

CHEMISTRY

BOOKS - TARGET CHEMISTRY (HINGLISH)

COMPOUND CONTAINING NITROGEN

Classical Thinking

1. Nitro compounds contain_____ functional group.

$$A.-NO$$

$$B.-N_2O$$

$$\mathsf{C.}-NO_2$$

DN_2

Answer: C



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- **2.** How many products will be obtained when propane is subjected to vapour phase nitration?
 - A. 2
 - B. 3
 - C. 4
 - D. 5

Answer: C

3.	In	the	reaction	between	C_2H_5Br	and	alcoholic

 $AgNO_2$, the product obtained is _____.

A. nitroethane

B. ethane

C. ethylamine

D. ethyl isocyanide

Answer: A



4. or	n oxidation with trifluroperoxyacetic acid	
forms 1-nitropro	opane.	
A. 1-Bromopi	ropane	
B. Propinald	oxime	
C. Propane		
D. Propanam	nide	
Answer: B		
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5. Amines are of	considered as the organic derivatives	

A. urea
B. ammonia
C. alkane
D. amino acids
Answer: B
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6. Isopropylamine is an example of
6. Isopropylamine is an example of A. primary amine
A. primary amine

D. quaternary ammonium salt

Answer: A



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7. The functional group in secondary amines is known as .

- A. amino group
- B. imino group
- C. tertiary nitrogen
- D. azo group

Answer: B

- **8.** The general formula of 3° amines is_____.
 - A. RNH_2
 - B. R_2NH
 - $\mathsf{C}.\,R_3N$
 - D. $R_4N^{\,+}$

Answer: C



9. IUPAC name of the compound

$$CH_3-CH_2-CH_2NH_2$$
 is $_{CH_3}$

A. Methylpropanamine

B. 2-Mehylbutan- 1 -amine

C. 2 -Methylpropan- 1 -amine

D. 2 -Methylethan- 1 -amine

Answer: C



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10. IUPAC name of the compound

 $C_2H_5-NH-CH_3$ is _____.

ne
ıe

B. N-Methylethanamine

C. N-Methylmethanamine

D. Ethyl methylamine

Answer: B



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11. The IUPAC name of the compound given below .

is_____

$$H_3C-\stackrel{|}{N}-CH_3$$

A. Trimethylamine

- B. Aminomethane
- C. N,N-Dimethylmethanamine
- D. Propanamine

Answer: C



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12. The IUPAC name of the given compound

$$CH_3-CH_2-\mathop{C}\limits_{\mid NH_2}H-CH(CH_3)_2$$
 is_____.

- A. 2 -Methyl -3- aminobutane
- B. 2 -Methylpentan- 3-amine
- C. 1, 1 -Dimethylpentan- 3 -amine

D. N, N- Dimethylbutan- 2 -amine

Answer: B



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13. Ethyl bromide when heated with alcoholic NH_3 in a sealed tube gives_____.

- A. ethylamine
- B. diethylamine
- C. triethylamine
- D. mixture of three amines along with quaternary ammonium compounds

Answer: D



14. How many molecules of methy1 bromide should react with ethylamine successively to convert the latter into a quaternary ammonium salt ? .

- A. One
- B. Two
- C. Three
- D. Four

Answer: C

15. Na/alcohol is a	a good
----------------------------	--------

A. dehydrating agent

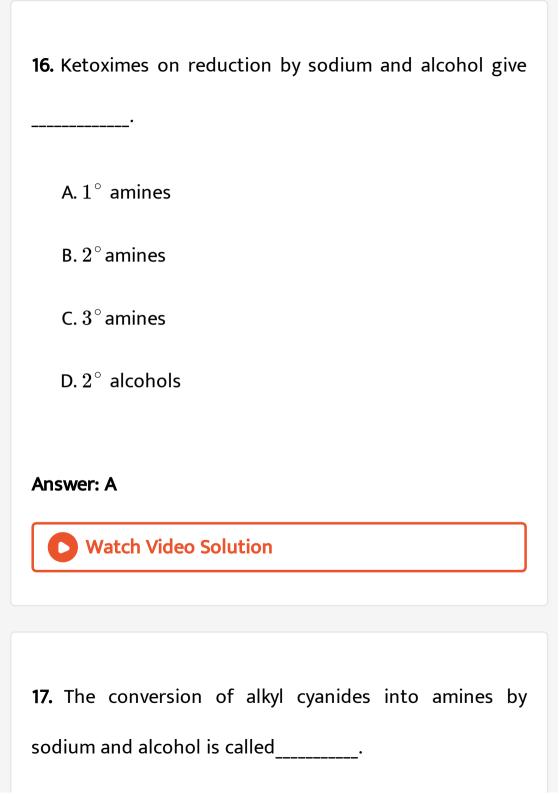
B. oxidizing agent

C. reducing agent

D. catalyst

Answer: C





B. Sandmeyer reaction
C. Mendius reduction
D. Clemmensen's reduction
Answer: C
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18. Alkyl cyanide on reduction produces
A. 1° amine
B. 2° amine
C. 3° amine

A. ammonolysis

D. quaternary salt

Answer: A



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- **19.** The odour of amine is _____.
 - A. fruity
 - B. fishy
 - C. pungent
 - D. garlic like

Answer: B



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20. Aliphatic amines are soluble in water because they
A. are basic
B. are lighter than water
C. form hydrogen bonds with water
D. are acidic
Answer: C
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21. Amines are soluble in

- A. alcohol
- B. ether
- C. benzene
- D. all of these

Answer: D



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22. The correct order for boiling point of isomeric alkyl amines is

- A. $1^{\circ} > 2^{\circ} > 3^{\circ}$
- B. $2^{\circ} > 3^{\circ} > 1^{\circ}$

C.
$$3^{\circ} > 2^{\circ} > 1^{\circ}$$

D.
$$1^{\circ} > 3^{\circ} > 2^{\circ}$$

Answer: A



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23. Lowest boiling point will be of the compound-

A. ethylamine

B. ethylmethylamine

C. propan-1 -amine

D. N, N- Dimethylmethnamine

Answer: D



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- **24.** With increase in carbon atoms, the boiling point of amines_____.
 - A. increases
 - B. decreases
 - C. does not change
 - D. first decreases and then increases

Answer: A



25. T	he	basic	character	of	amines	is	due	to	the
		·							
A.	pre	esence (of nitrogen	ato	m				
В.	pre	sence (of alkyl grou	ıps					
C.	lon	e pair d	of electrons	on	nitrogen	ato	m		
D.	hig	h elect	ronegativit	y of	nitrogen				
Answe	:r: (
0	Wa	atch Vio	deo Solutio	n					

26. A solution of ethylamine _____.

- A. turns blue litmus red
- B. bleaches litmus
- C. turns red litmus blue
- D. does not affect red or blue litmus

Answer: C



- **27.** Correct order of basic strengths of given amines is :
 - A. $CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N > NH_3$
 - $\mathtt{B.}\,(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N > NH_3$
 - $\mathsf{C.}\ NH_3 > (CH_3)_3N > CH_3NH_2 > (CH_3)_2NH_3$

D. $(CH_3)_3N > (CH_3)_2NH > CH_3NH_2 > NH_3$

Answer: B



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28. Values of K_b for methanamine, dimethylamine and trimethylamine are

 $4.5 imes10^{-4}, 5.4 imes10^{-4} ext{and} 0.6 imes10^{-4}$ respectively.

Select the strongest base.

- A. Trimethylamine
- B. dimethylamine
- C. Methanamine

D. all of these

Answer: B



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- 29. Primary amines can be converted into an alcohol by
 - A. strong alkali

the action of .

- B. ammonium hydroxide
- C. nitric acid
- D. nitrous acid

Answer: D

30. The amine which reacts with $NaNO_2$ and dil. HCl to give yellow oily compound is ______.

- A. ethylamine
- B. isopropylamine
- C. sec-butylamine
- D. dimethylamine

Answer: D



31. which of the following reaction of amines can be used to distinguish between $1^0, 2^0, 3^0$ amine ?

- A. Oxidation
- B. Hydroxylation
- C. Nitration
- D. Acetylation

Answer: D



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32. Which of the following is used as acetylating agent?

A. Acetic anhydride
B. Acetic acid
C. Acetyl chloride
D. Both (A) and (C)
Answer: D
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33. On acylation, an amine produces only monoacetyl
derivative, it must be
A. primary amine
B. secondary amine

- C. tertiary amine
- D. ammonium salt

Answer: B



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34. The other product formed, when ethylamine reacts with acetic anhydride is______.

- A. CH_3CH_2COOH
- B. CH_3COOH
- $\mathsf{C.}\,H_3C-CH_2-NH_2$
- D. CH_3CONH_2

Answer: B



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35. $(CH_3)_3N+CH_3I\to A.$ Identify A in the reaction?

A.
$$(CH_3)_3N^+I^-$$

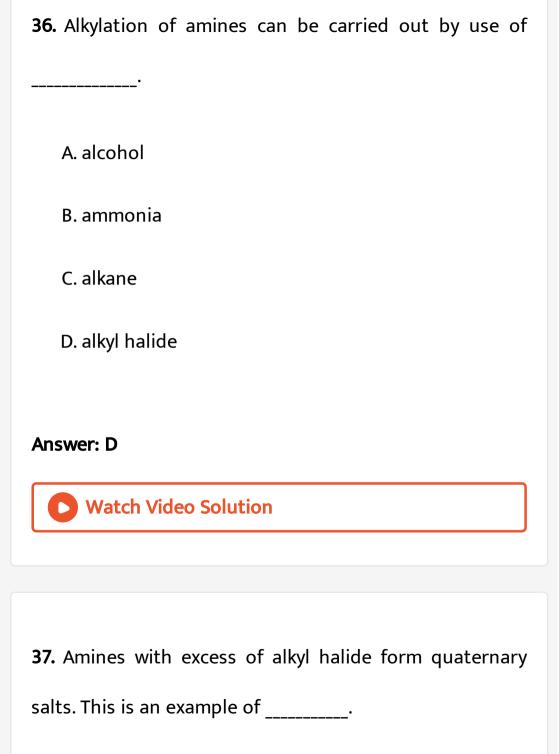
B.
$$(CH_3)_4N^+I^-$$

C.
$$(CH_3)_2N^+I^-$$

D.
$$(CH_3)N^+I^-$$

Answer: B





A. Oxidation
B. reduction
C. alkylation
D. exhaustive alkylation
Answer: D
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38. Primary amines give test.
38. Primary amines give test. A. lodoform
A. lodoform

D. Carbylamine

Answer: D



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39. Hinsberg's reagent is _____.

- A. diethyl oxalate
- B. benzyl chloride
- C. benzenesulphonyl chloride
- D. benzenediazonium salt

Answer: C



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40. The conversion of primary aromtatic amines in to diazonium salts is known as

A. ammonolysis

B. diazotization

C. aromatization

D. ionization

Answer: B



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41. General formula of arene diazonium salt is_____.

A.
$$ArN_4^{\ +}X^{\ -}$$

B.
$$ArN_2^{\,+}X^{\,-}$$

C.
$$ArN_3$$

D.
$$ArN^+X_2^-$$

Answer: B



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42. Which of the following is azo group?

$$A.-NH =$$

$$\mathsf{B.}-N=N-$$

$$\mathsf{C.}-NH-$$

D.-CO-NH-

Answer: B



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43. Which is NOT the reaction of diazonium salt?

A. Sandmeyer reaction

B. Gattermann reaction

C. Balz-Schiemann reaction

D. Clemmensen's reduction

Answer: D



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44. Reaction between diazonium fluoroborate and sodium nitrite in presence of copper replaces diazonium group with_____.

A.
$$-NO_3$$
group

$$\mathsf{B.}-NO_2\mathsf{group}$$

$$\mathsf{C.}-NO$$
 group

$$D. - ON_2$$
group

Answer: B



45. Which group CANNOT be introduced in an aromatic ring by the nucleophilic substitution of halide group?

A - OH

 $B.-NH_2$

 $\mathsf{C.}-CN$

D.-H

Answer: C



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46. In the reaction, $C_2H_5NH_2 \stackrel{HNO_2}{\longrightarrow} A \stackrel{PCl_5}{\longrightarrow} B \stackrel{NH_3}{\longrightarrow} C.$ the original compound and C are

- A. isomers
- B. homologous
- C. same
- D. different primary amines

Answer: C



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- **47.** Choose an INCORRECT statement from the following.
 - A. In case of primary, secondary and tertiary amines,

the basic strength depends on the extent of

hydrogen bonding in the protonated amines.

- B. The presence of groups like $-OCH_3\mathrm{and}-CH_3$ increases the basic strength of amines.
- C. The presence of group like $-NO_2,\,CN$ and halogens reduces the baisc strength of amines.
- D. The basic strength of amines depends on their contraction.

Answer: D



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48. Isomerism shown by amines is_____

A. chain

B. position C. functional D. all of these **Answer: D Watch Video Solution 49.** Methyl cyanide on reduction with H_2/Ni gives A. methylamine B. ethylamine C. propylamine

D. dimethylamine

Answer: B



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50. Nitroso compound are

A. yellow

B. blue

C. red

D. orange

Answer: A



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51. Which of the following is FALSE regarding the acetylation of amines?

A. Acetylation can be affected by acid anhydride or acetyl chloride.

B. Ethylamine on acetylation gives N-acetylethylanine.

C. Diethylamine in acetylation gives N-acetyldiethylamine.

D. Triethylamine on acetylation gives N,N-diacetylethylamine.

Answer: D

52. Which statements is not true among the following

A. Amines are bases.

B. Amines turn red litmus blue.

C. Trimethylamine is less basic than dimethylamine.

D. Amines yield alcohols on aqueous hydrolysis.

Answer: D



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Critical Thinking

1. On replacement of H-atom of an alkane by nitro group,								
the compound is called as								
A. nitrohydrate B. nitroalkane								
C. alkoxynitrate								
D. nitrohydrite								
Answer: B								
Watch Video Solution								
2. Reduction of nitroalkanes in netural medius $(e.\ g.\ Zn + NH_3Cl)$ forms mainly:								

A.
$$R-NH_2$$

B.
$$R-NHOH$$

$$\mathsf{C.}\,R-N=N-CI$$

D. all of these

Answer: B



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3. Reduction of nitroalkanes yields

A. acid

B. alcohol

C. amine

D. diazo compounds

Answer: C



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4. A nitroalkane produces a ketone when it is boiled with HCl. The nitroalkane could be_____.

A.
$$CH_3CH_2NO_2$$

$$\mathsf{B.}\left(CH_{3}\right)_{2}CHNO_{2}$$

$$\mathsf{C}.\,(CH_3)_3CNO_2$$

D.
$$CH_3 - egin{pmatrix} CH_3 \ | \ C \ - CH_2 NO_2 \ | \ CH_3 \ \end{pmatrix}$$



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5. Tube A $+HNO_2
ightarrow ext{blue solution} \xrightarrow{NaOH} ext{red solution}.$

Tube $B+HNO_2 \rightarrow No \ reaction$.

Tube C
$$+HNO_2 \rightarrow \text{blue solution} \xrightarrow{NaOH} \text{No}$$

reaction.

Tube A, B and C contains_____.

- A. primary, secondary and tertiary nitroalkanes respectively
- B. primary, tertiary and secondary nitroalkanes respectively

- C. secondary, tertiary and primary nitroalkanes respectively
- D. tertiary, secondary and primary nitroalkanes respectively



- **6.** Tertiary nitro compounds cannot show tautomerism becauses :
 - A. their tautomeric forms are highly unstable
 - B. they do not contain any multiple bond

- C. they do not have α H-atom
- D. they are not basic in nature

Answer: C



- **7.** Valency of N atom in amines is _____.
 - A. 5
 - B. 2
 - C. 3
 - D. 4

Answer: C



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- 8. Examples(s) of primary amine is(are) ______.
 - A. allylamine
 - B. aniline
 - C. isobutylamine
 - D. all of these

Answer: D



9. Secondary amine contains ____ group.

A.
$$-NH_2$$

$$\mathsf{C.}-\underset{|}{N}-$$

$$D.-NO_2$$

Answer: B



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10. Secondary amine from the following is/are _____.

A.
$$CH_3CH_2 \mathop{C}\limits_{\mid NH_2} HCH_3$$

$$\mathsf{B.}\,CH_2=CHCH_2NHCH_3$$

C.
$$C_6H_5NHC_6H_5$$

D. both B and C

Answer: D



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11. The IUPAC name of the compound given below is

____·

 CH_3

 $(CH_3)_2NCH$

 CH_3

A. N,N-Dimethylpropan-2-amine

- B. N,N-Dimethylaminoisopropane
- C. N,N-Dimethylaminoethane
- D. N,N-Dimethyl-2-aminobutane

Answer: A



- **12.** The IUPAC name of $(CH_3)_2NC(CH_3)_3$ is _____.
 - A. N,N-Dimethyl-2-methylpropan-1-amine
 - B. N,N-Dimethyl-2-methylpropan-2-amine
 - C. N,N-Dimethylbutan-2-amine
 - D. N,N-Dimethylpropanamine



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- **13.** Production of amines by ammonia and alkyl halides is called .
 - A. Frankland reaction
 - B. Hoffmann's ammonolysis
 - C. Hoffmann's mustard oil reaction
 - D. Hoffman's bromamide reaction

Answer: B



14. In the reaction,

 $RX+alc.\ NH_3(ext{excess}) \xrightarrow{100\,^{\circ}C, ext{sealed tube}} Y,Y$ is mainly a

-----•

- A. tertiary amine
- B. secondary amine
- C. primary amine
- D. quaternary ammonium salt

Answer: C



15. Acetaldoxine when heated with Na/alcohol gives								
·								
A. primary amine								
B. secondary amine								
C. tertiary amine								
D. quaternary amine								
Answer: A								
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16. In the laboratory, nitrobenzene is reduced to form aniling using reducing agent .								
Answer: A Watch Video Solution								

A. Na/alcohol
B. H_2 in presence of Ni catalyst
C. Zn-Cu/alcohol
D. Sn/conc. HCl
Answer: D
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17. All the following would give a primary amine on
reduction EXCEPT a/an
A. alkyl cyanide
B. aldoxime

- C. nitroalkane
- D. alkene

Answer: D



- **18.** The amine formed from an amide by means of bromine and alkali has
 - A. same number of C atoms as that of amide
 - B. one less C atom than that of amide
 - C. One more C atoms than that of amide
 - D. two more C atoms than that of amide



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- **19.** Arylamines develop colour due to _____.
 - A. hydroscopic nature
 - B. atmospheric oxidation
 - C. moisture
 - D. atmospheric reduction

Answer: B



20. Which among the following is NOT CORRECT order of boiling point ?

A. Ethyl alcohol > ethylamine > ethane

B. Ethyl alcohol > ethylamine > dimethylamine

C. n-Propylamine < n-butylamine > ethylamine

D. n-Propylamine < ethylmethylamine <

trimethylamine

Answer: D



21.	Primary,	secondary	and	tertiary	amines	can	be			
differentiated by using										
A. thionyl chloride B. nitrous acid C. ethanoyl chloride D. hydroxylamine										
	•	•								
Answer: B										
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22. Quaternary ammonium halide reacts with moist silver										
oxide to produce										

A. primary amine B. quaternary ammonium hydroxide C. alkyl halide D. aldehyde **Answer: B Watch Video Solution 23.** Carbylamine test is performed in alcoholic KOH by heating a mixture of:

A. chloroform and carbonyl compound

B. trihlogenated methane and primary amine

- C. an alkyl halide and primary amine
- D. an alkyl cyanide and primary amine



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24. An orgnic compound (A) on reduction gave a compound (B). Upon treatment with HNO_2 ,(B) gave ethyl alcohol and on warming with $CHCI_3$, and alcoholic KOH, (b) gave offensive smell. The compound (A) is:

- A. acetamide
- B. methyl cyanide

- C. etylamine
- D. ethyl cyanide



- **25.** Now a days , the reagent used in Hinsberg method is
- _____
 - A. p-tolueensulphonyl chloride
 - B. benzenesulphonic acid
 - C. ethyl oxalate
 - D. acetic acid

Answer: A



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26. The nitration (using nitration mixture) of aniline gives:

A. m-nitroaniline

B. p-nitroaniline

C. o-nitroaniline

D. all of these

Answer: D



27.	p-Hydroxyazobenzene	is	formed	by	the	reactions

- A. Hoffmann rearrangement
- B. Fries rearrangement
- C. Bensidine rearrangement
- D. Diazotisation and coupling

Answer: D



28. Benzenediazonium chloride can be convertedk into phenol by treating it with ______.

- A. $H_3PO_3, H_2O, CuCl$
- B. $H^{\,+}\,/H_2O$, heat
- C. Alcohol, heat
- D. HBF_4 and $NaNO_2 \, / \, Cu$

Answer: B



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29. n-Propylamine and isopropylamine are _____

- A. funtional isomers
- B. position isomers
- C. chain isomers
- D. optical isomers



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30.
$$-CONH_2 \xrightarrow{\text{Reduction}} -CH_2NH_2$$

In above reaction hybridisation state of carbon changes from

A.
$$sp o sp^2$$

B.
$$sp o sp^3$$

C.
$$sp^2 o sp^3$$

D.
$$sp^2 o sp$$

Answer: C



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31. Mixture of amines is obtained when

A. ammonia undergoes addition reaction by aryl

halide

B. ketoxime gets reduced by using Na in alcohol

- C. decomposition of ammonia takes place by alkyl and aryl halide
- D. ammonia gets progressively alkylated by alkyl halide

Answer: D



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32. The name of the compound C in the following series of reaction is

Acetone
$$\stackrel{H_2N-OH}{\longrightarrow} A \stackrel{H_2/Pt}{\longrightarrow} B \stackrel{HNO_2}{\longrightarrow} C$$

A. Propan-1-ol

- B. Propan-2-ol
- C. Butan-1-ol
- D. Butan-2-ol



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33. Propane when treated with nitric acid at high temperature does NOT yield the product _____

A.
$$CH_3 - NO_2$$
 and $CH_3 - CH_2 - NO_2$

B.
$$CH_3-\mathop{C}\limits_{|NO_2}H-CH_3$$

$$\mathsf{C.}\,CH_3-CH_2-CH_2-NO_2$$

D.
$$H_3C-egin{pmatrix} NO_2 \ | \ C \ | \ NO_2 \end{pmatrix}$$

Answer: D



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34. Acetaldehyde can be converted into ethylamine by using _____.

- A. $(CH_3CO)_2O, NH_3$
- B. $NH_2OH,\,Na\,/\,C_2H_5OH$
- C. $NaNO_2$ / HCl, Sn / conc. HCl
- D. CH_3COCl , NH_4Cl

Answer: B



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

- A. 🖳
- В. 🖳
- C. 🖳
- D. 📝

Answer: C



36. In quaternary ammonium salt the nitrogen atyom is attached to other atoms by _____ bonds .

- A. three covalent and one ionic .
- B. three covalent, one co-ordinate and one ionic
- C. three covalent and one co-ordinate
- D. four covalent

Answer: B



37. Which of the following reactions does not yield an amine?

A.
$$RX + NH_3
ightarrow (ext{excess})$$

B.
$$RCH = NOH \xrightarrow[C_2H_5OH]{Na}$$

C.
$$RCN + H_2O \stackrel{H^+}{\longrightarrow}$$

D.
$$RCONH_2 \xrightarrow[2.H_2O]{1.LiAlH_4}$$

Answer: C



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Competitive Thinking

1. Primary	niroalkanes	are	obtained	in	good	yield	by				
oxidising aldoximes with the help of											

- A. trifluoroperoxyacetic acid
- B. acidified potassium permanganate
- C. concentreated nitric acid
- D. potassium dichromate and dilute sulphuirc acid

Answer: A



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2. In acid medium nitrobenzene is reduced to aniline as shown in the reaction

 $C_6H_5-NO_2+6[H] o C_6H_5-NH_2+2H_2O$ reducing agent used in this reaction is...

The

A. $LiAlH_4$

B. Sn/HCl

C. Na/alcohol

D. H_2/Ni

Answer: B



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3. Hydrolysis of $CH_3CH_2NO_2$ with 85% H_2SO_4 gives :

A. CH_3CH_2OH

B.
$$C_2H_6$$

$$\mathsf{C.}\,CH_3CH=NOH$$

D. CH_3COOH

Answer: D



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4. Which one of the following nitro compounds when react with nitrous acid followed by treatment with alkali produces blue colour?

A. 2-Methyl-2-nitropropane

B. 2-Methyl-1-nitropropane

- C. 2-Nitropropane
- D. Nitrobenzene

Answer: C



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

A.
$$H_3C-C-C-CH_3$$
 $|C H-NO_2|$ $|C H-NO_2|$

$$\mathsf{B.}\,H_3C-CH_2-CH_2-NO_2$$

C.
$$H_3C-\stackrel{\cap}{C}H-CH_2-NO_2$$

D. 🖳

Answer: D



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- 6. In amines, the hybridisation state of N is
 - A. sp
 - $\mathsf{B.}\, sp^2$
 - $\mathsf{C}.\,sp^3$
 - D. sp^2d

Answer: C



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7. A secondary amine is a compound which possesses .

A. organic compound with two $-NH_2$ groups

B. compound with two carbon atoms and an $-NH_2$ groups

C. compound with an $-NH_2$ group on the carbon atom in number 2 position

D. compound in which two of the hydrogen of $NH_{
m 3}$ have been replaced by organic groups

Answer: D



8.
$$CH_2=CH-CH_2-NH-CH_3$$
 is a

- A. secondary amine
- B. primary amine
- C. tertiary amine
- D. none of these

Answer: A



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9. N-ethyl-N-methylpropan-1-amine is

A. primary
B. secondary
C. tertiary
D. quaternary
Answer: C
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10. C_3H_9N represents
10. C_3H_9N represents
A. primary amine

D. all of these

Answer: D



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- **11.** IUPAC name of isopropylamine is ______.
 - A. Propan-1-amine
 - B. 2-Methylethanamine
 - C. 1-Methylethanamine
 - D. Propan-2-amine

Answer: D



<u>Match Muco Solution</u>

12. Gabriel phthalimide synthesis is used in the preparation of

A. primary aromatic amine

B. secondary amine

C. primary aliphatic amine

D. tertiary amine

Answer: C



13.
$$R-\stackrel{||}{C}NH_2
ightarrow RCH_2NH_2$$

Which one of the following reducing agents is likely to be the most effective in bringing about the following change?

A.
$$H_2 - Ni$$

B.
$$NaBH_4$$

C.
$$LiAlH_4$$

D. Na-alcohol

Answer: C



14. Which of the following reactions is appropriate for converting acetamide to methamine?

- A. Hoffmann hypobromamide reaction
- B. Stephens reaction
- C. Gabriels phthalimide synthesis
- D. Carbylamine reaction

Answer: A



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15. In the hofmann-bromamide degradation reaction, the number of moles of NaOH and Br_2 used per mole of amine produced are

- A. One mole of NaoH and one mole of Br_2
- B. Four mole of NaoH and two mole of Br_2
- C. Two mole of NaoH and two mole of Br_2
- D. Four mole of NaoH and one mole of Br_2

Answer: D



- **16.** Which of the following statement(s) is/are incorrect in case of Hofmann bromamide degradation ?
 - A. Reaction is useful for decreasing length of carbon chain by one carbon atom.

- B. It gives tertiary amine.
- C. It gives primary alcohol KOH is used with
- D. bromine.

Answer: B



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17. Indicate which nitrogen compound amongst the following would undergo Hofmann's reaction (i.e., reaction with Br_2 and strong KOH) to furnish the primary amine $(R-NH_2)$

A.
$$R-\stackrel{O}{C}-NHCH_3$$

B.
$$R - \overset{\mid}{C} - ONH_4$$

C.
$$R-\stackrel{O}{C}-NH_2$$

D.
$$R - \overset{\smile}{C} - NHOH$$

Answer: C



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18. Amines behave as:

A. Lewis acids

B. Lewis bases

C. Aprotic acids

D. Amphoteric compounds

Answer: B



- **19.** The correct statement regarding the basicity of arylamines is .
 - A. Arylamines are generally more basic than alkylamines because of aryl group
 - B. Arylamines are generally more basic than alkylamines because the nitrogen atomn in arylamines is sp-hydbridized

C. Arylamines are generally less basic than alkylaine because the nitrogen lone - pair electrons are delocalised by interaction with the aromatic ring pi electron system

D. Arylamines are generally more basic than alkylamines because the nitrogen lone-pair electrons are not delocalised by interaction with the aromatic ring π electron system

Answer: C



20. In case of substituted aniline the group which decreases the basic strength is

A.
$$-OCH_3$$

$$B.-CH_3$$

$$\mathsf{C.}-NH_2$$

$$\mathsf{D.}-C_6H_5$$

Answer: D



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21. Select the compound which on treatment with nitrous acid liberates nitrogen.

A. Nitroethane

B. Triethylamine

C. Diethylamine

D. Ethylamine

Answer: D



- 22. Diethyl amine when treated with nitrous acid yields
 - A. diethylammonium nitrite
 - B. ethyl alcohol
 - C. N-nitroso diethylamine

D. triethylammonium nitrite

Answer: C



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23. The amine 'A' when treated with nitrous acid gives yellow oily substance. The amine A is

- A. triethylamine
- B. trimethylamine
- C. aniline
- D. methylphenylamine

Answer: D

24.	When	amine	reacts	with	nitrous	acid,	the	prima	-у,
sec	ondary	and t	ertiary	amine	s will re	specti	vely	produc	:е
	•								

- A. nitroso amin, nitrites and alcohol
- B. nitroso amine, alcohol and nitries
- C. alcohol, nitrites and nitroso amine
- D. alcohol, nitroso amines and nitrites

Answer: D



25. During acetylation of amines _____

A. one or more H atoms are replaced by $-NH_2$

B. one H atom is replaced by $-NH_2$

C. one or more H atoms are replaced by $-NH_2$ and acetyl group

D. one or more H atoms of $-NH_2$ are repalced by acetyl group.

Answer: D



26. Which one of the following compounds when heated with KOH and a primary amine gives carbylamines test?

- A. $CHCl_3$
- B. CH_3Cl
- C. CH_3OH
- D. CH_3CN

Answer: A



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27. Which one of the following will give carbylamine test

?

- A. NH_2CONH_2
- B. CH_3CONH_2
- $\mathsf{C.}\,C_2H_5NH_2$
- D. all of these

Answer: C



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- **28.** The reaction of aniline with chloroform under alkaline conditions lead to the formation of
 - A. phenyl cyanide
 - B. phenyl isonitrile

- C. phenyl cyanate
- D. phenyl isocyanate

Answer: B



- 29. Which of the following reaction does NOT occur?
 - A. Tripropylamine + benzenesulphonyl chloride
 - B. Dipropylamine + benzenesulphonyl chloride
 - C. Propylamine+ benzenesulphonyl chloride
 - D. Propylamine + p-toluenesulphonyl chloride

Answer: A



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30. An organic compound X having molecular formula $C_4H_{11}N$ reacts with p-toluene sulphonyl chloride to form a compound Ythat is soluble in aqueous KOH. Compound X is optically active and reacts with acetyl chloride to form compound Z. Identify the compound Z.

A.

$$CH_3-CH_2-CH-2-CH_2-NH-CO-CH_3$$

B.
$$CH_3-CH_2-\stackrel{|}{C}HNH-CO-CH_3$$

 CH_3

C.
$$CH_3-\stackrel{|}{C}H-CH_2-NH-CO-CH_3$$

Answer: B



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 CH_3

31. Identify the product 'C' in the following reaction.

$$ext{Aniline} \xrightarrow{\hspace*{1cm} (CH_3CO)_2O} A \xrightarrow{\hspace*{1cm} Br_2 \hspace*{1cm}} B \xrightarrow{H^+ ext{ or } OH^-} C$$

- A. Acetanilide
- B. p-Bromoacetanilide
- C. p-Bromoaniline

D. o-Bromoaniline

Answer: C



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32. Nitration of aniline also gives m-nitro anilime, in stron acidic medium because,

A. in electrophilic substitution reaction amino group is meta directing.

B. inspite of substituents nitro group always goes to m-position .

- C. in strong acidic medium, nitration of aniline is a nucleophilic substitution reaction.
- D. in strong acidic medium aniline is present as anilinium ion.

Answer: D



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33. When aniline is treated will sodium nitrite and hydrochloric acid at $0^{\circ}\,C$, it gives

- A. phenol and N_2
- B. diazonium salt

- C. hydrazo compound
- D. no reaction takes place

Answer: B



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34. In Gattermann reaction , a diazonium group is replaced by \underline{X} using $\underline{Y},\underline{X}$ and \underline{Y} are _____.

A.
$$rac{X}{Cl^-}$$
 $rac{Y}{Cu/HCl}$

B.
$$rac{X}{Cl^+}$$
 $rac{Y}{CuCl_2/HCl}$

C.
$$rac{X}{Cl^-}$$
 $rac{Y}{CuCl_2/HCl}$

D.
$$\dfrac{X}{Cl_2}$$
 $\dfrac{Y}{Cu_2O/HCl}$

Answer: A



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35. Which of the following is NOT formed by Sandmeyer reaction?

A.
$$C_6H_5Cl$$

B.
$$C_6H_5I$$

C.
$$C_6H_5Br$$

D. None

Answer: B



36. Which of the following will not undergo diazotisation?

A.
$$C_6H_5NH_2$$

B.
$$C_6H_5CH_2NH_2$$

C. 🖳

D. 🔀

Answer: B



B. benzaldehyde C. benzoic acid D. phenol **Answer: A Watch Video Solution** 38. Diazo coupling is useful to prepare some A. dyes B. proteins C. pesticides

A. aniline

D. vitamins

Answer: A



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39. Which azobenzene gives orange dye?

A. p-Aminoazobenzene

B. p-(Dimethylamino)azobenzene

C. p-Hydroxyazobenzene

D. Phenolazobenzene

Answer: C



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40. Which of the following is capable of forming a zwitter ion ?

A.
$$C_6H_5-OH$$

B.
$$C_6H_4(NH_2)_2$$

C.
$$C$$
 H_2OH CH_2OH

D.
$$H_2N-CH_2-COOH$$

Answer: D



41. 1 mole of ethylamine on reaction with excess	of					
nitrous acid gives how many grams of nitrogen ?	(
atomic weight of nitrogen =14)						

- A. eight
- B. seven
- C. fourteen
- D. twenty eight

Answer: D



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42. The molecular formula of benzonitrile is ______.

A.
$$C_6H_5CN$$

B. C_6H_5NC

 $\mathsf{C.}\ C_6H_5CNO$

 $\operatorname{D.} C_6H_5NCO$

Answer: A



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43. Which of the following is the most acidic diazonium salt ?

A.
$$C_6 H_5 C H_2 N_2^{\ +} \, X^{\ -}$$

B. $CH_3N_2^{\,+}\,X^{\,-}$

C.
$$CH_3CH_2N_2^{\,+}\,X^{\,-}$$

D.
$$C_6H_5N_2^{\,+}X^{\,-}$$

Answer: D



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44. Number of isomeric primary amines obtained from

 $C_4H_{11}N$ are _____.

A. 3

B. 4

C. 5

D. 6

Answer: B



- **45.** When aniline is nitrated with nitrating mixture in ice cold condition, the major product obtained is _____.
 - A. p-nitroaniline
 - B. 2,4-dinitroaniline
 - C. o-nitroaniline
 - D. m-nitroaniline

Answer: A



46. The amine which reacts with p-toluenesulphonyl chloride to give a clear solution which on acidification gives insoluble compound is _____.

A.
$$C_2H_5NH_2$$

B.
$$(C_2H_5)_2NH$$

$$\mathsf{C.}\left(C_{2}H_{5}\right)_{3}N$$

D.
$$CH_3NHC_2H_5$$

Answer: A



47. Which one of the following reactions is used to prepare aryl fluorides from diazonium salts and fluoroboric acid?

- A. Sandmeyer reaction
- B. Balz-Schiemann reaction
- C. Gattermann reaction
- D. Swarts reaction

Answer: B



48. The number of isomeric amines possible for the formula C_3H_9N

- A. 2
- B. 3
- C. 4
- D. 5

Answer: C



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

A. 2					
B. 3					
C. 4					
D. 5					
Answer: C					
Watch Video Solution					
50. Method by which aniline cannot be prepared is:					
A. reduction of nitrobenzene with H_2 / Pd in ethanol					
•					

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

C. hydrolysis of phenyl isocyanide with acidic solution

D. degradation of benzamide with bromine in alkaline solution

Answer: B



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51. A given nitrogen-containing compound A reacts with Sn/HCI followed by HNO_2 to give an unstable compund $B.\ B$ on treatment with pheno1 forms a

beautiful coloured compound C with the molecular formula $C_{12}H_{10}N_2O$ The structure of compound A is .

A. 🖳

в. 🖳

Answer: C



52. Which of the following will give methylamine upon reaction with acetamide ?

A. PCl_5

B. NaOH+ Br_2

- C. Sodalime
- D. Hot conc. H_2SO_4

Answer: B



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Evaluation Test

- 1. Mendius reaction involves the reduction of-
 - A. cyanoalkanes
 - B. alkyl isocyanides
 - C. oximes

D. nitroalkanes

Answer: A



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2. Chloropicrin is manufactured by the reaction between

 $Cl_2, NaOH$ and $____$

A. nitromethane

B. nitroethane

C. nitrophenol

D. nitrostyrene

Answer: A

3.	Mixture	of benzene	and aniline	can be se	parated b	y:
						,

A. hot water

B. dil. HCl

C. dil . NaOH

D. alcohol

Answer: B



- A. NH_3
- B. $(CH_3)_2NH$
- C. $(CH_3)_3N$
- D. CH_3NH_2

Answer: A



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5. X,Y and Z are amines . Only Z and Y react with acetic anhydride . Only Z gives carbylamine reaction . Then X,Y and Z are respectively,____.

A. primary, secondary and tertiary

- B. secondary, tertiary and primary
- C. secondary, primary and tertiary
- D. tertiary, secondary and primary

Answer: D



- **6.** Which of the following will not give dinitrogen gas with nitrous acid ?
 - A. Propanamine
 - B. Ethanamine
 - C. Trimethylamine

D. Isopropylamine

Answer: C



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7. Triaminobenzene is a ______.

A. 1° amine

 $\text{B.}\,2^{\circ}$ amine

C. 3° amine

D. quaternary salt

Answer: A



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8. Primary, secondary and tertiary amines can be distinguished by

- A. Schiff's test
- B. Fehling's test
- C. Tollen's test
- D. Hinsberg test

Answer: D



9. Amine that cannot be prepared	by Gabriel phthalimide
synthesis is	

- A. aniline
- B. Benzylamine
- C. Methylamine
- D. iso-Butylamine

Answer: A



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10. Which of the following will not undergo diazotisation?

A.
$$C_6H_5-NH_2$$

B.
$$C_6H_5 - CH_2 - CH_2 - NH_2$$

C. 🖳



Answer: B

