

Amines MCQs For NEET

1. Which of the following has a lower boiling point than ethanamine?

- a) Propane
- b) Ethanal
- c) Ethanol
- d) Methanoic acid

Answer: a

2. If the boiling point of diethylamine is 329 K, predict the boiling point of ethyldimethylamine.

- a) 310 K
- b) 329 K
- c) 340 K
- d) 351 K

Answer: a

3. If the boiling point of $n\text{-C}_4\text{H}_9\text{NH}_2$ is 351 K, what will be the boiling point of $n\text{-C}_4\text{H}_9\text{OH}$?

- a) 329 K
- b) 301 K
- c) 351 K
- d) 390 K

Answer: d

4. If A is the boiling point of propanamine and B is the boiling point of butanamine, what is the correct relation between the two?

- a) $A > B$
- b) $B > A$
- c) $A = B$
- d) $A \gg B$

Answer: b

5. Which of the following amines are insoluble in water?

- a) Methanamine
- b) Ethanamine
- c) Propanamine
- d) Benzenamine

Answer: d

6. If 'x' ml of butan-1amine and 'y' ml of butan-1-ol is completely soluble in 100ml of water each, what is the relation between x and y?

- a) $x > y$
- b) $x < y$
- c) $x = y$
- d) $x + y = 100$

Answer: b

7. Aniline is insoluble in which of the following solvents?

- a) Ethanol
- b) Ethoxyethane
- c) Benzene
- d) Water

Answer: d

8. Which of the following is least soluble in water?

- a) $\text{CH}_3\text{CH}_2\text{NH}_2$
- b) $\text{CH}_3\text{CH}_2\text{OH}$
- c) HCOOH
- d) CH_3NH_2

Answer: a

9. What is the expected geometry of $\text{CH}_3\text{-NH-CH}_3$?

- a) Square planar
- b) Trigonal planar
- c) Trigonal pyramidal
- d) Trigonal bipyramidal

Answer: c

10. What is the bond angle in ammonia molecule?

- a) 106.5°
- b) 107°
- c) 108°
- d) 109.5°

Answer: b

11. Which of the following compounds has to be used in Gatterman reaction?

- a) Chloroform
- b) HCl

- c) Copper powder
- d) Copper chloride

Answer: c

12. Benzenediazonium bromide on Gatterman reaction with HCl does not form which of the following?

- a) Chlorobenzene
- b) Nitrogen gas
- c) Copper bromide
- d) Copper chloride

Answer: d

13. When a diazonium salt is treated with _____ iodobenzene is formed.

- a) potassium iodide
- b) copper iodide
- c) ethyl iodide
- d) iodoform

Answer: a

14. Which of the following is not produced when $C_6H_5N_2^+Br^-$ is warmed with KI?

- a) C_6H_5I
- b) N_2 gas
- c) KBr
- d) KNO_2

Answer: d

15. Benzenediazonium chloride on treatment with _____ gives a product which on heating forms fluorobenzene.

- a) hydrofluoric acid
- b) fluoroboric acid
- c) potassium fluoride
- d) boron trifluoride

Answer: b

16. Aryl fluoride can be obtained directly by heating which arenediazonium salt?

- a) Benzenediazonium fluoride
- b) Benzenediazonium chloride
- c) Benzenediazonium hydrogensulphate
- d) Benzenediazonium fluoroborate

Answer: d

17. Which of the following is formed as a by product of decomposition of arenediazonium fluoroborate to give fluorobenzene?

- a) BF_3
- b) BH_3
- c) H_3BO_3
- d) BN

Answer: a

18. In reactions of diazonium salts involving the displacement of diazonium group, the nitrogen escapes as _____

- a) precipitate
- b) liquid
- c) gas
- d) crystals

Answer: c

19. Identify the most suitable reagent for converting benzene diazonium chloride to chlorobenzene.

- a) CuCl_2/HCl
- b) $\text{Cu}_2\text{Cl}_2/\text{HCl}$
- c) CuSO_4/HCl
- d) $\text{CuSO}_2/\text{H}_2\text{SO}_4$

Answer: b

20. Which of the following cannot be formed from Sandmeyer reaction on benzenediazonium chloride?

- a) Chlorobenzene
- b) Bromobenzene
- c) Iodobenzene
- d) Benzonitrile

Answer: c

21. The complete reaction for the conversion of aniline to benzene, involving the reduction of diazonium salt, is known as _____

- a) diazotisation
- b) deamination
- c) sandmeyer reaction
- d) gatterman reaction

Answer: b

22. Diazonium salts are primarily used for the preparation of _____ substituted aromatic compounds.

- a) alkyl
- b) halogen
- c) amino
- d) COOH

Answer: b

23. Diazonium salts are specifically used as intermediates in the production of which of the following compounds?

- a) m-Bromotoluene
- b) o-Bromotoluene
- c) p-Bromophenol
- d) o-Bromophenol

Answer: a

24. Which of the following diazonium salts is insoluble in water?

- a) $C_6H_5N_2^+Cl^-$
- b) $C_6H_5N_2^+Br^-$
- c) $C_6H_5N_2^+HSO_4^-$
- d) $C_6H_5N_2^+BF_4^-$

Answer: d

25. Which of the following properties is suitable for all diazonium salts?

- a) Water soluble
- b) Coloured solids
- c) Explosive
- d) Unreactive

Answer: c

26. Aromatic diazonium salts are stable at _____ temperatures.

- a) cold
- b) room
- c) warm
- d) high

Answer: a

27. When a blue litmus paper is dipped in an aqueous solution of benzenediazonium bromide, the litmus paper _____

- a) turns red

- b) turns orange
- c) turns black
- d) remains unchanged

Answer: d

28. What is the most suitable temperature for the diazotisation reaction to take place?

- a) 0°C
- b) 10°C
- c) 22°C
- d) 30°C

Answer: a

29. Identify the diazonium group in the diazonium salt $\text{ArN}_2^+\text{Br}^-$.

- a) ArN_2^+
- b) N_2^+Br^-
- c) N_2^+
- d) ArN_2Br

Answer: c

30. Ammonolysis is a type of _____ reaction.

- a) electrophilic addition
- b) electrophilic substitution
- c) nucleophilic addition
- d) nucleophilic substitution

Answer: d

31. What is the type of amine obtained from the ammonolysis of alkyl halides?

- a) Primary
- b) Primary and secondary
- c) Secondary and tertiary
- d) Primary, secondary and tertiary

Answer: c

32. What is the most suitable condition for the ammonolysis of an alkyl halide?

- a) 273K, open tube
- b) 273K, sealed tube
- c) 373K, open tube
- d) 373K, sealed tube

Answer: d

33. The main product formed when the ammonolysis is carried out using excess of iodoethane is

- a) 1° amine
- b) 2° amine
- c) 3° amine
- d) quaternary ammonium salt

Answer: d

34. What is the correct order of reactivity of the following alkyl halides towards ammonolysis reaction?

- a) $\text{CH}_3\text{I} > \text{CH}_3\text{Br} > \text{CH}_3\text{Cl}$
- b) $\text{CH}_3\text{I} > \text{CH}_3\text{Cl} > \text{CH}_3\text{Br}$
- c) $\text{CH}_3\text{Cl} > \text{CH}_3\text{Br} > \text{CH}_3\text{I}$
- d) $\text{CH}_3\text{Br} > \text{CH}_3\text{Cl} > \text{CH}_3\text{I}$

Answer: a

35. Which of the following would not be a good choice for reducing an aryl nitro compound to an amine?

- a) H_2/Pt
- b) LiAlH_4 -ether
- c) Fe and HCl
- d) Sn and HCl

Answer: b

36. Which of the following is the most preferred reagent for reducing nitroethane to ethylamine?

- a) H_2/Pt
- b) Sn/HCl
- c) Fe/HCl
- d) Zn/HCl

Answer: c

37. What is the correct order of pK_b values of the following amines?

- a) Methanamine > Ethanamine > Benzenamine
- b) Benzenamine > Ethanamine > Methanamine
- c) Ethanamine > Methanamine > Benzenamine
- d) Benzenamine > Methanamine > Ethanamine

Answer: d

38. If the pK_b value of ammonia is 4.75, predict the pK_b value of methanamine?

- a) 3.38
- b) 4.70
- c) 8.92
- d) 9.38

Answer: a

39. If the K_b values of ammonia, methylamine and ethylamine are x , y and z respectively, identify the correct relation between x , y and z from the following.

- a) $x > y$
- b) $y < z$
- c) $x > z$
- d) $x > y > z$

Answer: b

40. Consider three gaseous alkylamines A, B and C or 1° , 2° and 3° respectively. What will be the correct order of their basicity?

- a) $A > B > C$
- b) $C > B > A$
- c) $B > A > C$
- d) $B > C > A$

Answer: b

41. The basic strength of alkylamines does not depend on which of the following?

- a) Number of alkyl groups
- b) Size of alkyl groups
- c) Physical state of the amine
- d) Presence of an aromatic ring

Answer: d

42. What is the correct order of basicity of aliphatic amines purely on the basis of solvation effect of the ammonium cation?

- a) $1^\circ > 2^\circ > 3^\circ$
- b) $3^\circ > 2^\circ > 1^\circ$
- c) $2^\circ > 1^\circ > 3^\circ$
- d) $2^\circ > 3^\circ > 1^\circ$

Answer: a

43. Amines are generally _____ in nature.

- a) electrophilic
- b) acidic
- c) basic
- d) neutral

Answer: c

44. Which of the following is associated with decrease in pK_b value of amines?

- a) Increase in acidic strength
- b) Increase in basic strength
- c) Better proton donation
- d) Better electron acceptor

Answer: b

45. The equilibrium constant of the reaction of amines with _____ is taken as a measure of its basic character.

- a) an acid
- b) a base
- c) water
- d) a Lewis base

Answer: c

46. Which of the following aromatic amines has lower pK_b value than ammonia?

- a) Benzylamine
- b) Benzenamine
- c) N-Methylbenzenamine
- d) N, N-Dimethylbenzenamine

Answer: a

47. Which of the following amines will be most reactive when treated with HCl?

- a) N-Methylmethanamine
- b) N,N-Dimethylmethanamine
- c) N-Ethylethanamine
- d) N,N-Diethylethanamine

Answer: c

48. How many more resonating structures does aniline have than anilinium ion?

- a) 2

- b) 3
- c) 4
- d) 5

Answer: b

49. Which of the following groups when present at para position increases the basic strength of aniline?

- a) NO_2
- b) Br
- c) NH_2
- d) COOH

Answer: c

50. Which of the following is the least basic amine?

- a) p-Bromoaniline
- b) p-Chloroaniline
- c) p-Nitroaniline
- d) p-Aminobenzonitrile

Answer: c

51. The compound $\text{CH}_3\text{NHC}_6\text{H}_5$ is a _____ amine.

- a) aliphatic simple
- b) aliphatic mixed
- c) aromatic simple
- d) aromatic mixed

Answer: d

52. Which of the following is a 2° amine?

- a) $\text{CH}_3\text{CH}_2\text{NHCH}_3$
- b) $(\text{CH}_3)_3\text{N}$
- c) $(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{NCH}_3$
- d) $\text{C}_6\text{H}_5\text{NH}_2$

Answer: a

53. Which of the following is the most suitable classification for $\text{C}_6\text{H}_5\text{NHCH}_3$?

- a) Tertiary amine
- b) Aliphatic amine
- c) Arylalkyl amine
- d) Mixed amine

Answer: d

54. Which of the following is an arylalkyl amine?

- a) $C_6H_5NHC_6H_5$
- b) $C_6H_5NH_2$
- c) $(C_6H_5CH_2)NH$
- d) $(C_6H_5)_3N$

Answer: c

55. Which of the following categories does $CH_3-NH-CH_3$ not belong to?

- a) Secondary amine
- b) Simple amine
- c) Aliphatic amine
- d) Mixed amine

Answer: d

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