

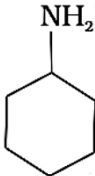
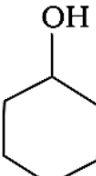
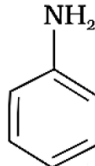
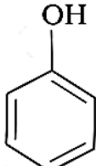


CET25C9 AMINES

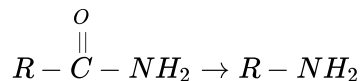
Class 12 - Chemistry

Time Allowed: 1 hour and 30 minutes

Maximum Marks: 75

1. In the reaction [1]
 $\text{C}_6\text{H}_5\text{NH}_2 + \text{CHCl}_3 + 3 \text{KOH} \rightarrow \text{A} + 3\text{B} + 3\text{C}$ the product A is
- a) $\text{C}_6\text{H}_5\text{CN}$ b) $\text{C}_6\text{H}_5\text{NC}$
c) $\text{C}_6\text{H}_5\text{Cl}$ d) $\text{C}_6\text{H}_5\text{NHCH}_3$
2. In the nitration of benzene using a mixture of conc. H_2SO_4 and conc. HNO_3 , the species which initiates the reaction is _____. [1]
- a) NO_2^- b) NO^+
c) NO^+_2 d) NO_2
3. Hinsberg's reagent is: [1]
- a) Benzene sulphonic acid b) Benzene sulphonamide
c) Phenyl isocyanide d) Benzene sulphonyl chloride
4. The Gabriel synthesis of amine undergoes which kind of reaction? [1]
- a) Nucleophilic substitution reaction (SN_2) b) Elimination reaction
c) Electrophilic substitution reaction d) SN_1
5. Three compounds are given below: [1]
 $(\text{C}_2\text{H}_5)_3\text{N}$, $\text{C}_2\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$
I *II* *III*
- Identify the correct decreasing order of their basic strength in gas phase:
- a) $\text{I} > \text{III} > \text{II}$ b) $\text{III} > \text{I} > \text{II}$
c) $\text{III} > \text{II} > \text{I}$ d) $\text{II} > \text{III} > \text{I}$
6. Which of the following compounds is the weakest Brönsted base? [1]
- a)  b) 
c)  d) 

7. Which one of the following reagents is most suitable in completing the following synthesis? [1]



a) $LiAlH_4$

b) $Br_2 + NaOH$

c) Sn

d) $H_2 + Ni$

8. Gabriel synthesis is used for the preparation of: [1]

a) Quaternary salt

b) Primary amines

c) Tertiary amine

d) Secondary amine

9. Benzene diazonium chloride reacts with phenol in which the phenol molecule attack para position of phenol to form p-hydroxyazobenzene. This reaction is called _____. [1]

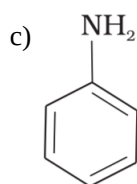
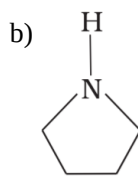
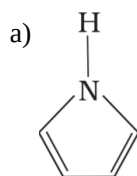
a) Carbon tetra chloride

b) DDT

c) Iodoform

d) Coupling reaction

10. Among the following amines, the strongest Brönsted base is _____. [1]



d) NH_3

11. Amide which gives propanamine by Hoffmann bromamide is: [1]

a) Pentanamide

b) Hexanamide

c) Butanamine

d) Propanamine

12. Benzene diazonium chloride on hydrolysis gives: [1]

a) Chlorobenzene

b) Aniline

c) Benzene

d) Phenol

13. CH_3CONH_2 on reaction with $NaOH$ and Br_2 in alcoholic medium gives: [1]

a) $CH_3CH_2NH_2$

b) CH_3NH_2

c) CH_3COONa

d) CH_3CH_2Br

14. Aniline upon heating with conc. HNO_3 and conc. H_2SO_4 mixture gives: [1]

a) The mixture of o, p, and m nitroaniline:

b) No reaction

c) o-and p-nitroaniline

d) o-nitroaniline




15. Which of the following reagents would not be a good choice for reducing an aryl nitro compound to an amine? [1]

a) Fe and HCl


b) $LiAlH_4$ in ether

c) Sn and HCl

d) H_2 (excess)/ Pt

- I. 
- II. 
- III. 

- 3 / 10

22. Aniline reacts with sodium nitrite and hydrochloric acid at 273-278K to give: [1]
- Chlorobenzene
 - Benzene diazonium chloride
 - o-chloroaniline
 - Benzene
23. Anisole reacts with a mixture of concentrated sulphuric and nitric acids to yield a mixture of ortho and para nitroanisole [1]
- 
- ortho and para in equal amounts
 - major product is ortho nitroanisole
 - ortho and para in unequal amounts
 - major product is para nitroanisole
24. The major product of the reaction between m-dinitro benzene with NH_4HS is _____. [1]
- m-nitroaniline
 - p-Dinitro benzene
 - m-Diamino benzene
 - p-Diamino benzene
25. Out of the following, the strongest base in aqueous solution is [1]
- Trimethylamine
 - Dimethylamine
 - Methylamine
 - Aniline
26. Which of the following reactions is given by only primary amines? [1]
- Reaction with acetyl chloride
 - Reaction with HONO
 - Reaction with Grignard reagent
 - Reaction with chloroform and alcoholic KOH
27. Secondary amines react with the nitrosonium ion to generate: [1]
- N – nitrosoamines
 - anilines
 - imines
 - oximes
28. Aniline does not undergo one of the following: [1]
- Bromination
 - Nitration
 - Sulphonation
 - Friedal Craft Reaction
29. Reaction of nitrous acid with aliphatic primary amine in cold acidic solution gives: [1]
- A diazonium salt
 - A nitrite
 - A dye
 - An alcohol
30. In order to prepare a 1° amine from an alkyl halide with simultaneous addition of one CH_2 group in the carbon chain, the reagent used as source of nitrogen is _____. [1]
- Sodium amide, NaNH_2
 - Sodium azide, NaN_3
 - Potassium phthalimide, $\text{C}_6\text{H}_4(\text{CO})_2\text{N}^-\text{K}^+$
 - Ethanolic NaCN
31. Which of the following would not be a good choice for reducing nitrobenzene to aniline? [1]
- Sn and HCl
 -

c) LiAlH₄

d) Fe and HCl

32. The correct IUPAC name for CH₂=CHCH₂NHCH₃ is [1]

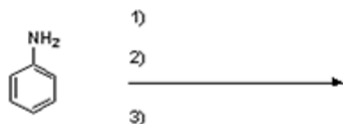
a) Allylmethylamine

b) 4-aminopent-1-ene

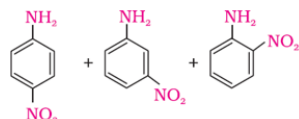
c) N-methylprop-2-en-1-amine

d) 2-amino-4-pentene

33. The below reaction yields [1]



Yields the following



The 1, 2, 3 that are involved in completing the above synthesis are

a) HNO₄, H₂SO₄, 353Kb) HNO₃, H₂SO₄, 288Kc) HNO₃, H₂SO₄, 473Kd) HNO₃, H₂SO₄, 453K

34. Which of the following methods of preparation of amines will give same number of carbon atoms in the chain of amines as in the reactant? [1]

a) Treatment of amide with bromine in an aqueous solution of sodium hydroxide

b) Heating alkylhalide with potassium salt of phthalimide followed by hydrolysis

c) Reaction of nitrite with LiAlH₄

d) Reaction of amide with LiAlH₄ followed by treatment with water

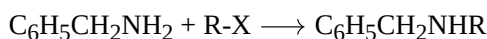
35. Amongst the given set of reactants, the most appropriate for preparing 2° amine is _____. [1]

a) 1° R-NH₂ + RCHO followed by H₂/Pt

b) 1° R-Br (2 mol) + potassium phthalimide followed by H₃O⁺/heat

c) 2° R-Br + NaCN followed by H₂/Ptd) 2° R-Br + NH₃

36. Benzylamine may be alkylated as shown in the following equation: [1]



Which of the following alkyl halides is best suited for this reaction through S_N1 mechanism?

a) C₆H₅Brb) C₂H₅Brc) C₆H₅CH₂Brd) CH₃Br

37. Hinsberg's reagent which is used to test amines is [1]

a) Benzene sulphonyl chloride

b) Acetanilide

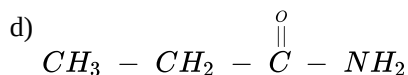
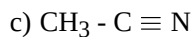
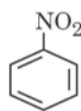
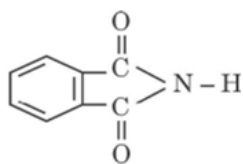
c) Benzene sulphonamide

d) Benzene diazonium chloride

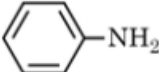

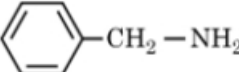


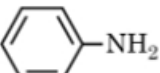
38. Hoffmann Bromamide Degradation reaction is given by: [1]

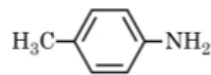
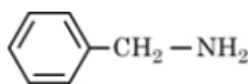
a)

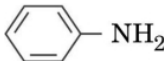
b)

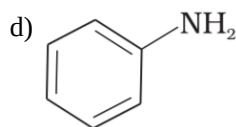
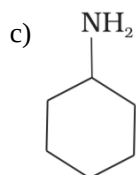
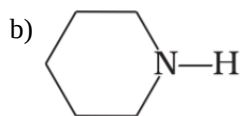
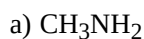


39. In Pyridine, the preferred site of nucleophilic substitution is one of the following positions: [1]
 a) 2 b) 4
 c) 5 d) 3
40. Which of the following has highest boiling point? [1]
 a) HCOOH b) CH_3CH_3
 c) CH_3NH_2 d) CH_3OH
41. The correct decreasing order of basic strength of the following species is _____. [1]
 H_2O , NH_3 , OH^- , NH_2^-
 a) $\text{H}_2\text{O} > \text{NH}_3 > \text{OH}^- > \text{NH}_2^-$ b) $\text{OH}^- > \text{NH}_2^- > \text{H}_2\text{O} > \text{NH}_3$
 c) $\text{NH}_2^- > \text{OH}^- > \text{NH}_3 > \text{H}_2\text{O}$ d) $\text{NH}_3 > \text{H}_2\text{O} > \text{NH}_2^- > \text{OH}^-$
42. Which gives a primary amine upon reduction? [1]
 a) $\text{CH}_3\text{CH}_2\text{NC}$ b) $\text{C}_6\text{H}_5\text{N} = \text{NC}_6\text{H}_5$
 c) $\text{CH}_3\text{CH}_2 - \text{O} - \text{N} = \text{O}$ d) $\text{CH}_3\text{CH}_2\text{NO}_2$
43. Best method for preparing primary amines from alkyl halides without changing the number of carbon atoms in the chain is [1]
 a) Hoffmann Bromamide reaction b) Reaction with NH_3
 c) Gabriel phthalimide synthesis d) Sandmeyer reaction
44. The best reagent for converting 2-phenylpropanamide into 2-phenylpropanamine is _____. [1]
 a) excess H_2 b) iodine in the presence of red phosphorus
 c) Br_2 in aqueous NaOH d) LiAlH_4 in ether
45. Which one of the following when reacts with NaOH , the product is sodium benzoate? [1]
 a) Benzene hydroxide b) Benzoic acid
 c) Benzaldehyde d) Benzene
46. Which of the following reacts with $\text{NaNO}_2 + \text{HCl}$ to give alcohol? [1]
 a) $\text{C}_6\text{H}_5\text{CH}_2\text{NHCH}_3$ b) CH_3NH_2
 c) $\text{C}_6\text{H}_5\text{NH}_2$ d) $(\text{CH}_3)_3\text{N}$
47. Which of the following compound give dye test? [1]
 a) Diphenylamine b) Methylamine

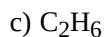
- c) N-ethylpropan-1-amine
d) Aniline
48. IUPAC name of product formed by reaction of methyl amine with two moles of ethyl chloride [1]
a) N,N-Dimethylethanamine
b) N-Methyl ethanamine
c) N,N-Diethylmethanamine
d) N-Ethyl-N-methylethanamine
49. In a coupling reaction, the azo products obtained, involve: [1]
a) Electrophilic substitution reaction
b) --N=N-- bond
c) Nucleophilic substitution
d) --N=N-- bond and electrophilic substitution reaction
50. Among the following, which has the highest value of pK_b ? [1]
a) 
b) 
c) 
d) 
51. Which of the following is a 3° amine? [1]
a) N-methylaniline
b) Tert-butylamine
c) 1-methylcyclohexylamine
d) Triethylamine
52. The best reagent for converting, 2-phenylpropanamide into 1- phenylethanamine is _____. [1]
a) Br_2/NaOH
b) $\text{NaBH}_4/\text{methanol}$
c) LiAlH_4
d) excess H_2/Pt
53. Propanamide on reaction with bromine in aqueous NaOH gives: [1]
a) Ethanamine
b) N-Methyl ethanamine
c) Propanamine
d) Propanenitrile
54. Amongst the following, the strongest base in aqueous medium is _____. [1]
a) $(\text{CH}_3)_2\text{NH}$
b) NCCH_2NH_2
c) CH_3NH_2
d) $\text{C}_6\text{H}_5\text{NHCH}_3$
55. Amines are soluble in: [1]
a) only slightly soluble in water
b) water
c) organic solvents
d) only slightly soluble in organic solvents
56. The source of nitrogen in Gabriel synthesis of amines is _____. [1]
a) Sodium nitrite, NaNO_2
b) Potassium cyanide, KCN
c) Potassium phthalimide, $\text{C}_6\text{H}_4(\text{CO})_2\text{N}^-\text{K}^+$
d) Sodium azide, NaN_3
57. Among the following, which is the strongest base? [1]
a) 
b) 
c)
d)



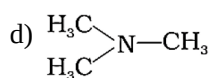
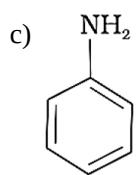
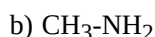
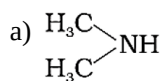
58. If the starting amide has got four carbon atoms and the amine that is formed has got only 3 carbon atoms, then the reaction is called _____. [1]
- a) Gabriel synthesis
b) Carbylamines reaction
c) Hoffmann bromamide reaction
d) Clemmensen reduction
59. Which of the following is a secondary amine _ [1]
- a) N,N-dimethylaniline
b) 3 – pentanamine
c) N-ethyl propan -1-amine
d) cyclohexylamine
60. When Benzene diazonium chloride reacts with phenol, it forms a dye. This reaction is called [1]
- a) Coupling reaction
b) Diazotisation reaction
c) Acetylation reaction
d) Condensation reaction
61. Which of the following amines can be resolved into enantiomers? [1]
- a) 4 – (dimethylamino) pyridine
b) 2 – pentanamine
c) 3 – pentanamine
d) Trimethylamine
62. Which is most basic out of following amines? [1]
(CH₃)₂NH, C₆H₅NH₂, (C₆H₅)₂ NH, CH₃NH₂
- a) CH₃NH₂
b) (CH₃)₂NH
c) C₆H₅NH₂
d) (C₆H₅)₂NH
63. Which of the following is least basic? [1]
- a) (CH₃)₃N
b) NH₃
c) (CH₃)₂NH
d) 
64. Arrange the following in order of increasing basicity: aniline, p – nitroaniline, p – toluidine, and p – methoxyaniline. [1]
- a) p – nitroaniline < aniline < p – methoxyaniline < p – toluidine
b) p – methoxyaniline p – nitroaniline < aniline < p – toluidine
c) p – nitroaniline < aniline < p – toluidine < p – methoxyaniline
d) aniline < p – methoxyaniline p – nitroaniline < p – toluidine
65. Which of the following amines can be prepared by Gabriel synthesis? [1]
- a) Isobutyl amine
b) N-methylbenzylamine
c) Toluene
d) Aniline
66. Which of the following compound will not undergo azo coupling reaction with benzene diazonium chloride. [1]
- a) Aniline
b) Nitrobenzene
c) Anisole
d) Phenol
67. Which of the following is the weakest Brönsted base? [1]



68. The gas evolved when methylamine reacts with nitrous acid is _____. [1]



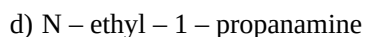
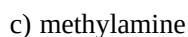
69. The most reactive amine towards dilute hydrochloric acid is _____. [1]



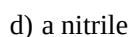
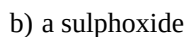
70. The nitrogen's lone pair in pyrrolidine is best described as occupying what type of orbital? [1]



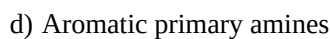
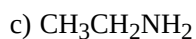
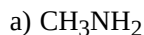
71. Which of the following is an example of secondary amine? [1]



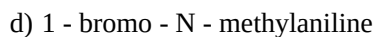
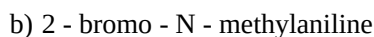
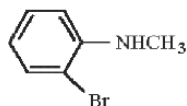
72. When a 1° amine reacts with an alkyl sulfonyl chloride, the major organic product is _____. [1]



73. Which one of the following cannot be obtained by Gabriel phthalimide synthesis? [1]



74. Name the following amine as per the IUPAC system [1]



75. The following compound is called: [1]



a) 2 – aminocyclohexanene

b) 4 – aminocyclohexane

c) pyrrole

d) 4 – aminocyclohexanene