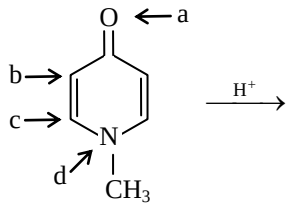
1. Treatment of ammonia with excess of ethyl chloride will yield
(a) Diethyl amine (b) Ethane
(c) Tetraethylammonium chloride (d) Methyl amine

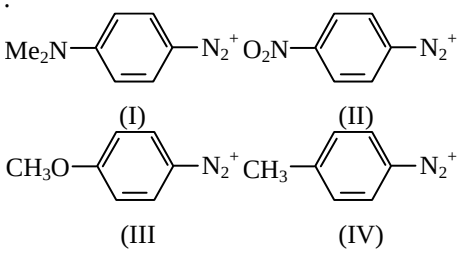
2. A nitrogen containing compound on heating with $CHCl_3$ and alc.KOH evolved very bad smelling vapurs. The compound is
(a) Nitrobenzene (b) Benzamide
(c) N,N-Dimethyl aniline (d) Aniline

3. In the molecule



The correct ease of protonation follows order -
(a) d > b > c > a (b) a > d > b > c
(c) a > b > c > d (d) a > b > d > c

4. Consider the following diazonium ions :



The order of reactivity towards diazo-coupling with phenol in the presence of dil. NaOH is -
(a) I < IV < II < III (b) I < III < IV < II
(c) III < I < II < IV (d) III < I < IV < II

5. Starting from propanoic acid, the following reactions were carried out

$$\text{Propanoic acid} \xrightarrow{SOCl_2} X \xrightarrow{NH_3} Y \xrightarrow{Br_2+KOH} Z$$

What is the compound Z

(a) CH_3-CH_2-Br

(b) $CH_3-CH_2-NH_2$

(c) $CH_3-CH_2-C(=O)-Br$

(d) $CH_3-CH_2-CH_2-NH_2$

6. $CH_3CONH_2 \xrightarrow{Na+ROH} Z + H_2O.$

What is Z ?

(a) $CH_3CH_2NH_2$ (b) CH_3CH_2NC
(c) $CH_3CH_2CH_3$ (d) NH_2CONH_2

7. Which of the following reacts with $NaNO_2 + HCl$ to give phenol

(a) $C_6H_5CH_2NHCH_3$ (b) $(CH_3)_2NH$
(c) CH_3NH_2 (d) $C_6H_5NH_2$

8. When aniline is treated with sodium nitrite and hydrochloric acid at 0^oC, it gives
(a) Phenol and N_2 (b) Diazonium salt
(c) Hydrazo compound (d) No reaction takes place

9. An organic amino compound reacts with aqueous nitrous acid at low temperature to produce an oily nitroso amine. The compound is :

(a) CH_3NH_2 (b) $CH_3CH_2NH_2$

(c) $CH_3CH_2NH.CH_2CH_3$ (d) $(CH_3CH_2)_3$

10. The alkyl cyanides are

(a) Acidic (b) Basic

(c) Neutral (d) Amphoteric

11. When acetamide is treated with HNO_2, the gas is evolved

(a) H_2 (b) O_2

(c) N_2 (d) CH_4

12. Which of following do not react with HNO_2

(a) Primary nitroalkanes (b) Secondary nitroalkanes

(c) Tertiary nitroalkanes (d) All of these

13. Hofmann's hypobromite reaction affords a method of

(a) Preparing a tertiary amine

(b) Preparing a mixture of amines

(c) Stepping down a series

(d) Stepping up a series

14. The end product of the reactions is

$$C_2H_5NH_2 \xrightarrow{HNO_2} A \xrightarrow{PCl_5} B \xrightarrow{H.NH_2} C$$

(a) Ethyl cyanide (b) Ethyl amine

(c) Methyl amine (d) Acetamide

15. Aniline on treatment with excess of bromine water gives

(a) Aniline bromide (b) *o*-bromoaniline

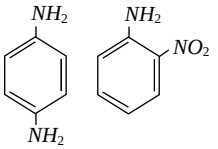
(c) *p*-bromoaniline (d) 2, 4, 6-tribromoaniline

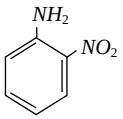
16. Which of the following is not used as an explosive

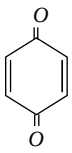
(a) Trinitrotoluene (b) Trinitrobenzene

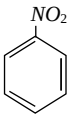
(c) Picric acid (d) Nitrobenzene

17. Aniline when treated with conc. HNO_3 gives

(a) 

(b) 

(c) 

(d) 

18. CH_3CN is known as acetonitrile because

(a) It contains an aceto group

(b) On hydrolysis it gives acetic acid
(c) Both (a) and (b)
(d) None of these

19. A mixture of benzene and aniline can be separated by
(a) Hot water (b) dil. *HCl*
(c) dil. *NaOH* (d) Alcohol

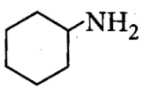
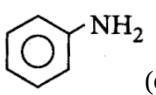
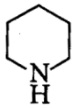
20. Reduction of methyl isocyanide gives
(a) Ethylamine (b) Methylamine
(c) Dimethylamine (d) Trimethylamine

21. Benzaldehyde condenses with *N*, *N*-dimethylaniline in presence of anhydrous $ZnCl_2$ to give
(a) Michler's ketone (b) Azo dye
(c) Malachite green (d) Buffer yellow

22. Aniline reacts with which of these to form Schiff base
(a) Acetic acid (b) Benzaldehyde
(c) Acetone (d) NH_3

23. The reduction of which of the following compound would yield secondary amine ?
(a) Alkyl nitrite
(b) Carbylamine
(c) Primary amine
(d) Secondary nitro compound

24. Choose the incorrect statement.
(a) Primary amines show intermolecular hydrogen bonds.
(b) Tert – butylamine is a primary amine.
(c) Tertiary amines do not show intermolecular hydrogen bonds.
(d) Isopropylamine is a secondary amine.

25. Most basic species amongst the following is
(a)  (b)  (c)  (d) 

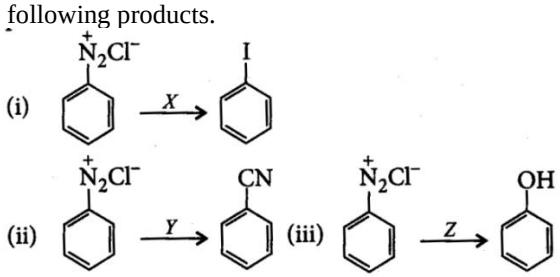
26. Among the following the weakest base is
(a) CH_3NHCHO (b) $C_6H_5CH_2NH_2$
(c) $NO_2CH_2NH_2$ (d) $C_6H_5CH_2NHCH_3$

27. Benzenediazoium chloride cannot be stored and is used immediately after its preparation because-
(a) It slowly evaporates on storage
(b) It is very unstable and dissociates to give nitrogen
(c) It gets oxidized in air hence cannot be stored
(d) It reacts with all the containers in which it is stored.

28. The gas evolved when methylamine reacts with nitrous acid is _____.
(a) NH_3 (b) N_2 (c) H_2 (d) C_2H_6

29. Best method for preparing primary amines from alkyl halides without changing the number of carbon atoms in the chain is
(a) Hofmann bromamide reaction
(b) Gabriel phthalimide synthesis
(c) Sandmeyer reaction
(d) Reaction with NH_{63}

30. Identify the reagent X, Y, and Z for the following products.



	X	Y	Z
(a)	I_2, warm	KCN, warm	NaOH, warm
(b)	CuI	NaCN	KOH
(c)	KI, warm	CuCN	H_2O, warm
(d)	AgI, warm	AgCN, warm	KOH, boil

1. (c) Excess of R—X gives quartenary salt

2. (d)
1^0 amines respond to carbylamine test

3. (c)
$\therefore$ At a and b positions resonance
stabilization is possible. In c, + ve charge is on c & in d on N.

4. (b)
Diazonium ion acts as electrophile in coupling reaction; greater the electron withdrawing power, higher the electrophilicity.

5. (b) $CH_3CH_2COOH \xrightarrow{SOCl_2} CH_3CH_2COCl + SO_2 + HCl$

$CH_3CH_2COCl + NH_3 \rightarrow CH_3CH_2CONH_2 + HCl$

$CH_3CH_2CONH_2 + Br_2 / NaOH \rightarrow \underset{\text{Ethyl amine}}{CH_3CH_2NH_2} + CO_2$

6. (a) $CH_3CONH_2 \xrightarrow{Na+ROH} CH_3CH_2OH + H_2O$

7. (d) $C_6H_5NH_2 \xrightarrow[HCl]{NaNO_3} C_6H_5N_2Cl \xrightarrow{H_2O} C_6H_5OH + N_2 + HCl$

8. (b) $C_6H_5NH_2 \xrightarrow{NaNO_2 + HCl \ 0^oC} C_6H_5N_2Cl$

9. (c)Secondary amines gives oily nitrosomine with nitrous acid.

$(CH_3CH_2)_2NH + HONO \rightarrow \underset{\text{oily}}{(CH_3CH_2)_2N.NO} + H_2O$

10. (b)

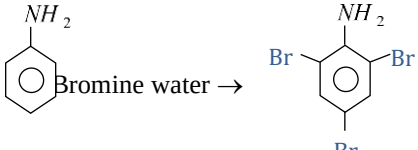
11. (c) $\underset{\text{Acetamide}}{CH_3-CO-NH_2} + HNO_2 \rightarrow \underset{\text{Acetic acid}}{CH_3COOH} + N_2\uparrow + H_2O$

12. (c)Because in tertiary nitroalkanes $\alpha - H$ atom is absent.

13. (c) $\underset{(2c)}{CH_3CONH_2} + Br_2 + 4KOH \rightarrow \underset{(1c)}{CH_3NH_2} + K_2CO_3 + 3KBr + 2H_2O$

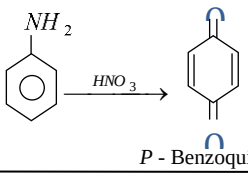
14. (b) $\underset{\text{Ethyl amine}}{C_2H_5NH_2} \xrightarrow{HNO_2} \underset{\text{Ethyl alcohol}}{C_2H_5OH} \xrightarrow{PCl_5} C_2H_5Cl \xrightarrow{NH_3} \underset{\text{Ethyl amine}}{C_2H_5NH_2}$

15. (d)



16. (d)Nitro compounds are not explosive but stable compound.

17. (c)



Because oxidation of aniline occur in absence of making

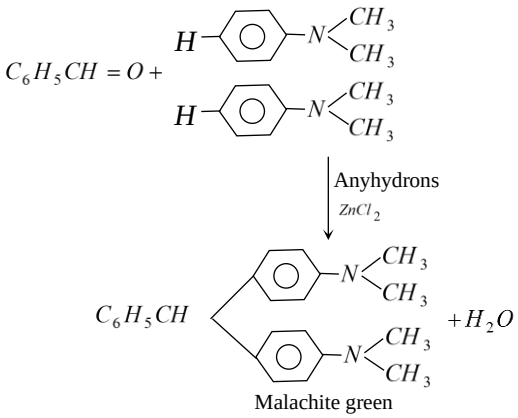
P - Benzoquinone

18. (b)

19. (b)A mixture of benzene and aniline can be separated by dil. *HCl*.

20. (c) $CH_3NC + 4H \xrightarrow[\text{ether}]{LiAlH_4} (CH_3)_2NH$.

21. (c)



22. (b)Aniline reacts with benzaldehyde and forms Schiff's base (benzal aniline) or anils.

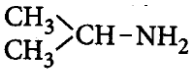
$$C_6H_5 - NH_2 + O = CHC_6H_5 \xrightarrow[-H_2O]{\Delta} C_6H_5N = CHC_6H_5$$

Benzylidine aniline

23. (b)Carbylamine (or isocyanides) give secondary amine on reduction.

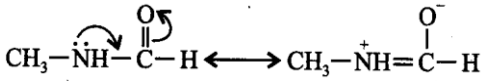
$$\underset{\text{Carbylamine}}{R - N \rightrightarrows C} \xrightarrow{Ni/H_2} \underset{\text{Secondary amine}}{R - NH - CH_3}$$

24. (d) : Isopropylamien is a primary amine.



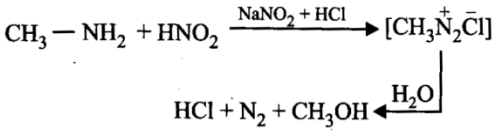
25. (d) : It is a secondary amine.

26. (a) : A strong electron withdrawing group $-CHO$ directly attached to amino group withdraws electron towards resonance.

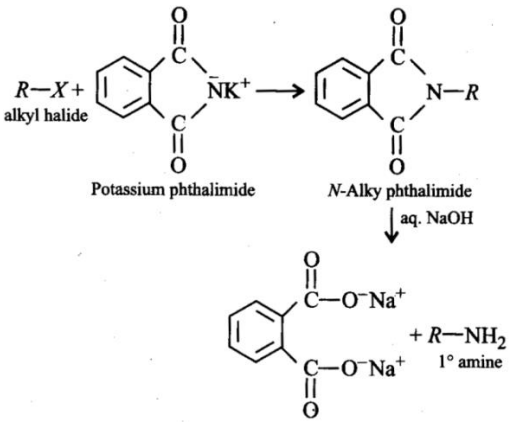


27. (b) : Benzenediazonium chloride is very unstable and explodes on storage.

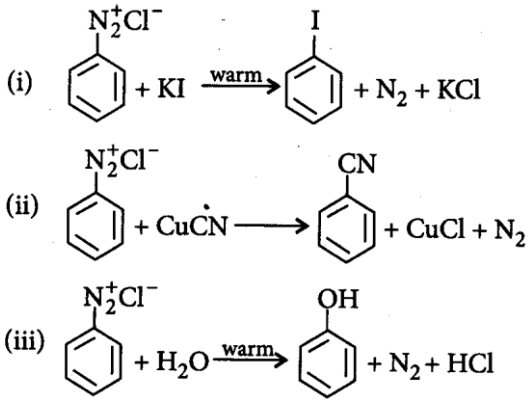
28. (b) :



29. (b) :


R—X +
alkyl halide
NK+
Potassium phthalimide
N—R
N-Alky phthalimide
aq. NaOH
C—O⁻Na+
+ R—NH2
1° amine

30. (c) :


(i)
N2+Cl−
+ KI
warm
I
+ N2 + KCl
(ii)
+ CuCN
CN
+ CuCl + N2
(iii)
+ H2O
warm
OH
+ N2 + HCl