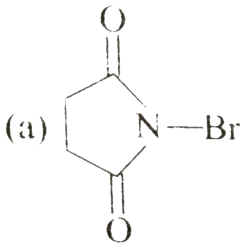


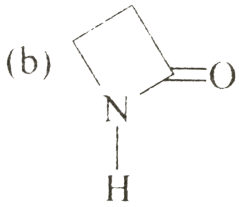
25.

$\xrightarrow[2.H_3O^{\oplus}]{1.Br_2^- + KOH, \Delta}$ The product of above reaction is:

A.

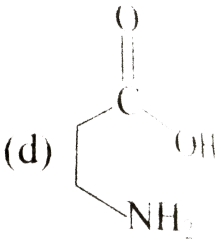


B.



C.

D.



Answer: D

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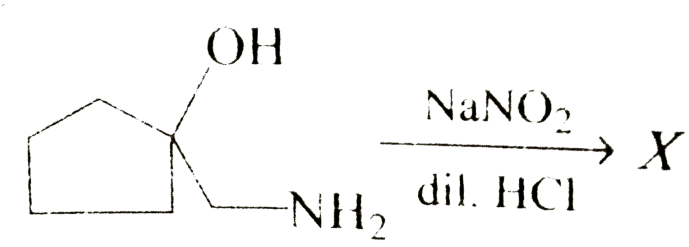
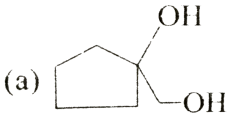
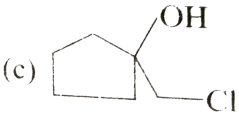
Level 2 (Q.26 To Q.50)

1. The major product (X) of the reaction is:



A. 

B. 

C. 

D. 

Answer: B

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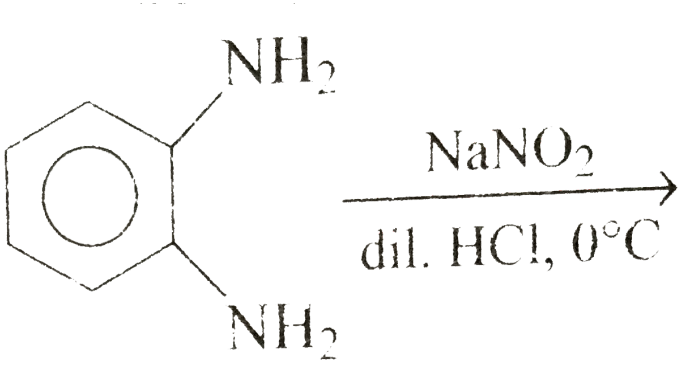
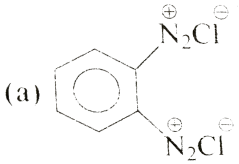
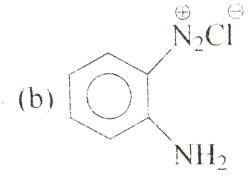
2. The major product of the reaction is:



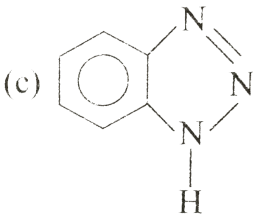
A.



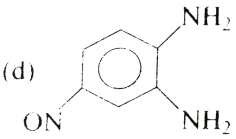
B.



C.



D.



Answer: C

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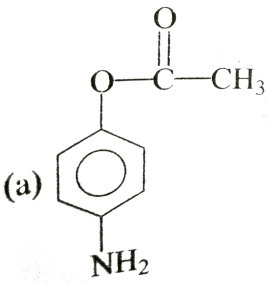
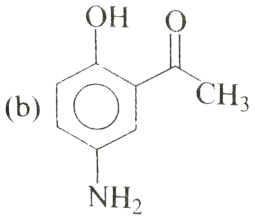
3. The reaction of p-aminophenol with one mole of actyl chloride in presence of pyridine gives:

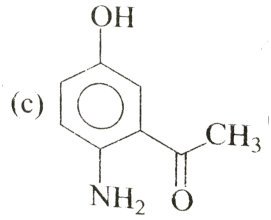
A.



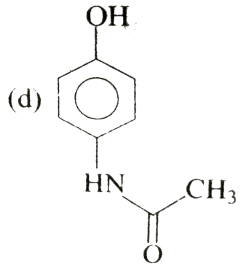
B.



C.



D.



Answer: D

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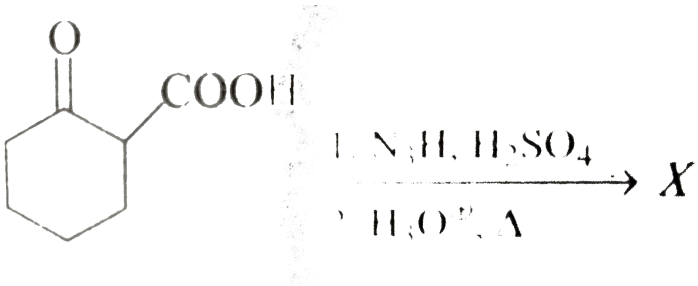
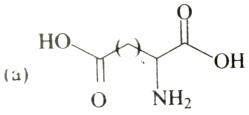
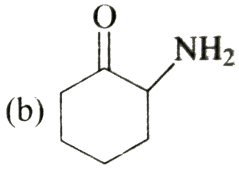
4. The major product (X) formed in the reaction:



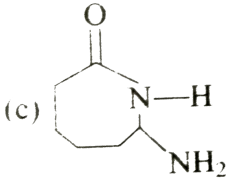
A.

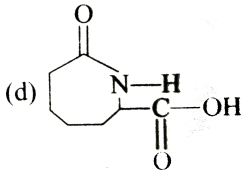


B.



C.



D. 

Answer: A

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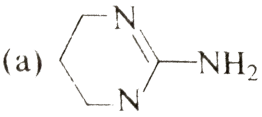
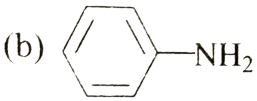
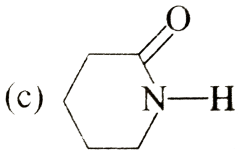
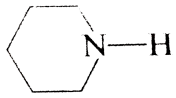
5. Which of the following is the stongest Bronsted acid?

A. 

B. 

C. 

D. (d) 

Answer: C

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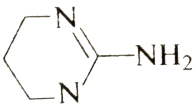
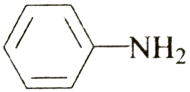
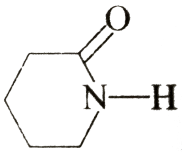
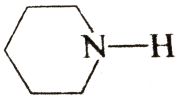
6. Which of the following is the strongest Bronsted base?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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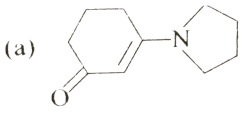
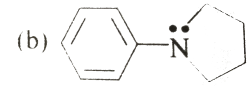
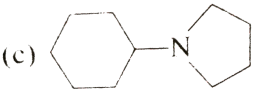
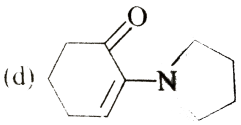
7. Which of the following is the weakest Bronsted base?

A. 

B. 

C. 

D. 

Answer: A

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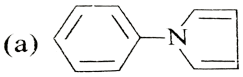
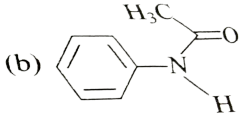
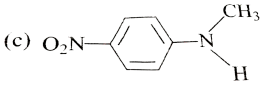
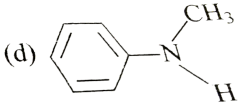
8. Which of the following is stronger Bronsted base?

A. 

B. 

C. 

D. 

Answer: D

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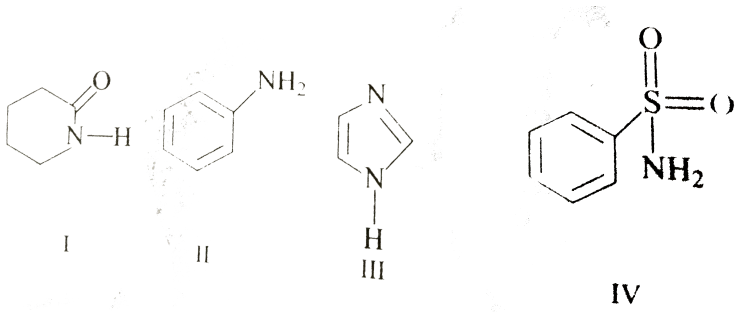
9. For the following compounds, which is the strongest base and which is strongest acid?



A. II = Strongest base, I = Strongest acid

B. IV=Stronger base, III=Stronger acid

C. III = Strongest base, IV = Strongest acid

D. II = Strongest base, III = Strongest acid

Answer: C

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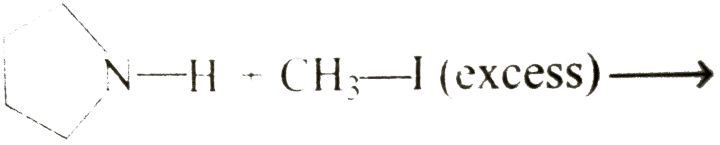
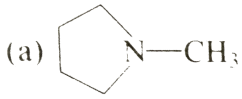
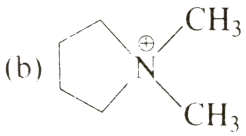
10. Which compound is the likely from following reaction?



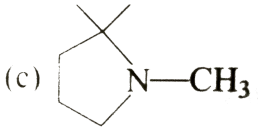
A.



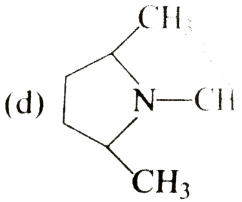
B.



C.



D.



Answer: B

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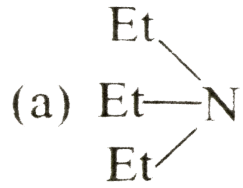
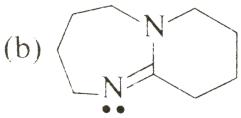
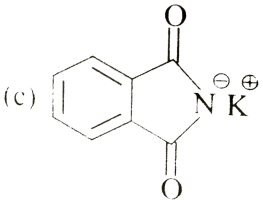
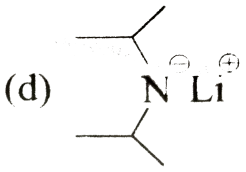
11. Which of these is the strongest base?

A. 

B. 

C. 

D. 

Answer: D

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12. What sequence of reaction would best accomplish the following reaction?

A. $LiAIH_4, 3CH_3I / AgOH, \Delta$

B. $LiAIH_4, P_2O_5 / \Delta$

C. $20\ \% H_2SO_4 / \Delta, P_2O_5 / \Delta$

D. $H_2, Pd - BaSO_4$

Answer: A

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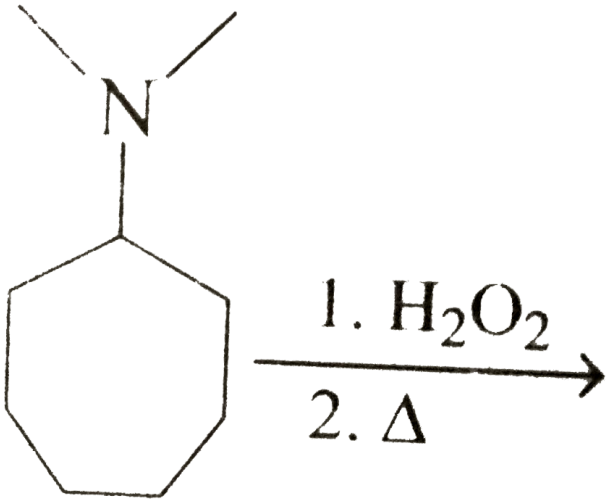
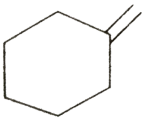
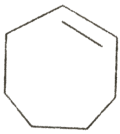
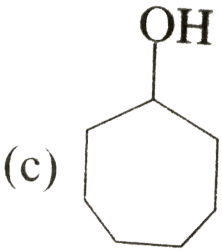
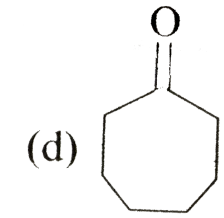
13. What is the likely product from the following reaction?



A. (a) 

B. (b) 

C. 

D. (d) 

Answer: B

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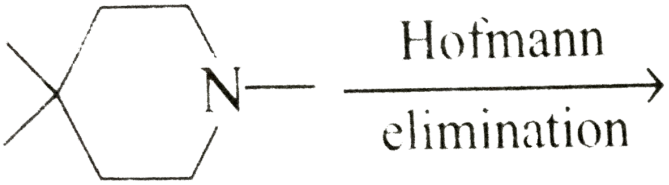
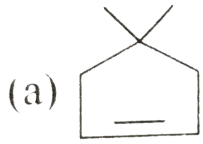
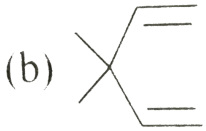
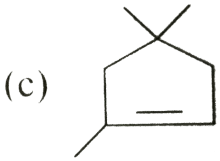
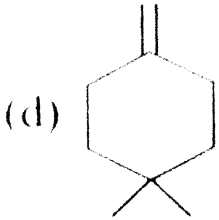
14. Repeated Hofmann elimination reaction (exhaustive methylation followed by heating with $AgOH$) will often remove a nitrogen atom from an amine molecule. Which of the following compounds is the likely product in this case?



A. 

B. 

C. 

D. 

Answer: B

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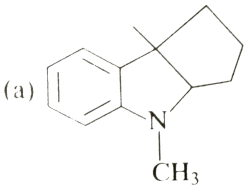
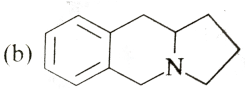
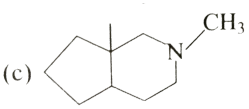
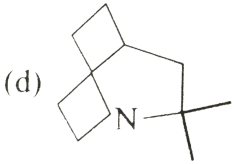
15. Only one of the following amines will lose its nitrogen atom as trimethyl amine by repeated Hofmann elimination reactions:

A. 

B. 

C. 

D. 

Answer: D

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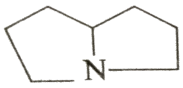
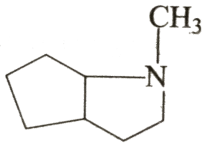
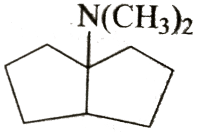
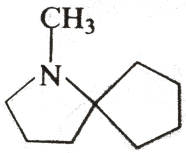
16. The nitrogan atom in each of the following tertiary amines may be removed as trimethyl amine by repeated Hoffmann elimination. Which of the following amines requires the greater number of Hofmann sequence to accomplish this?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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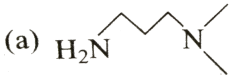
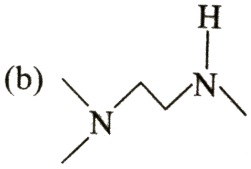
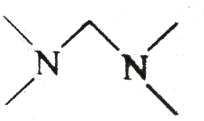
17. The Hinsberg test of a $C_5H_{14}N_2$ compound produces a solid that is insoluble in 10% aq. $NaOH$. This solid derivative dissolves in $10\,\%$ aq. H_2SO_4. Which of the following would best fit these facts ?

A. 

B. 

C. 

(d) 

D.

Answer: B

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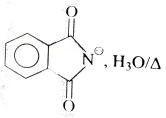
18. What set of conditions would be useful for preparing a 2° amine?

A. $2^{\circ} R - Br + NaNH_2$

B. $2^2 R - Br + NaN_3, H_2 / Pt$

C. $1^{\circ} R - NH_2 + 1^{\circ} RCHO, H_2$ and Pt

(d) 1° R—Br 

D.

Answer: C

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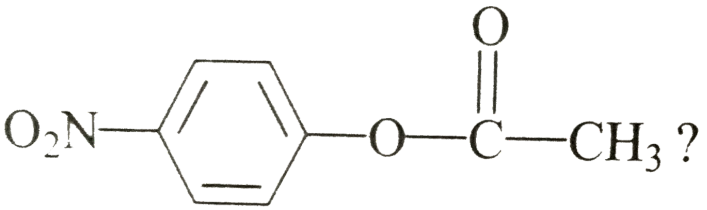
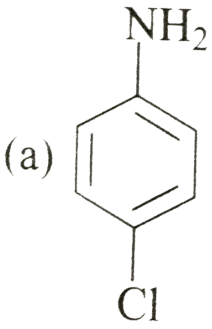
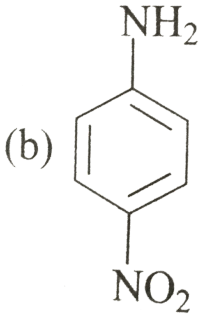
19. Which of the following amines reacts most rapidly with



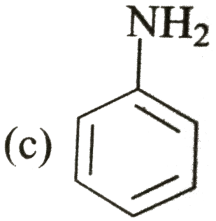
A.



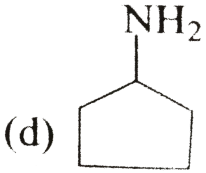
B.



C.



D.



Answer: D

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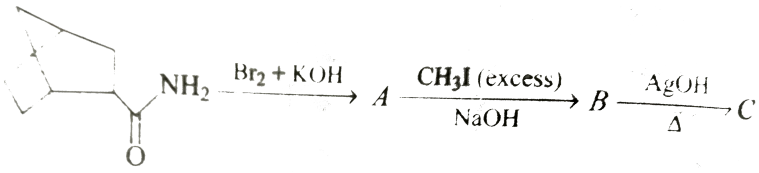
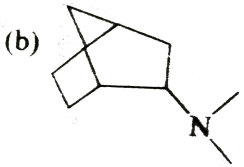
20. Consider the following sequence of reactions:



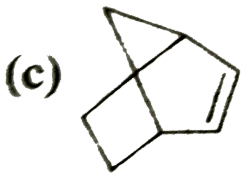
Identify product C:

A.

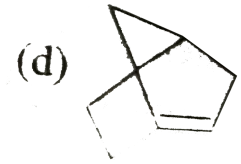
B.



C.



D.



Answer: C

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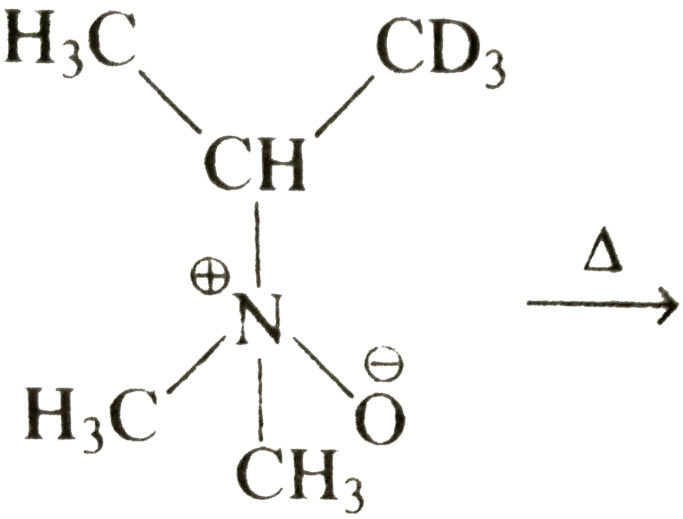
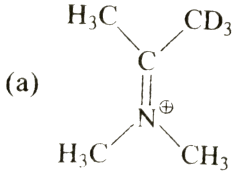
21. The major product formed in the reaction is:



A.



B. $H_3C - CH = CD_2$

C. $H_2C = CH - CD_3$

D. $H_2C = N - CH_3$

Answer: C

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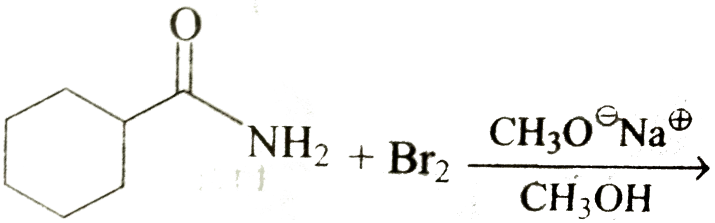
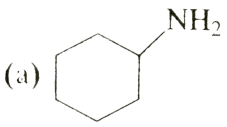
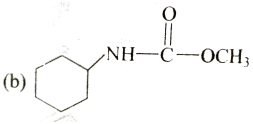
22. The product formed in the reaction is :

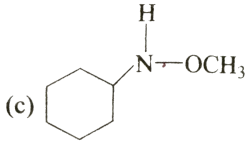


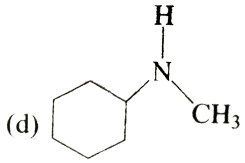
A.



B.



C. 

D. 

Answer: B

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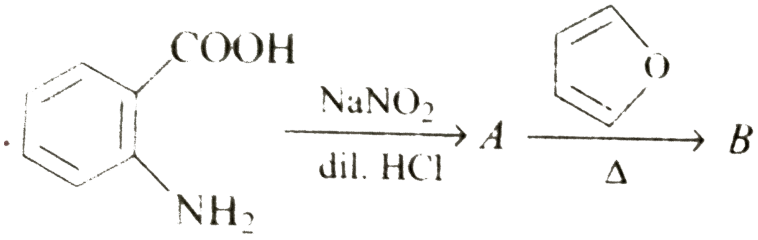
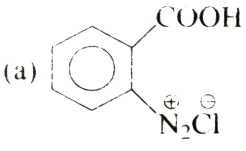
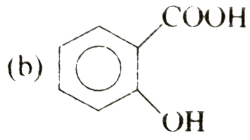
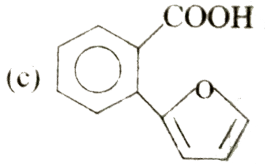
23. 

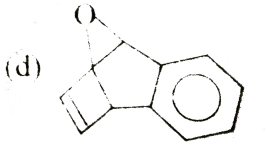
Identify

B:

A. 

B. 

C. 

D. 

Answer: D

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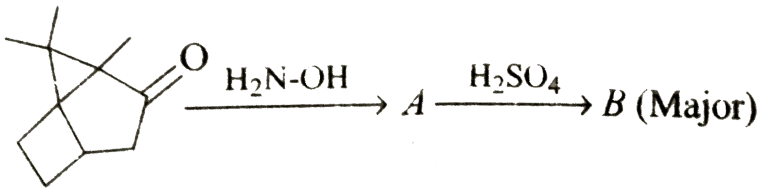
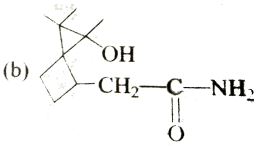
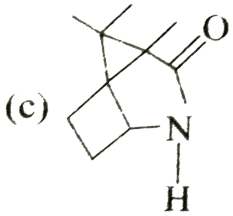
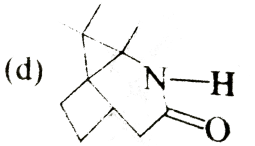
24. 

The final product (B) is:

A. 

B. 

C. 

D. 

Answer: A

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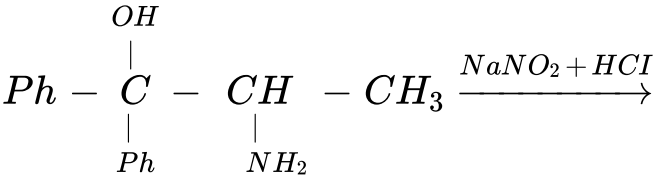
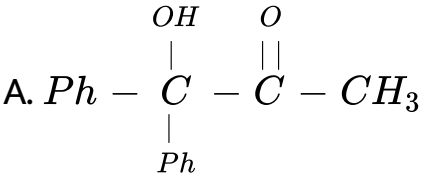
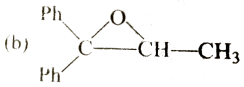
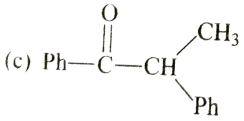
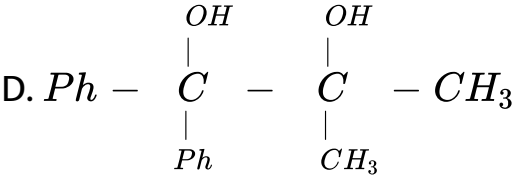
25. The final major product of the reaction is:



A. 

B. 

C. 

D. 

Answer: C

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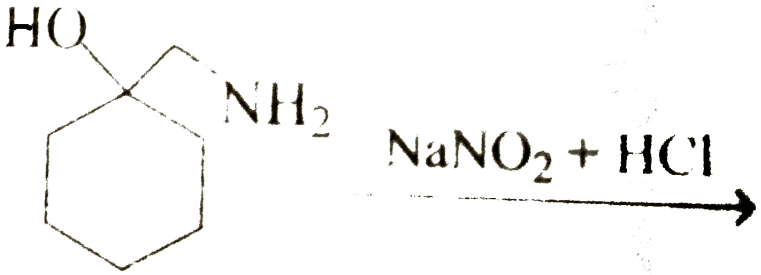
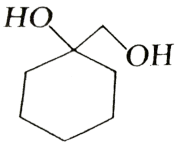
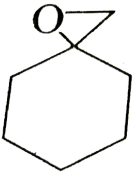
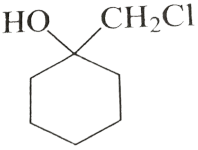
Level 2 (Q.51 To Q.75)

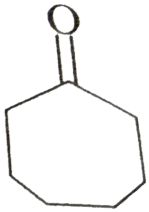
1. The major product of the reaction:



A. (a) 

B. (b) 

C. (c) 

(d) 

D.

Answer: D

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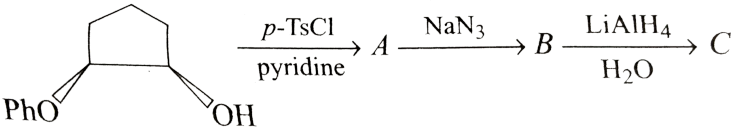
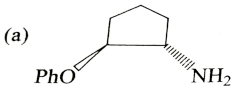
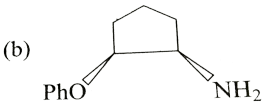
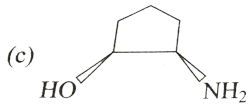
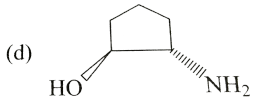
2. The end product of the following reaction is:



A. 

B. 

C. 

D. 

Answer: A

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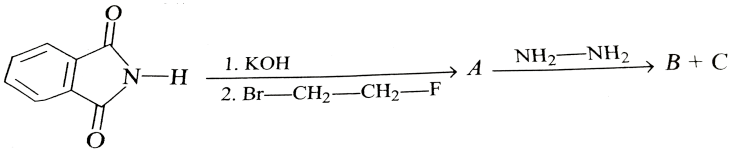
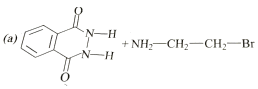
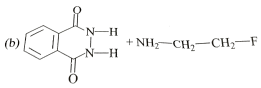
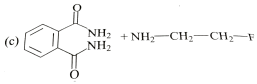
3. Consider the following sequence of reactions:

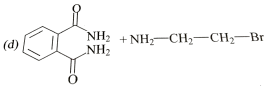


The products (B) and (C) are:

A. 

B. 

C. 

D. 

Answer: B

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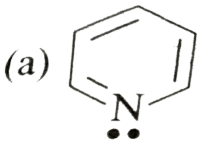
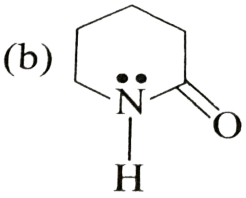
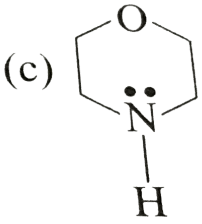
4. Which of the following compounds will react with cyclopentanone to form an enamine?

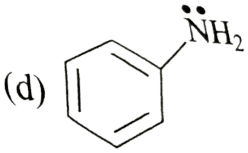
A. 

B. 

C.



D.



Answer: C

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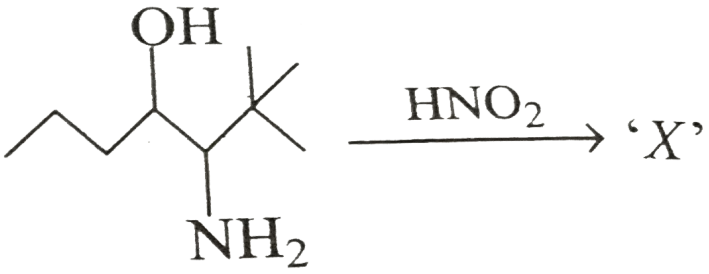
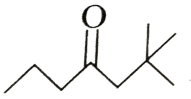
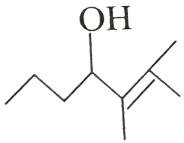
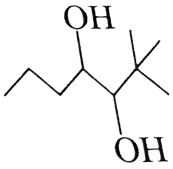
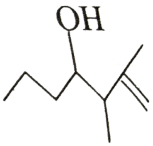
5. Predict the major product 'X' in the following reaction:



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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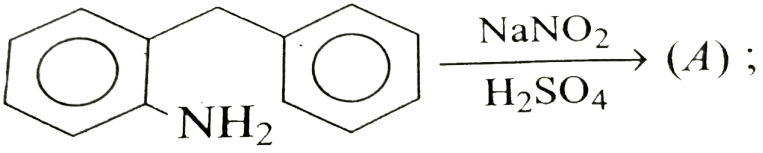
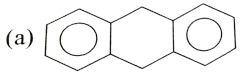
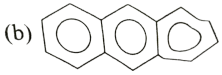
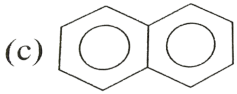
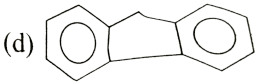
6. 

Product of this reaction is:

A. 

B. 

C. 

D. 

Answer: D

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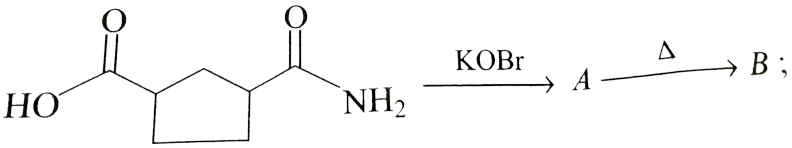
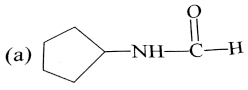
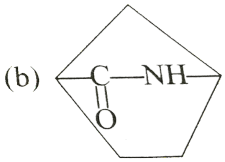
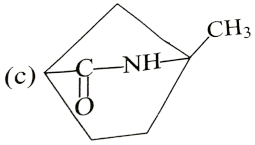
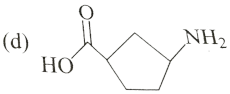
7. 

Compound B is :

A. 

B. 

C. 

D. 

Answer: B

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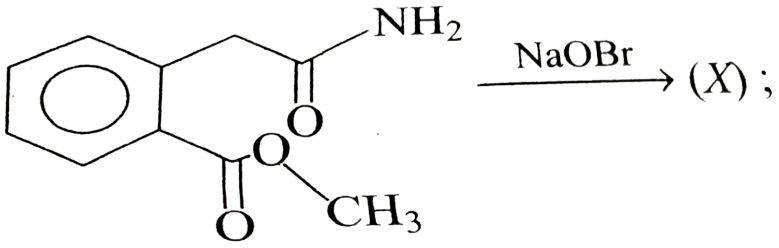
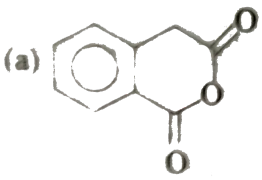
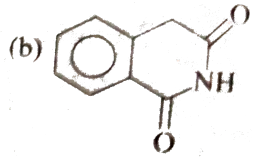
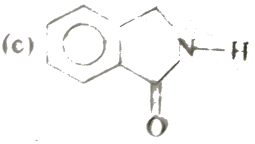
8. 

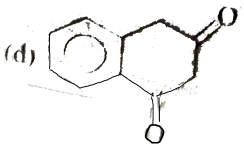
Product

(X) is :

A. 

B. 

C. 

D. 

Answer: C

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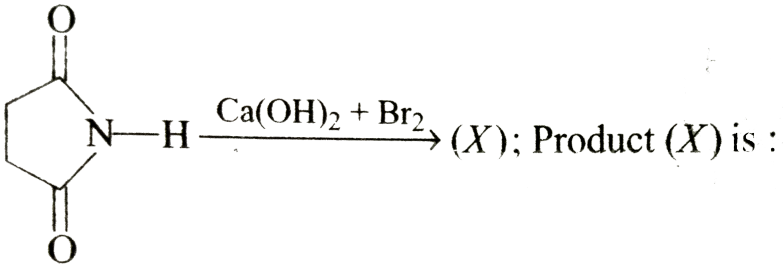
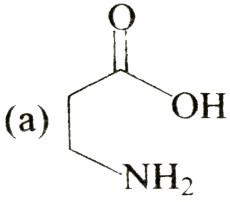
9. Find the final product of the reaction



A.



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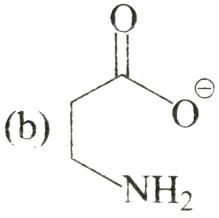

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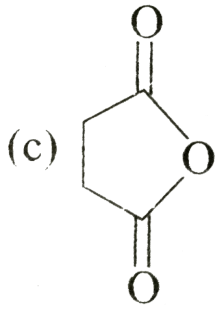

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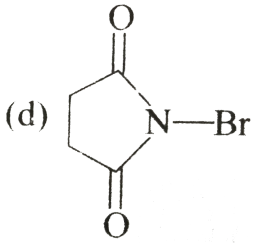

Answer: B

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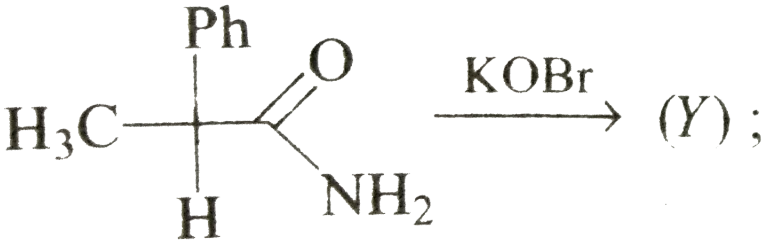
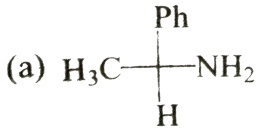
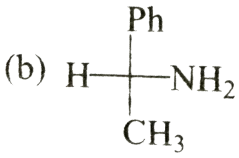
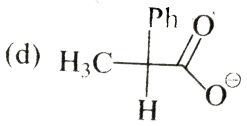
10.  Product

(Y) of the reaction:

A. 

B. 

C. Mixture of (a) and (b)

D. 

Answer: A

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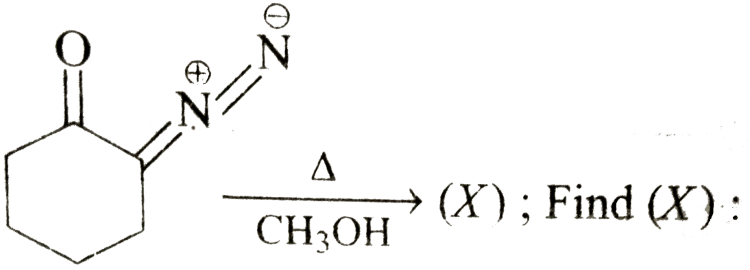
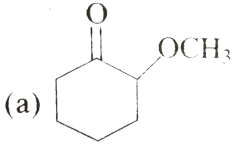
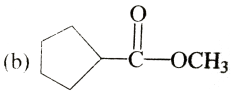
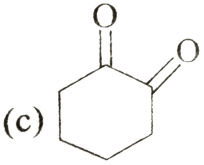
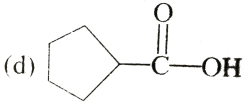
11. Complete the following reaction



A. 

B. 

C. 

D. 

Answer: B

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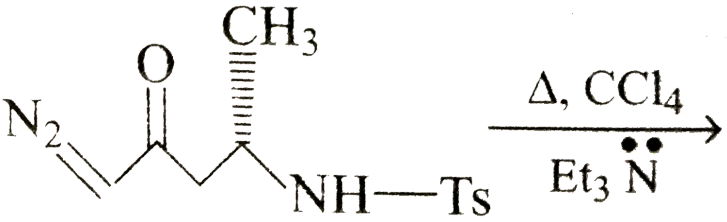
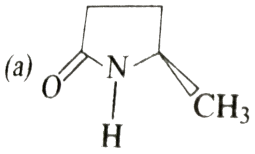
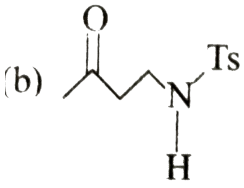
12. Predict the product of following reaction:



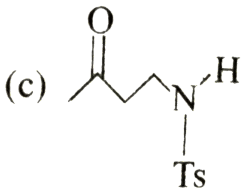
A.



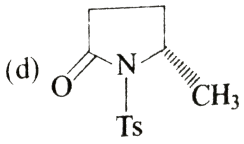
B.



C.



D.



Answer: D

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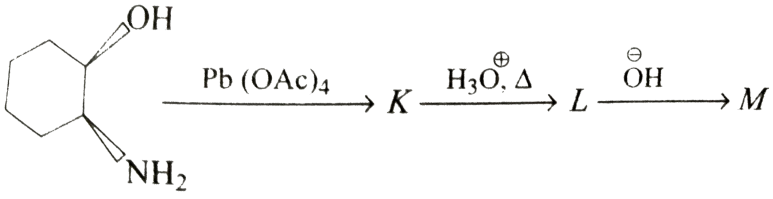
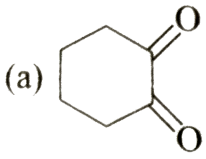
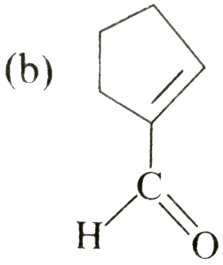
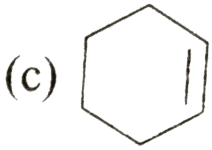
13.

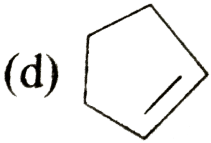


The product M is:

A. 

B. 

C. 

D. 

Answer: B

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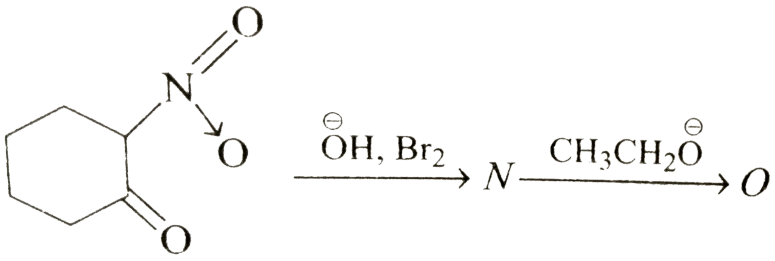
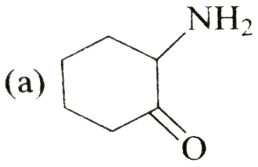
14.

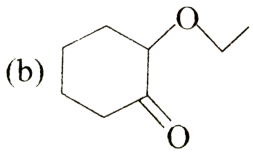


Final product 'O' is:

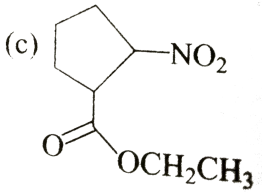
A.



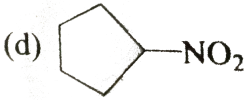
B.



C.



D.



Answer: C

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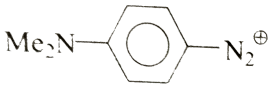
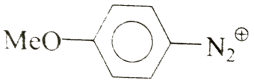
15. Consider the following diazonium ion:

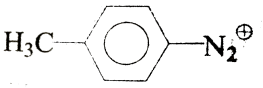


'P'

'Q'



'R'



'S'

The order of reactivity towards diazo coupling with phenol in presence of dil. NaOH:

A. $P > Q > R > S$

B. $Q > S > R > P$

C. $P > R > S > Q$

D. $S > R > Q > P$

Answer: B

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16. Reaction I $Ph - \overset{\overset{O}{||}}{C} - NH_2 \xrightarrow{\overset{\Theta}{O}D, Br_2} A$

Reaction II $Ph - \overset{\overset{O}{||}}{C} - ND_2 \xrightarrow{\overset{\Theta}{O}H, Br_2} B$

Products A and B are:

A. $Ph - NH_2$ and $Ph - ND_2$

B. $Ph - ND_2$ and $Ph - NH_2$

C. Both $Ph - NH_2$

D. Both $Ph - ND_2$

Answer: B

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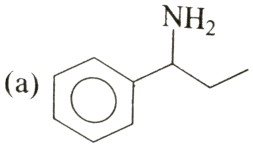
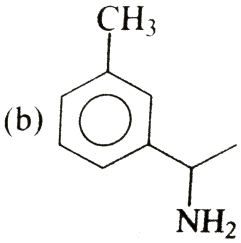
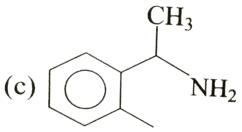
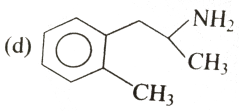
17. An organic compound (A) $C_9H_{13}N$ dissolves in dil. HCI and releases N_2 with HNO_2 giving an optically active alcohol. Alcohol ox oxidation gives dicarboxylic acid, which on heating form anhydride. The organic compound 'A' is:

A. 

B. 

C. 

D. 

Answer: C

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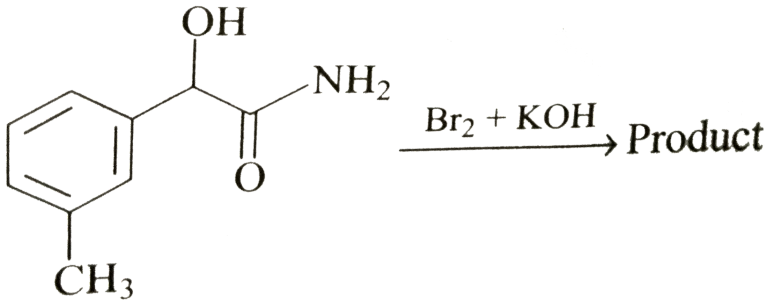
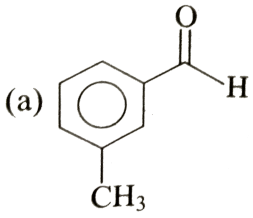
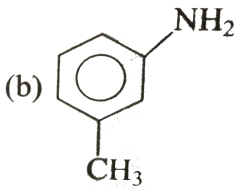
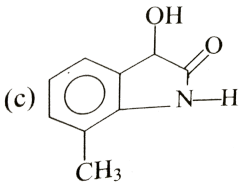
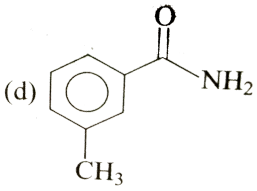
18. 

The final product is:

A. 

B. 

C. 

D. 

Answer: A

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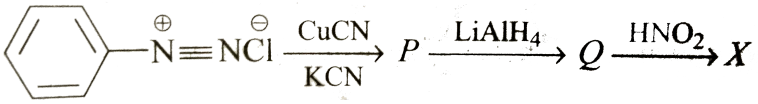
19. Identify 'X' in the following sequence of reaction:



A. Benzoic acid

B. Phenyl acetic acid

C. Benzyl alcohol

D. Benzamide

Answer: C

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20. Which sequence of steps will be able to produce 3,3'-dinitro-biphenyl from benzene?

A. $HNO_3 / H_2SO_4, CI_2 / FeCI_3, Na / \text{ether}$

B. $CI_2 / FeCI_3, HNO_3, H_2SO_4, Na / \text{ether}$

C. $CI_2 / FeCI_3, H_2SO_4, Na / \text{ether}$

D. $I_2 / HIO_3, CI_2 / FeCI_3, C_6H_5NO_2$

Answer: A

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21. $1^\circ, 2^\circ$ and 3° nitroalkane can be identified by action of:

A. $HNO_3 + NaOH$ (aq).

B. $CHCI_3 + NaOH$ (aq)

C. $HNO_2 + NaOH$ (aq)

D. $CHCI_3 + KOH$ (aq.)

Answer: C

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22. A compound 'X' when reacted with PCI_5 and then with NH_3 gives 'Y'. When 'Y' treated with Br_2 and KOH produced 'Z'. Z on treatement with $NaNO_2 + HCI$ at $0^\circ C$ and then boiling produced ortho-cresol. Compound 'X' is:

A. o-toluic acid

B. o-chlorotoluene

C. o-bromotoluene

D. m-toluic acid

Answer: A

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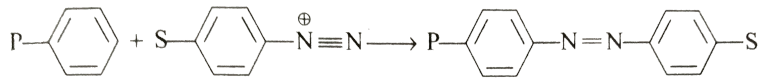
23.

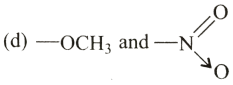


For such kind of diazo- coupling reaction the suitable substituents P and S are respectively:

A. $-NH_2$ and $-OCH_3$

B. $-NO_2$ and $-\overset{O}{\overset{||}{C}}-H$

C. $-NH_2$ and $-NHCH_3$

D. 

Answer: D

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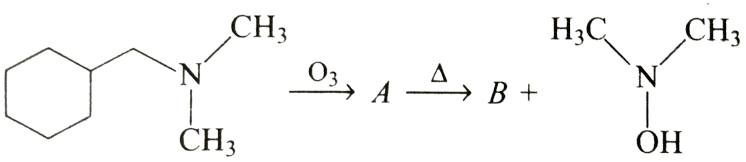
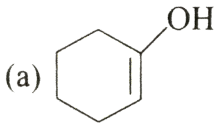
24.

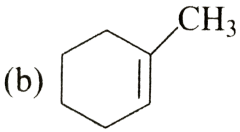


Identify 'B':

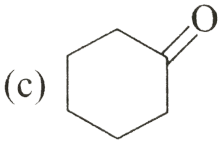
A.

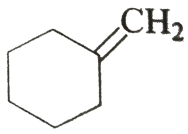


B.



C.



D. (d) 

Answer: D

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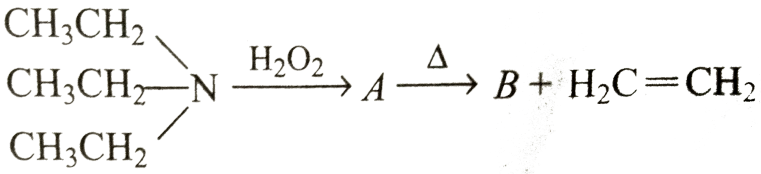
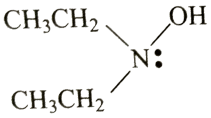
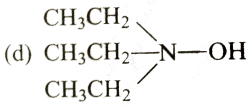
25. The final product B obtained in the reaction is:



A. (a) 

B. $(H_2C = CH)_2$

C. $H_3C - CH = CH - CH_2$

D. (d) 

Answer: A

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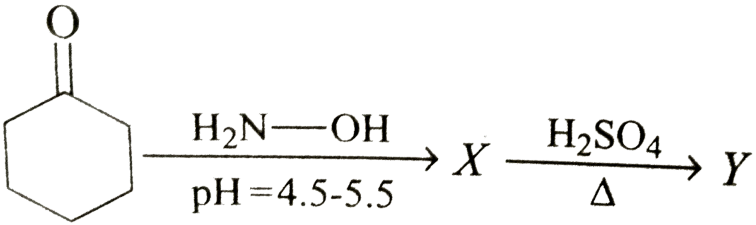
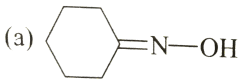
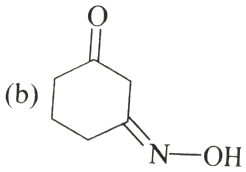
Level 2 (Q.76 To Q.89)

1. 

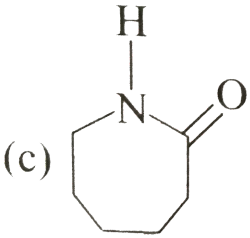
Find out Y of the reaction :

A. (a) 

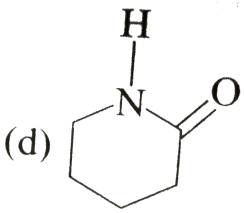
B.



C.



D.



Answer: C

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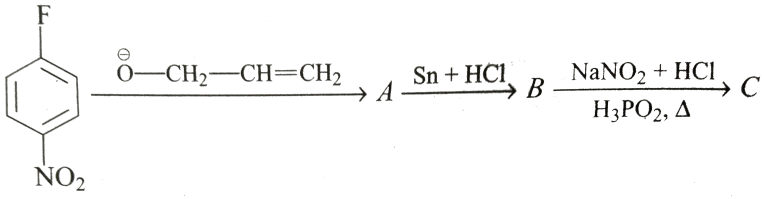
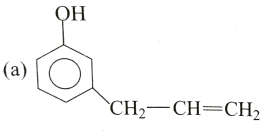
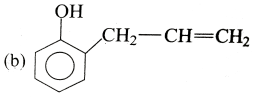
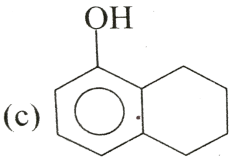
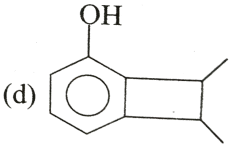
2. 

The compound C is:

A. 

B. 

C. 

D. 

Answer: B

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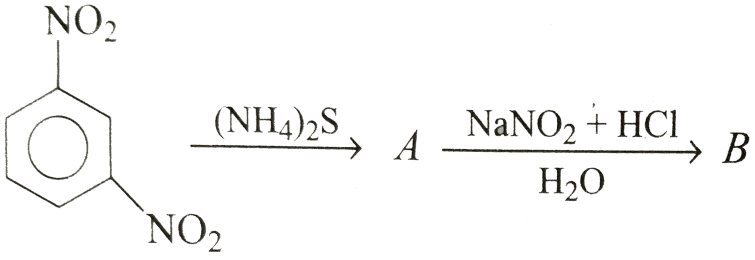
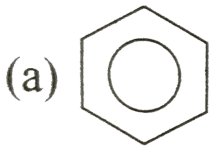
3.

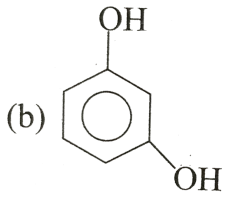


The compound B is:

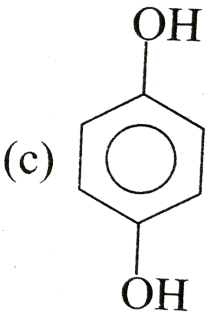
A.

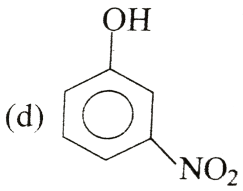


B.



C.



(d) 

D.

Answer: D

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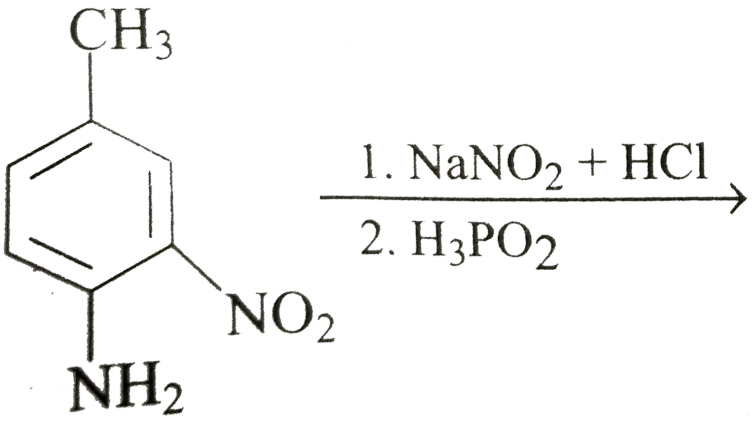
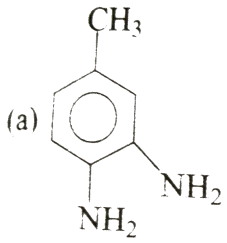
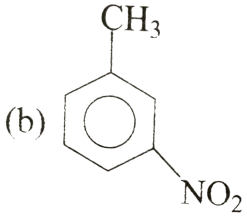
4. 

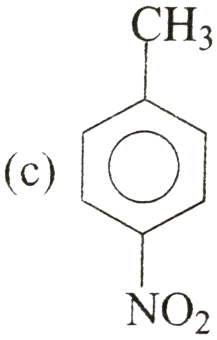
A.



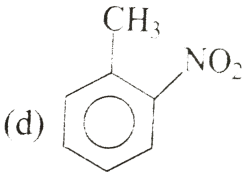
B.



C.



D.



Answer: B

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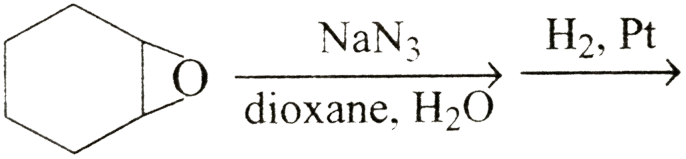
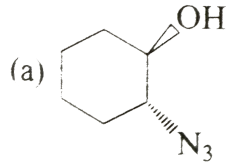
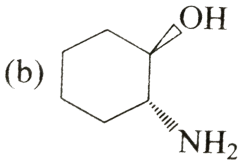
5. Identify the final product of following reaction:



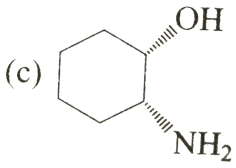
A.



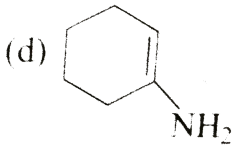
B.



C.



D.



Answer: B

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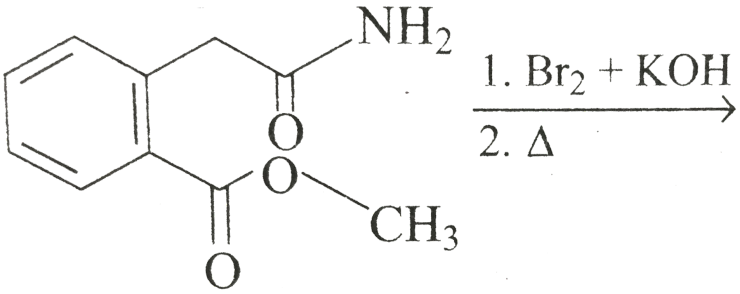
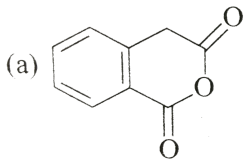
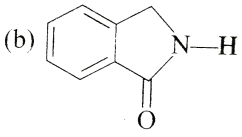
6. Consider the following sequence of reaction:

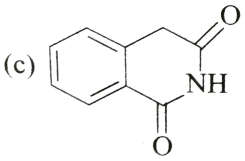


The final product is:

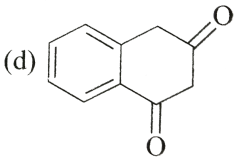
A. 

B. 

C.



D.



Answer: B

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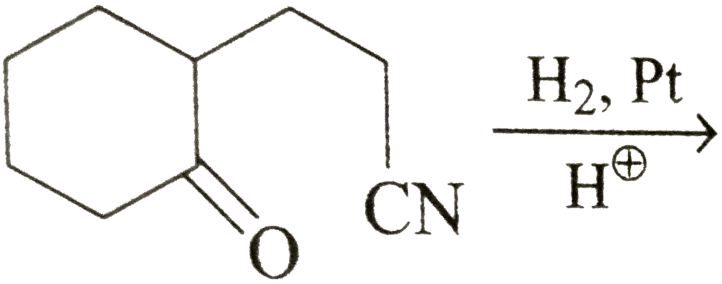
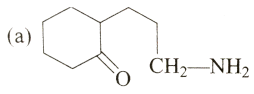
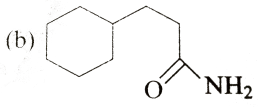
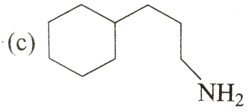
7.

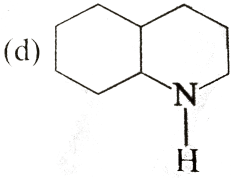


The product can be given as:

A. 

B. 

C. 

D. 

Answer: D

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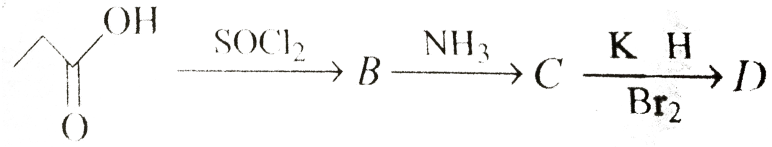
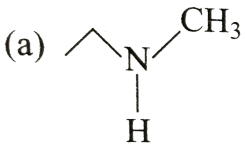
8. In a set of reactions acid yielded a compound D.

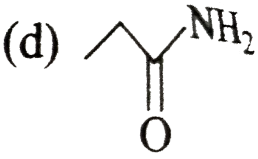


The strucuture of D would be :

A. 

B. 

C. 

D. 

Answer: B

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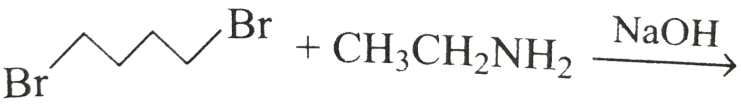
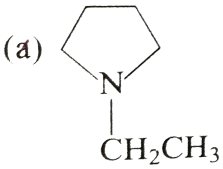
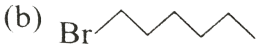
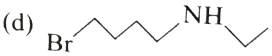
9. What would be the final product of reaction?



A. 

B. 

C. 

D. 

Answer: A

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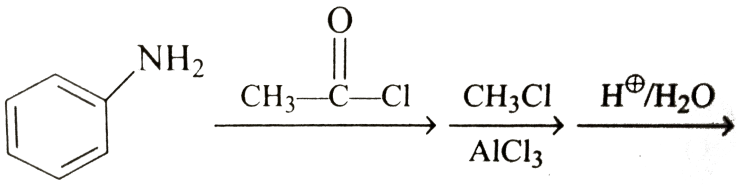
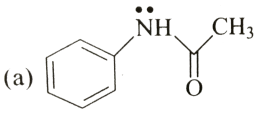
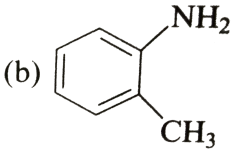
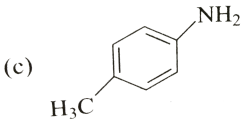
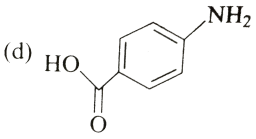
10. Identify major product of following sequence of reaction:



A. 

B. 

C. 

D. 

Answer: C

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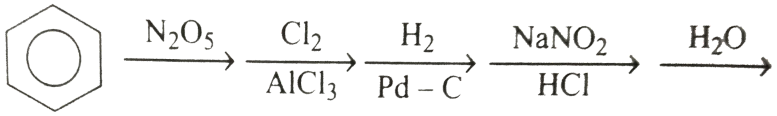
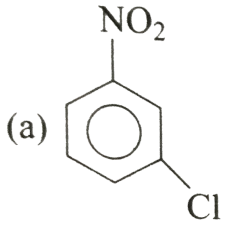
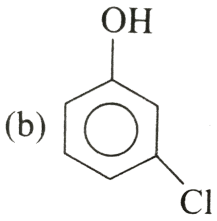
11. Identify the final producy of following sequence of reaction:



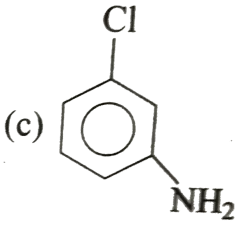
A.



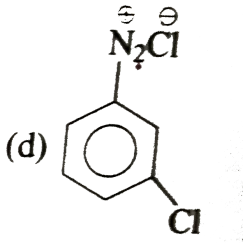
B.



C.



D.



Answer: B

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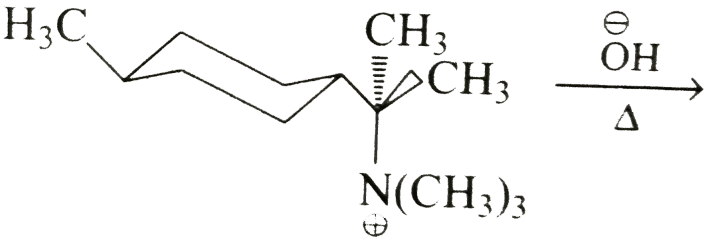
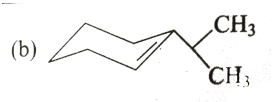
12. Identify the major product of following reaction:



A.

B.



C. 

D. none of these

Answer: C

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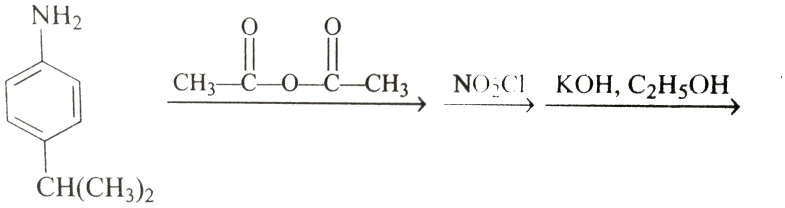
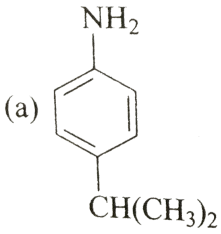
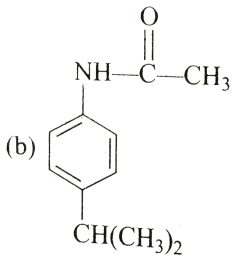
13. Identify final product of following sequence of reaction:

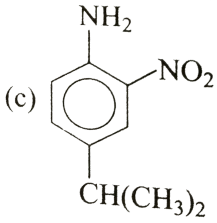


A. 

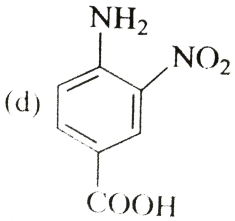
B.



C.



D.



Answer: C

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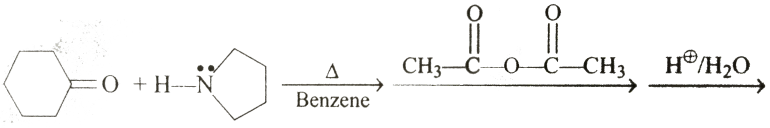
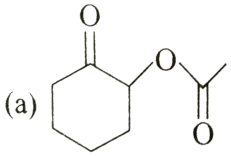
14. What is the product of following reaction sequence?



A.



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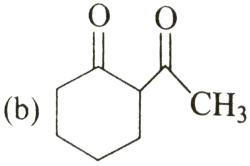

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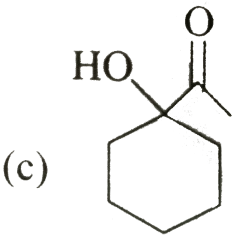
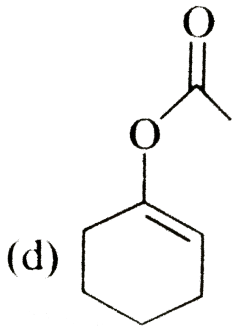


D. 

Answer: B

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More Than One Correct (Q.1 To Q.25)

1. The presence of primary amine can be confirmed by its reaction with:

A. HNO_2

B. $CHCI_3 + NaOH$

C. CS_2 and $HgCI_2$

D. H_2SO_4

Answer: A::B::C

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2. Which of the following reactions can be used to make ethyl isocyanide?

A. $CH_3CH_2NH_2 + CHCI_3 \xrightarrow[\Delta]{KOH}$

B. $CH_3CH_2Br + AgCN \rightarrow$

C. $CH_3CH_2 - NH - \underset{\underset{O}{||}}{C} - H \xrightarrow{POCI_3}$

D. $CH_3CH_2Br + KCN \rightarrow$

Answer: A::B::C

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3. By which of the following reactions can methylcyanide be prepared?

A. $CH_3Br \xrightarrow[DMF]{KCN}$

B. $CH_3NH_2 + CHCI_3 \xrightarrow{KOH}$

C. $CH_3 - CH = N - OH \xrightarrow[\Delta]{P_2O_5}$

D. $CH_3 - \overset{\overset{O}{||}}{C} - NH_2 \xrightarrow[\Delta]{P_4O_{10}}$

Answer: A::C::D

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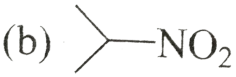
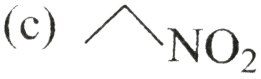
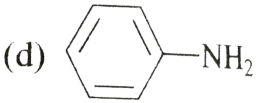
4. Which of the following compounds react with HNO_2?

A. 

B. 

C. 

D. 

Answer: B::C::D

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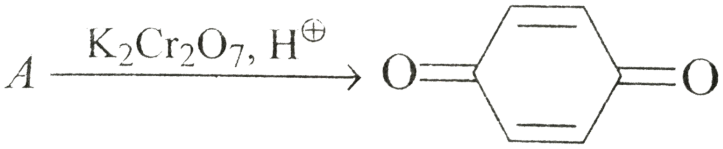
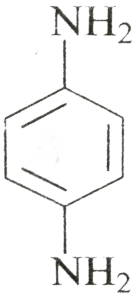
5. Consider the following reaction:



The staring substance 'A' can be:

(a)

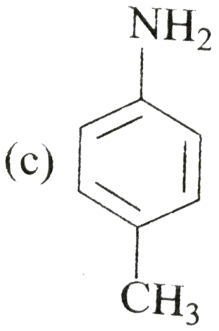


A.

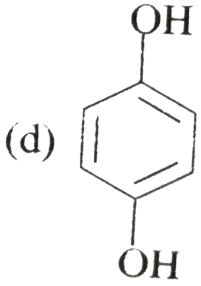
(b)

B.

C.



D.



Answer: A::B::D

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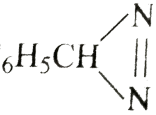
6. $C_6H_5 - CH_2 - I \xrightarrow[\Delta]{NaN_3}$ Products

Reaction is assumed to involve nitrene as intermediate, then various possible products are:

A. $C_6H_5CN_2NH_2$

B. $C_6H_5N = CH_2$

C. $C_6H_5CN = NH$

(d) C_6H_5CH 

D.

Answer: B::C

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7. Which of the following can give 1° amine?

A. $Ph - \overset{CH_3}{\underset{|}{C}}H - OH \xrightarrow{NaCN, H^\oplus}$

B. $Ph - CH = CH - \overset{O}{\underset{||}{C}} - NH_2 \xrightarrow[CH_3OH]{NaOCI}$

C. $Ph - C \equiv C - \overset{\overset{O}{||}}{C} - NH_2 \xrightarrow{NaOBr}$

D. $Ph - \overset{\overset{O}{||}}{C} - CI \xrightarrow[\Delta]{NaN_3} \xrightarrow{LiAIH_4}$

Answer: B::C::D

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8. Which of the following can distinguish?

$CH_3 - \overset{\overset{CH_3}{|}}{CH} - NH_2$ and $CH_3 - \overset{\overset{H}{|}}{N} - CH_3$

A. $(COOC_2H_5)_2$

B. $NaNO_2 + HCI$

C. $Cs_2, HgCI_2$

D. Ag_2O / Δ

Answer: A::B::C

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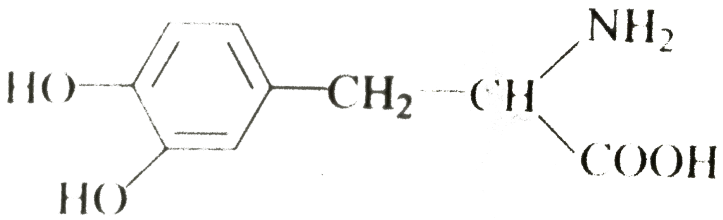
9. Dopamine is a drug used in the treatment of Parkinson's disease:



Which of the following statements about this compound are correct?

A. It can exist only in optically active forms

B. One mole will react with 3 mole of $NaOH$ to form a salt

C. It can exist as a zwitter ion in the aqueous solution

D. It given nitroso compound on treatement with

HNO_2

Answer: A::B::C

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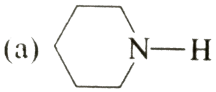
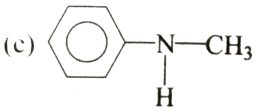
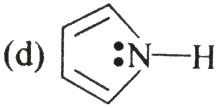
10. Which of the following give nitrosonamine on treatment with HNO_2?

A. 

B. $H_3C - \underset{\underset{CH_3}{|}}{CH} - CH_2 - NH_2$

C. 

D. 

Answer: A::C

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11. Which of the following sequence of reagent is the good mean to furnish the conversion?

$R - CH_2OH \rightarrow R - CH_2NH_2$

A. $KMnO_4, SOCI_2, NH_3, \Delta, NaOBr$

B. $SOCI_2, NaCN, H_2 / Ni$

C. CrO_3 in dilute acetone, NH_3, H_2, Ni

D. $Cu, 300^{\circ} C, NH_2, LiAiH_4$

Answer: A::B::C

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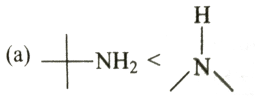
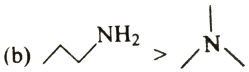
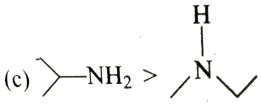
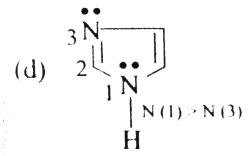
12. Choose the correct comparisons of basicity:

A. 

B. 

C. 

D. 

Answer: A::B::C

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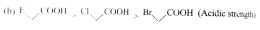
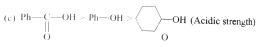
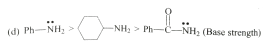
13. Which of the following arrangements are correct with respect to the property of the compounds indicated in the parentheses?

A. $HCOOH > CH_3COOH > CH_3CH_2COOH$

(Acidic strength)

B. 

C. 

D. 

Answer: A::B::C

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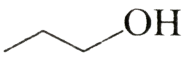
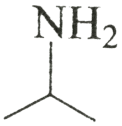
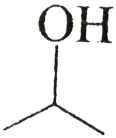
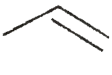
14. Which of the following products are formed when 1-propanamine is treated with $NaNO_2 + HCI$?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A::C::D

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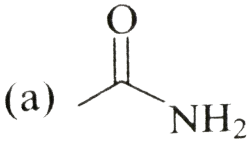
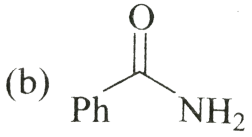
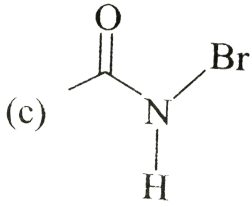
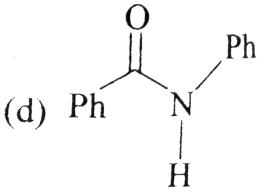
15. Which of the following will give Hofmann-Bromoamide reaction?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A::B::C

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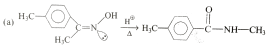
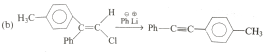
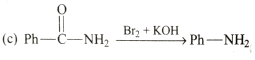
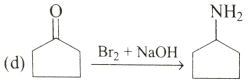
16. Which of the following reactions represent major products?

A. 

B. 

C. 

D. 

Answer: A::B::C

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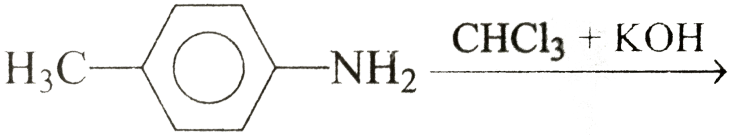
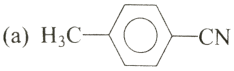
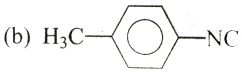
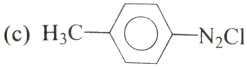
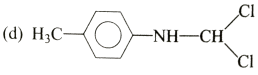
17. Which of the following products will not form by following reaction?



A. 

B. 

C. 

D. 

Answer: A::C::D

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18.

$$Ph - \overset{O}{\overset{||}{C}} - NH_2 + Ph - CH_2 - \overset{O}{\overset{||}{C}} - \overset{15}{N}H_2 \xrightarrow{\overset{\Theta}{O}H + Br_2} A + B$$

Products A and B are:

A. $Ph - NH_2$

B. $Ph - CH_2\overset{15}{N}H_2$

C. $Ph - CH_2 - NH_2$

D. $Ph - \overset{15}{N}H_2$

Answer: A::B

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19. Reaction involves isocyanate as intermediate porudct:

A. Curtius rearrangement

B. Lossen rearrangement

C. Schmidt rearrangemnt

D. Hofmann rearrangement

Answer: A::B::C::D

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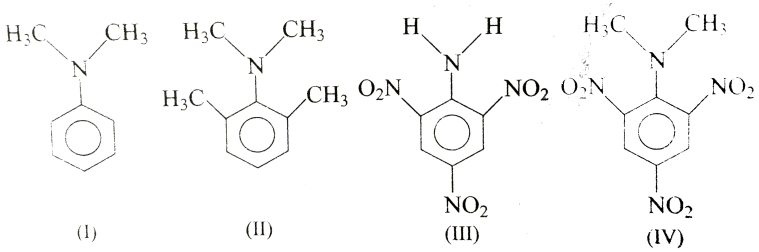
20. Consider the structures:



Which of the following statements are correct?

A. Basic stength of II is greater than I

B. Basic strength of II is less than that of I

C. Basic strength of IV is greater than III

D. Basic strength of IV is less than that of III

Answer: A::C

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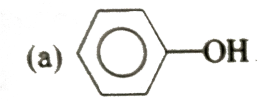
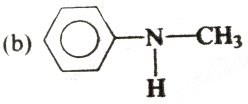
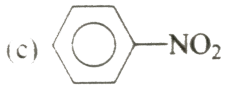
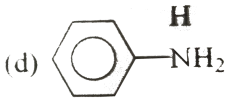
21. Which of the following give L Liebermann nitroso reaction?

A. 

B. 

C. 

D. 

Answer: A::B

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22. Which are related with Curtius rearrangement?

A. NaN_3

B. $R - NH_2$

C. $R - \overset{O}{\overset{||}{C}} - CI$

D. $R - \overset{O}{\overset{||}{C}} - OH$

Answer: A::B::C

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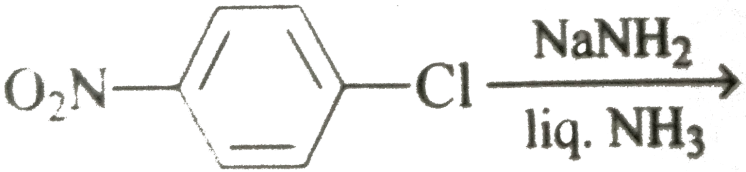
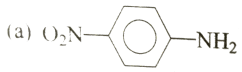


23.

The possible products are:

A.



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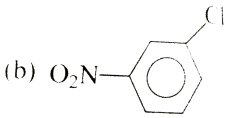

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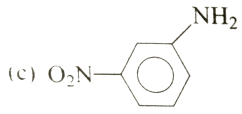
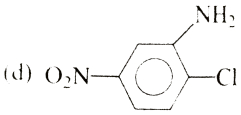


D.



Answer: A::C

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24. Which of the following give Schiff base with aldehyde?

A. $CH_3CH_2NH_2$

B. $C_6H_5 - CH_2 - NH_2$

C. $C_6H_5 - NH_2$

D. $C_6H_5 - NO_2$

Answer: A::B::C

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25. Which of the following give(s) aniline by reduction of nitrobenzene?

A. $H_2 / Pd - C$

B. $Sn + HCI$

C. $Cu + HCI$

D. $(NH_4)_2 S$

Answer: A::B::C::D

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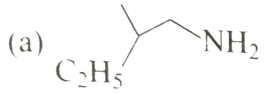
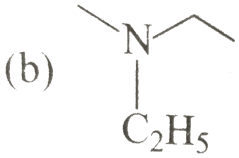
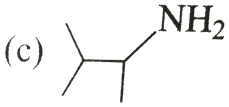
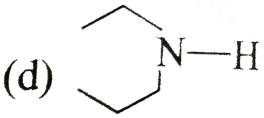
More Than One Correct (Q.26 To Q.30)

1. Optically active amine having molecular formula $C_5H_{13}N$ on reaction with $NaNO_2 + HCI$ produces, 3° optically inative alcohol. Find out structures of amines:

A. 

B. 

C. 

D. 

Answer: A::C

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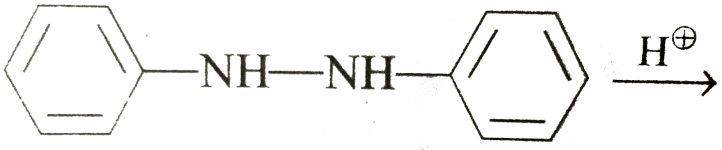
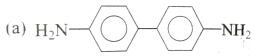
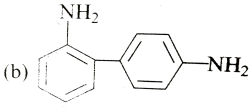
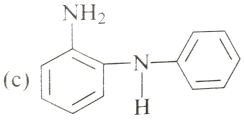
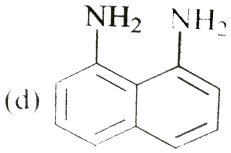
2. Find out products which are formed by the following reaction:



A. 

B. 

C. 

D. 

Answer: A::B

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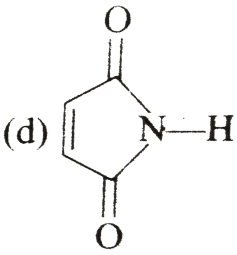
3. Which of the following is soluble in dil aqueous HCI?

A. $C_6H_5NH_2$

B. $C_6H_5CH_2NH_2$

C. $C_6H_5CONH_2$

D. 

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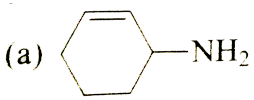
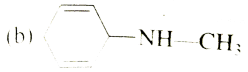
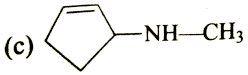
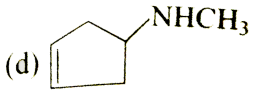
4. The structural form of a compound $A(C_6H_{11}N)$ is resolvable, dissolve in dil. HCI and reacts with HNO_3. Compound A could be:

A. 

B. 

C. 

D. 

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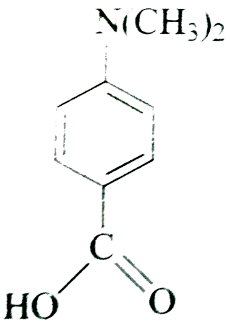
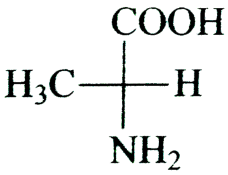
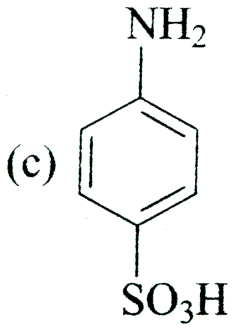
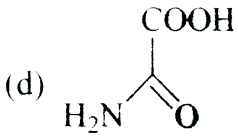
5. Which of the following basically exist as dipolar ion?

A. 

B. 

C. 

D. 

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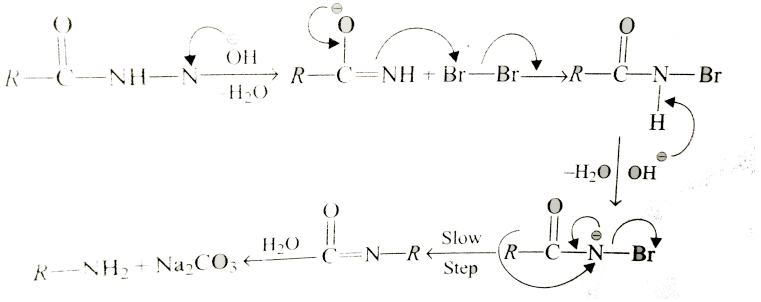
Linked Comprehension Type

1. The conversion of an amide by reaction $NaOH$ and Br_2 to primary amine that has one carbon than the strating amide is known as Hofmann-Bromoamide reaction.

$$R-\overset{\overset{O}{||}}{C}-NH_2 \xrightarrow[\text{or } NaOBr]{Br_2+NaOH} R-NH_2+NaBr+Na_2CO_3$$

Mechanism:



Number of moles of $NaOH$ consumed in above reaction:

A. 1

B. 2

C. 3

D. 4

Answer: D

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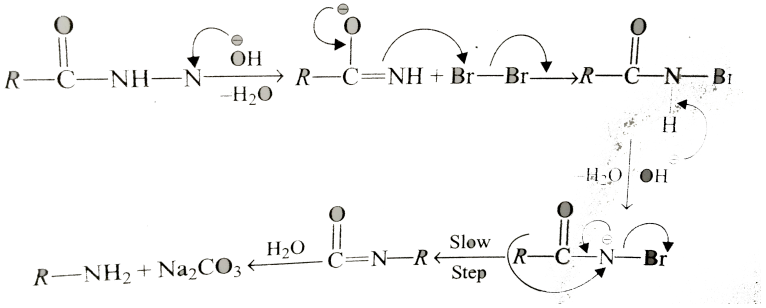
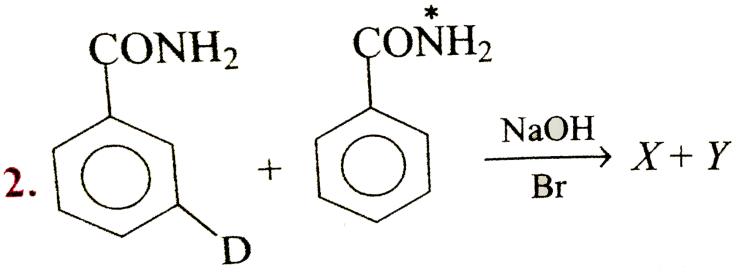
2. The conversion of an amide by reaction $NaOH$ and Br_2 to primary amine that has one carbon than the strating amide is known as Hofmann-Bromoamide reaction.

$$R-\overset{\overset{O}{||}}{C}-NH_2 \xrightarrow[\text{or } NaOBr]{Br_2+NaOH} R-NH_2+NaBr+Na_2CO_3$$

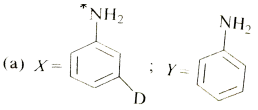
Mechanism:



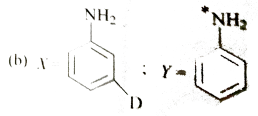


Find X and Y:

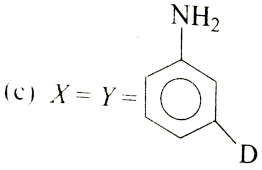
A.



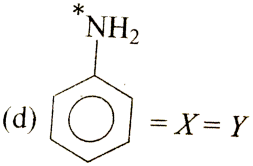
B.



C.



D.



Answer: B

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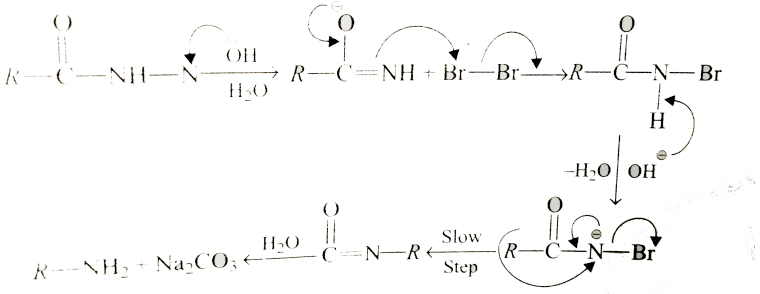
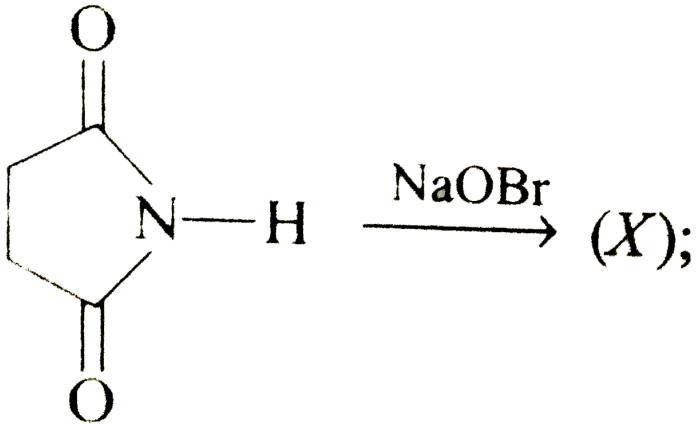
3. The conversion of an amide by reaction $NaOH$ and Br_2 to primary amine that has one carbon than the strating amide is known as Hofmann-Bromoamide reaction.

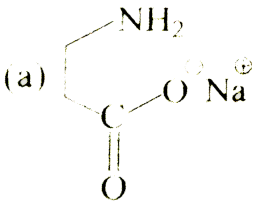
$$R-\overset{\overset{O}{||}}{C}-NH_2 \xrightarrow[\text{or } NaOBr]{Br_2+NaOH} R-NH_2+NaBr+Na_2CO_3$$

Mechanism:

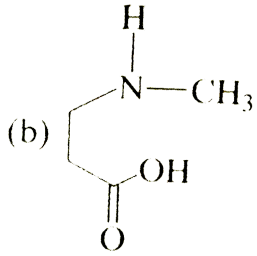


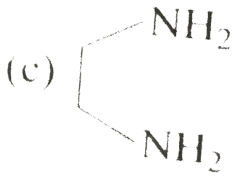


A.



B.



C. 

D. all of these

Answer: A

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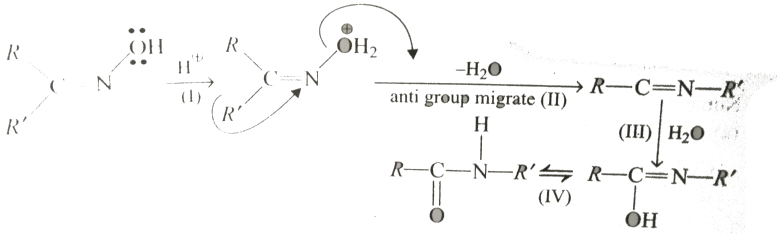
4. Ketoxime when heated with certain reagents undergoes rearrangement to form amides. This is known as Backmann's rearrangement.



Find out slowest step of the reaction:

A. I

B. II

C. III

D. IV

Answer: B

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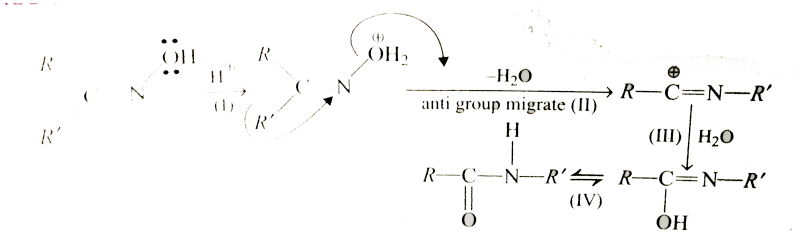
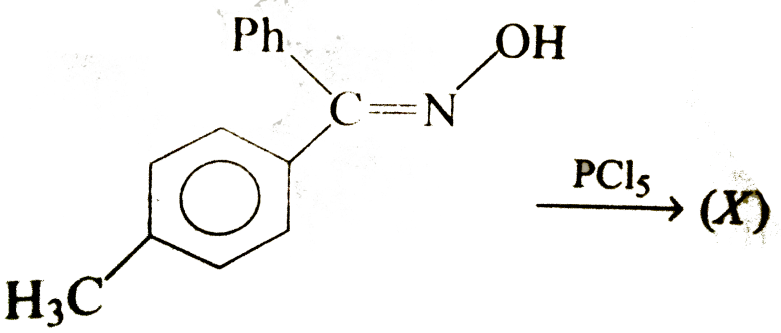
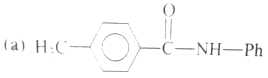
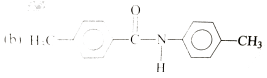
5. Ketoxime when heated with certain reagents undergoes rearrangement to form amides. This is known as Backmann's rearrangement.

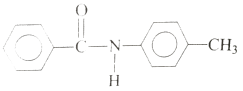




Find out (X):

A. 

B. 

C. 

D. $ph - \overset{O}{\overset{\|}{C}} - NH - Ph$

Answer: C

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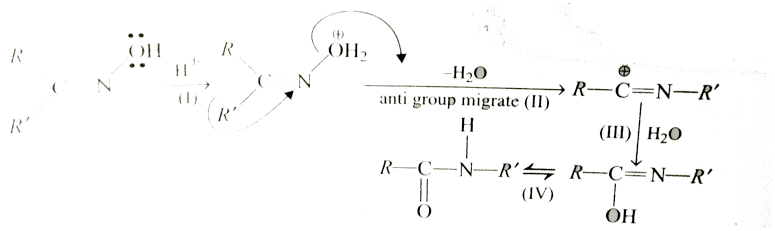
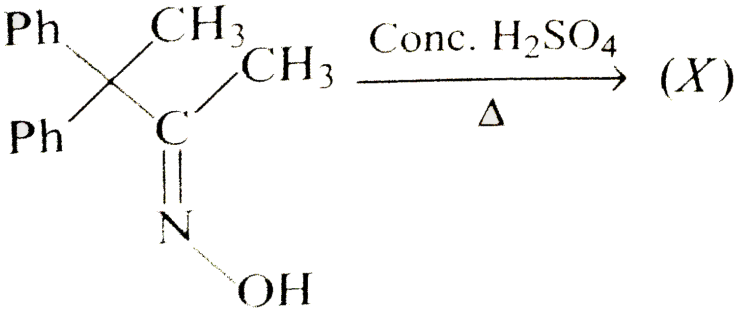
6. Ketoxime when heated with certain reagents undergoes rearrangement to form amides. This is known as Backmann's rearrangement.

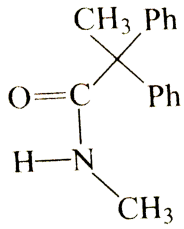




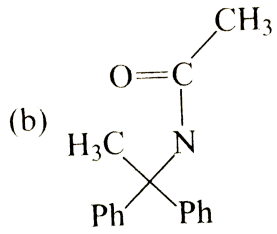
Find out (X) of the reaction:

A.

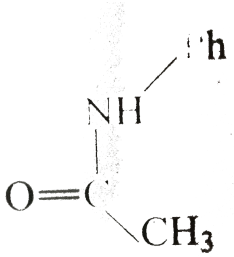
(a)



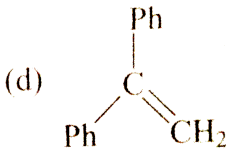
B.



C.



D.



Answer: D

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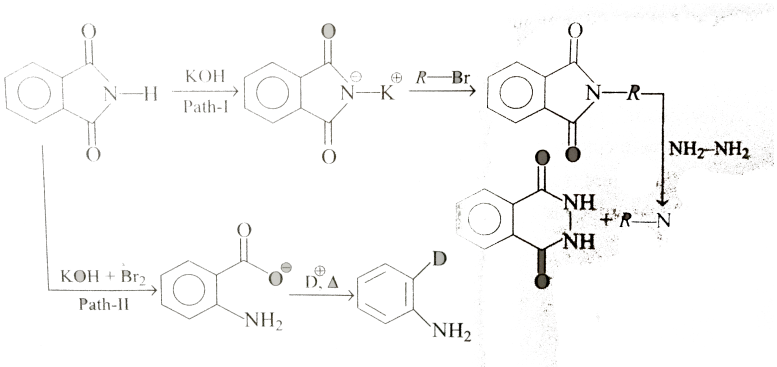
7.

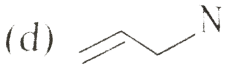


Which of the following amines cannot be prepared by path-I?

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

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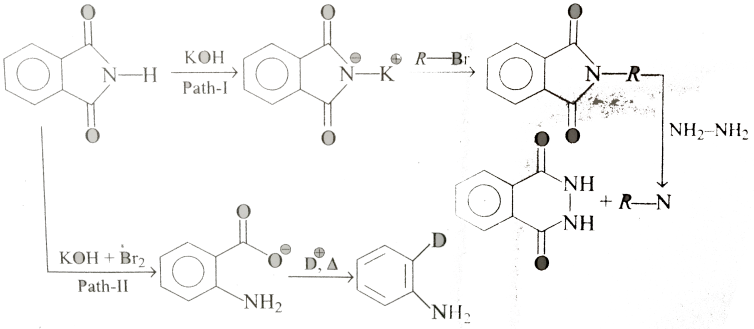
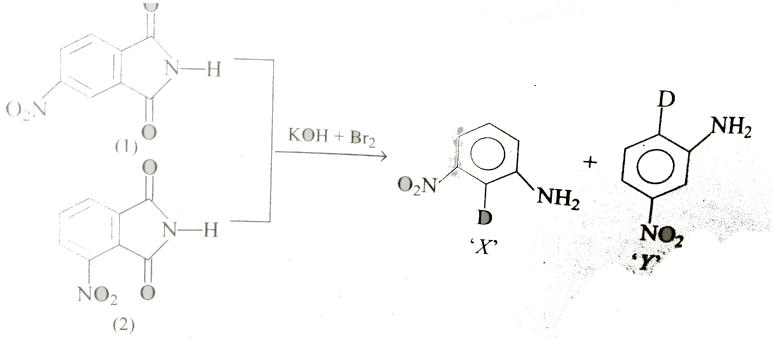


8.

Consider path II, choose the major product for 1 and 2:



A. $1 - Y, 2 - X$

B. $1 - X, 2 - Y$

C. $1 - X, 2 - X$

D. $1-Y, 2-Y$

Answer: A

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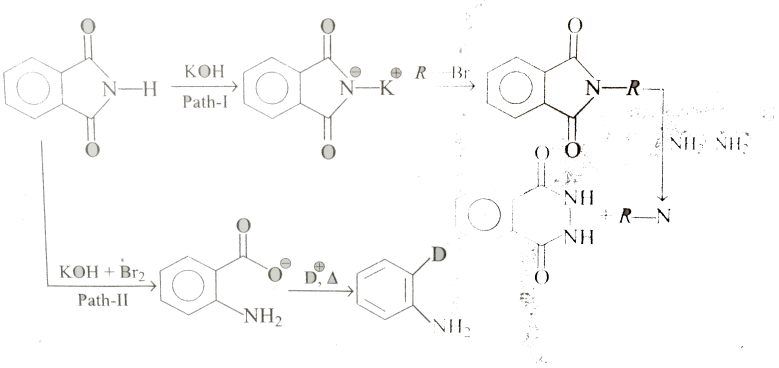
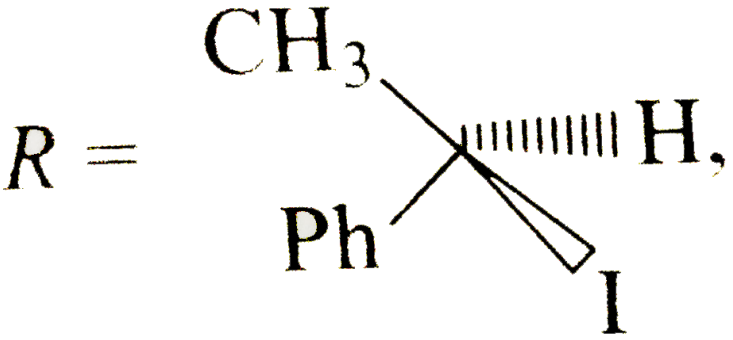
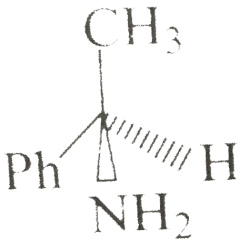
9.

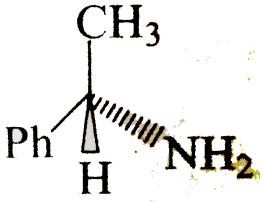


In the path I, if



then the amine finally formed is :

A.


B.


C. racemic mixture of a and b

D. none of these

Answer: B

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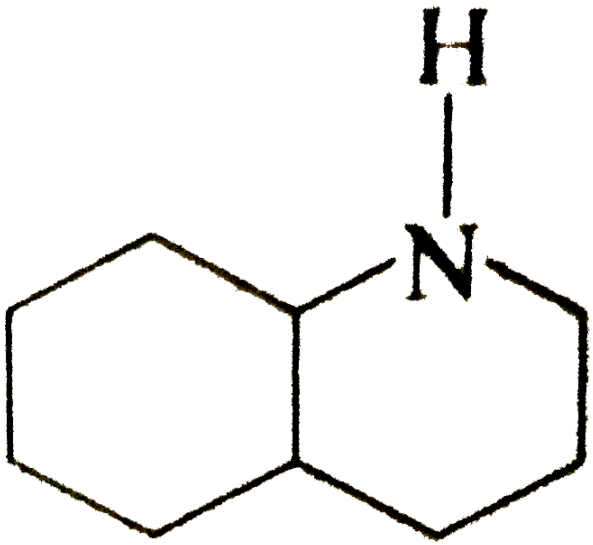
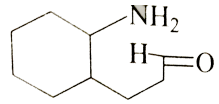
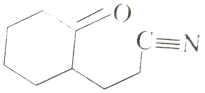
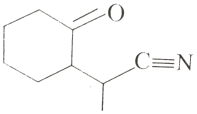
10. An organic compound 'A' has molecular formula $C_9H_{13}NO$ and it can be resolved into enatiomers. A does not decolourise bromine water solution. A on reflxing with dilute H_2SO_4 yields another resolable compound $B(C_9H_{14}O_3)$ which gives effervescence with $NaHCO_3$. B on treatemet with $NaBH_4$ yields $C(C_9H_{16}O_3)$ on heating with concentrated H_2O_4 yields ester $D(C_9H_{14}O_2)$. Compound A on reduction with $LiAIH_4$, followed by treatement of H_2SO_4 yields following compound:

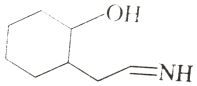


Find out structure of compound 'A' :

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

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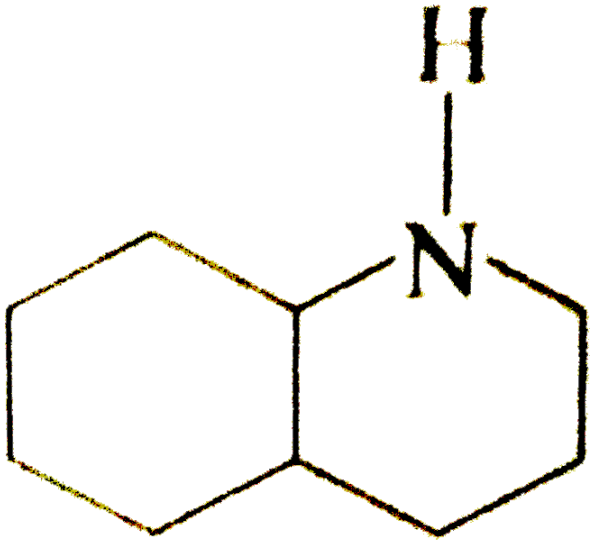
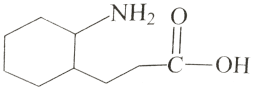
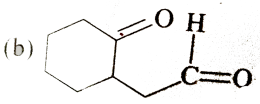
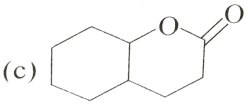
11. An organic compound 'A' has molecular formula $C_9H_{13}NO$ and it can be resolved into enatiomers. A does not decolourise bromine water solution. A on reflxing with dilute H_2SO_4 yields another resolable compound $B(C_9H_{14}O_3)$ which gives effervescence with $NaHCO_3$. B on treatemet with $NaBH_4$ yields $C(C_9H_{16}O_3)$ on heating with concentrated H_2O_4 yields ester $D(C_9H_{14}O_2)$. Compound A on reduction with $LiAIH_4$, followed by treatement of H_2SO_4 yields following compound:

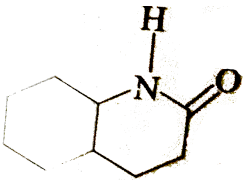


The sweet smelling neutral compound D is:

A. 

B. 

C. 

D. 

Answer: C

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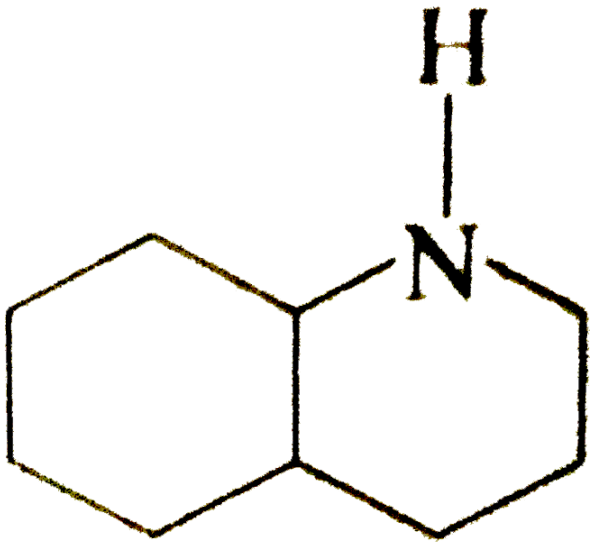
12. An organic compound 'A' has molecular formula $C_9H_{13}NO$ and it can be resolved into enatiomers. A does not decolourise bromine water solution. A on reflxing with dilute H_2SO_4 yields another resolable compound $B(C_9H_{14}O_3)$ which gives effervescence with $NaHCO_3$. B on treatemet with $NaBH_4$ yields $C(C_9H_{16}O_3)$ on heating with concentrated H_2O_4 yields ester $D(C_9H_{14}O_2)$. Compound A on reduction with $LiAIH_4$, followed by treatement of H_2SO_4 yields following compound:



Due to reduction of optically pure 'B' two isomeric product 'C' form. Isomeric product 'C' are:

A. Enantiomers

B. Diastereomers

C. Position isomers

D. Functional isomers

Answer: B

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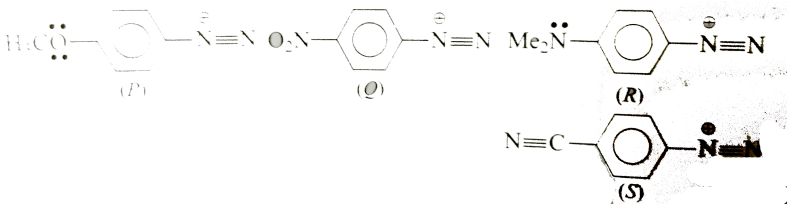
13. When an primary aromatic amine is treated with $NaNO_2 + HCI$ at $0^\circ - 5^\circ C$, a diazonium salt is formed and the reaction is called diazo reaction. In this reaction mineral acid must be added to prevent the coulping reaction of diazonium salt with excess of aryl amine. diazonium salt is highly in the synthesis of number of coloured dyes.

For the following diazonium ion the decreasing order of reactivity of these ion in azo-coupling reaction:



A. $Q > S > R > P$

B. $Q > S > P > R$

C. $P > Q > R > S$

D. $S > R > Q > P$

Answer: B

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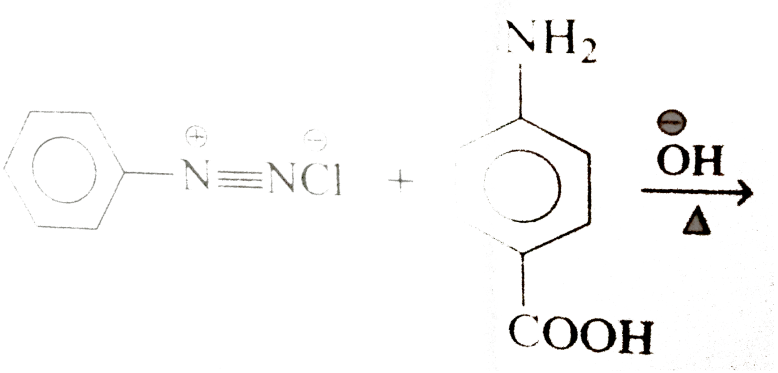
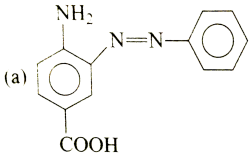
14. When an primary aromatic amine is treated with $NaNO_2 + HCI$ at $0^\circ - 5^\circ C$, a diazonium salt is formed and the reaction is called diazo reaction. In this reaction mineral acid must be added to prevent the coulping reaction of diazonium salt with excess of aryl amine. diazonium salt is highly in the synthesis of number of

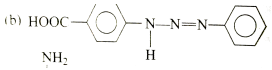
coloured dyes.

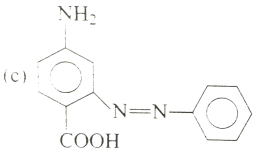
In the given reaction.

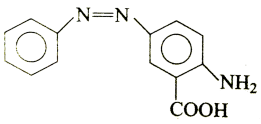


The final product is

A. 

B. 

C. 

D. 

Answer: A

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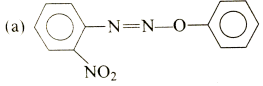
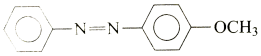
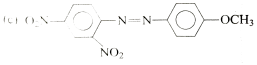
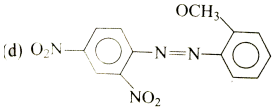
15. When an primary aromatic amine is treated with $NaNO_2 + HCI$ at $0^\circ - 5^\circ C$, a diazonium salt is formed and the reaction is called diazo reaction. In this reaction mineral acid must be added to prevent the coulping reaction of diazonium salt with excess of aryl amine. diazonium salt is highly in the synthesis of number of coloured dyes.

When 2,4-dinitrophenol react with $NaNO_2 + HCI$ at $5^\circ C$ followed by reaction with anisole, a coloured compound is formed which can be given as:

A. 

B. 

C. 

D. 

Answer: C

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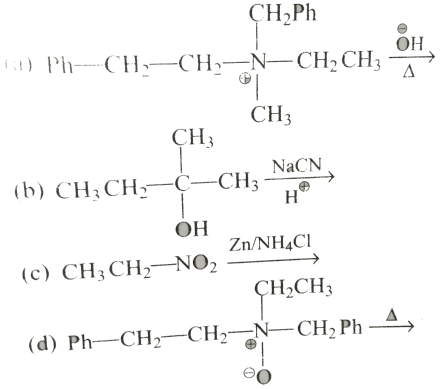
Match The Column

1. Match the following columns



(a) $Ph-CH_2-CH_2-\overset{\oplus}{N}(CH_2Ph)(CH_3)-CH_2CH_3 \xrightarrow[\Delta]{\ominus OH}$

(b) $CH_3CH_2-C(CH_3)(OH)-CH_3 \xrightarrow[H^{\oplus}]{NaCN}$

(c) $CH_3CH_2-NO_2 \xrightarrow{Zn/NH_4Cl}$

(d) $Ph-CH_2-CH_2-\overset{\oplus}{N}(CH_2CH_3)(CH_2Ph)-\overset{\ominus}{O} \xrightarrow{\Delta}$

P. Gives pungent smell on treatment with $CHCl_3$, $^{\ominus}OH$

Q. 3° amine

R. Gives positive Tollen's test

S. The amine which is not prepared by Hofmann ammonolysis process

T. Hydroxyl amine

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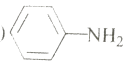
2. Match the following columns

(a) $CH_3CH_2CH_2NH_2$

(b) $CH_3CH_2-\underset{H}{N}-CH_3$

(c) $CH_3-\underset{CH_3}{N}-CH_3$

(d) 

P. Treatment of $NaNO_2$, HCl gives N-nitroso compound

Q. Treatment of $NaNO_2$, HCl gives diazoniumchloride

R. Treatment of excess CH_3I followed by AgOH and heat gives out alkene

S. Treatment of HCl gives dealkylation

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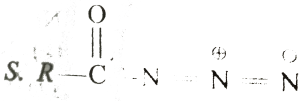
3. Match the following columns

	Column II
(a) Hofmann degradation	P. Aldehyde + 1° amine
(b) Curtius rearrangement	Q. Isocyanate
(c) Lossen rearrangement	R. $Br_2 + KOH$
(d) Hemiaminal	S. 

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4. Match the following columns

4. Column (I)

(a) $H_3C-\underset{\underset{CH_3}{|}}{CH}-OH$

(b) $H_3C-\overset{\overset{O}{||}}{C}-NH_2$

(c) $H_3C-N=C=O$

(d) $R-\overset{\oplus}{N}\equiv\overset{\ominus}{C}$

5. Column (I)

(a) $R-\overset{\overset{O}{||}}{C}-NH_2 \longrightarrow R-CH_2$

Column (II)

Q. Reduction gives 2° amine

R. Br_2, OH, gives bromoform

S. NaOBr gives 1° amine

T. Dehydration gives nitrile

Column (II)

P. Schmidt reaction

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5. Match the following columns

	Column (II)
(a) $R-\overset{O}{\overset{\|}{C}}-NH_2 \longrightarrow R-CH_2NH_2$	*P.* Schmidt reaction
(b) $R-\overset{O}{\overset{\|}{C}}-NH_2 \longrightarrow R-NH_2$	*Q.* P_2O_5
(c) $R-\overset{O}{\overset{\|}{C}}-NH_2 \longrightarrow R-CN$	*R.* Hofmann reaction
(d) $R-\overset{O}{\overset{\|}{C}}-N_3 \longrightarrow RNH_2$	*S.* $LiAlH_4$

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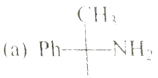
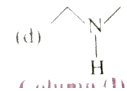
6. Match the following columns

(a) 	*P.* Treatment of CS_2, $HgCl_2$ gives out alkyl isothiocyanate
(b) 	*Q.* Treatment of $Ph-SO_2-Cl$ produces the compound insoluble in alkali
(c) 	*R.* Treatment of H_2O_2, Δ gives out alkene
(d) 	*S.* Treatment of CS_2 produces dithio carbamic acid

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7. Match the following columns

Column (I)	Column (II) (Distinguished by)
(a) $C_2H_5NH_2$ and $C_6H_5NH_2$	P. Carbylamine test
(b) $(C_2H_5)_3N$ and $(C_2H_5)_2NH$	Q. Azo dye test
(c) $C_2H_5NH_2$ and $(C_2H_5)_3N$	R. Hinsberg reagents
(d) $(C_2H_5)_3N$ and $C_6H_5NH_2$	S. Liebermann nitroso reaction

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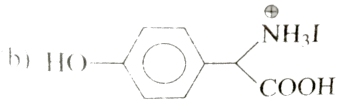
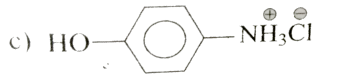
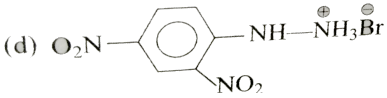
8. Match the following columns

Column (I)	Column (II)
(a) H_2N-NH_3Cl	P. Na extract of compound gives prussian blue colour with $FeSO_4$
(b) 	Q. Positive $FeCl_3$ test
(c) 	R. White ppt. with $AgNO_3$
(d) 	S. React with aldehyde to form the corresponding hydrazone derivative

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9. Match the following columns

Column (I)	Column (II)
(a) $C_2H_5—NH_2$	P. Reaction with $NaNO_2 + HCl$
(b) $(C_2H_5)_2NH$	Q. Reaction with $CHCl_3 + KOH$
(c) $(C_2H_5)_3N$	R. Formation of N-nitroso derivative with HNO_2
(d) $C_6H_5NH_2$	S. Formation of triethyl ammonium nitroso with HNO_2

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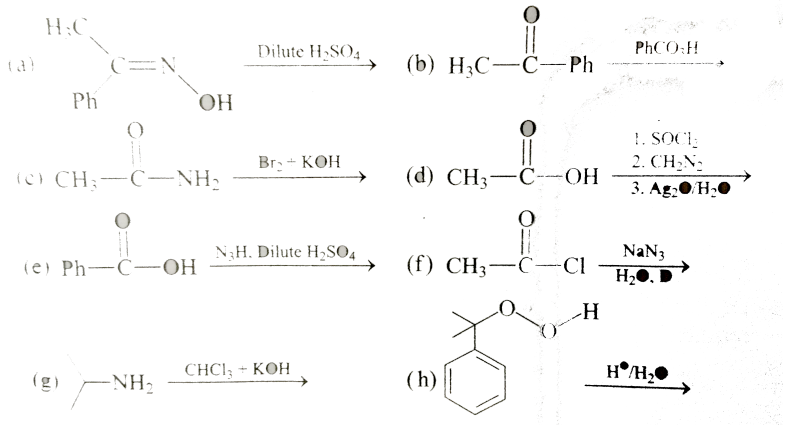
Integer Answer Type Problems

1. Find out number of reaction which involve electron deficient nitrogen during reaction mechanism.



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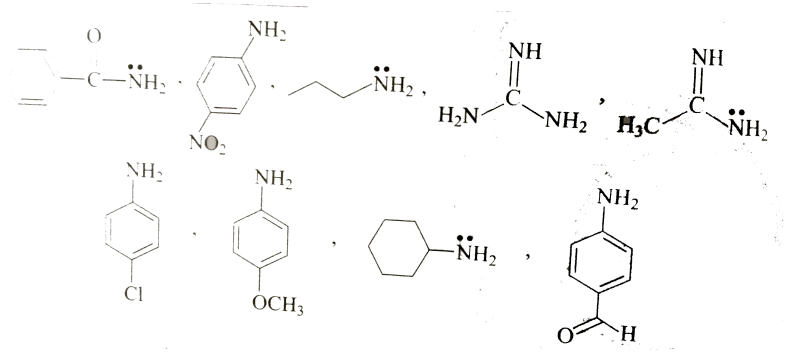
2. Examine the structal formules of following compounds and identify how many compounds are more basic than aniline.



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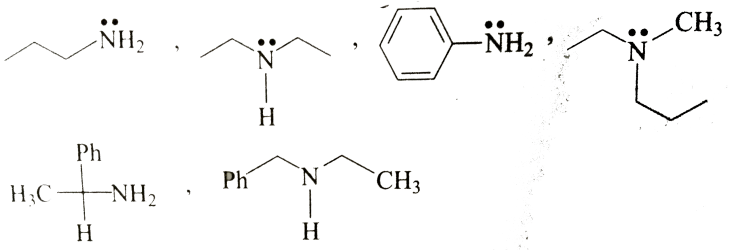
3. Of the following amines how many can give carbyl amine reaction?



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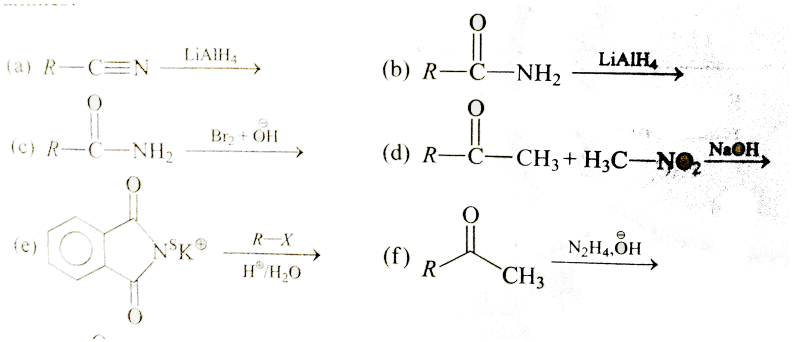
4. Of the following reactions, how many reaction, are used for the preparation of amines?

(a) $R-C\equiv N \xrightarrow{LiAIh_4}$ (b) $R-\overset{\overset{O}{||}}{C}-NH_2 \xrightarrow{LiAIH_4}$

(c) $R-\overset{\overset{O}{|}}{C}-NH_2 \xrightarrow{Br_2+\overset{\ominus}{O}H}$ (d)

$$R-\overset{\overset{O}{\|}}{C}-CH_3+H_3C-NO_2 \xrightarrow{NaOH}$$



(g) $R-\overset{\overset{O}{\|}}{C}-NH_2 \xrightarrow[D]{P_2O_5}$ (h) $R-CH_2-NO_2 \xrightarrow{H_2, Ni}$

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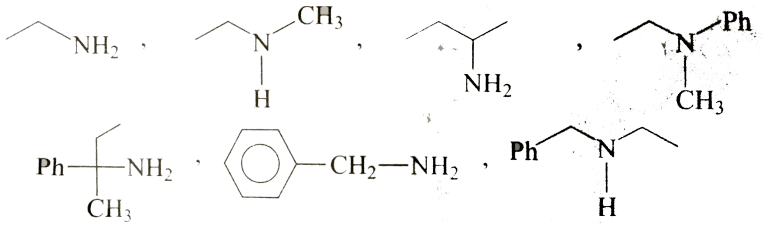
5. Of the following amines how many can be separately by Hofmann's mustard oil reaction?



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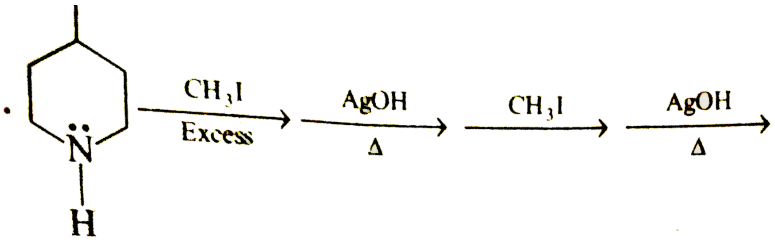
Subjective Type Problems

1. Find out finla products of following reactions:



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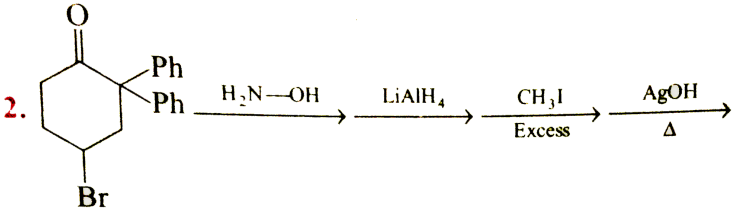
2. Match the following columns



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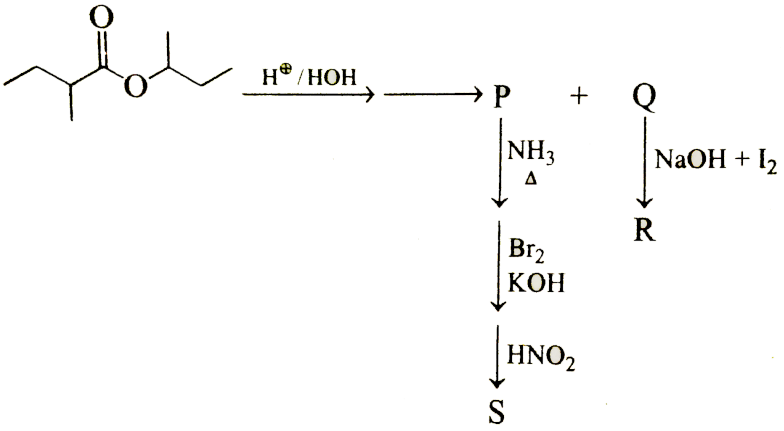
3. Match the following columns



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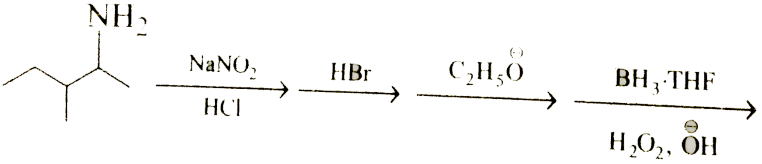
4. Match the following columns



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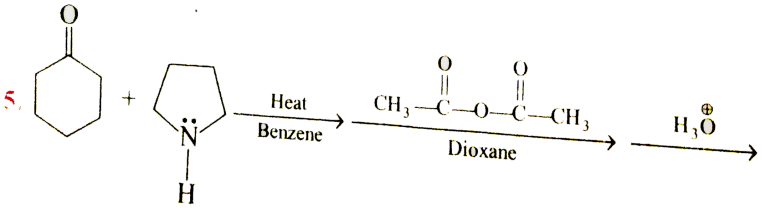
5. Match the following columns



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