Amines

1. **Assertion (A):** Aniline does not give Friedel crafts reaction

Reason (R): strong deactivating group can not show Friedel craft reaction

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

2. **Assertion (A):** Carbylamine reaction involves the reaction between primary amine and chloroform in the presence of alkali.

Reason (R): In carbylamines reaction, NH_2 group changes to NC group.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

3. **Assertion (A):** Aniline does not undergo Friedel-Crafts reaction.

Reason (R): Friedel-Crafts reaction is an electrophilic substitution reaction.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

4. **Assertion (A):** Aniline reacts with bromine water to form 2,4,6-tribromoaniline.

Reason (R): Aniline is resonance stabilized.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

5. **Assertion (A):** The order of basicity among the following is

$CH_3CH_2NH_2 > NH_3 > C_6H_5NH_2$.

Reason (R): Electron releasing groups increase the basicity of amines while electron withdrawing groups decrease the basicity.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

6. **Assertion (A):** n-Propylamine has a higher boiling point than trimethylamine

Reason (R): Among n-propylamine molecules there is hydrogen bonding but there is no hydrogen bonding among trimethylamine molecules.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

7. **Assertion (A):** All the amines except tertiary amines are capable of forming intermolecular hydrogen bonds.
Reason (R): Tertiary amines have larger molecules and surface area.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

8. **Assertion (A):** Aromatic amines are less basic than alkyl amines
Reason (R): The π electrons on the aromatic ring decrease the basic character.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

9. **Assertion (A):** $(CH_3)_3N$ boils at 276 K, while $CH_3CH_2CH_2NH_2$ boil at 322 K though both have same molecular mass
Reason (R): Molecules of $CH_3CH_2CH_2NH_2$ form hydrogen bonds while $(CH_3)_3N$ molecules are incapable of forming hydrogen bonds.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

10. **Assertion (A):** In strongly acidic solutions, aniline becomes less reactive towards electrophilic reagents
Reasons (R): The amino group being completely protonated in strongly acidic solution, the lone pair of electrons on nitrogen is no longer available for resonance.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

11. **Assertion (A):** $C_6H_5NH_2$ is a 1° amine and can be prepared by Phthalimide synthesis.
Reason (R): $C_6H_5NH_2$ is strongly basic in nature.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

12. **Assertion (A):** Amines have a higher boiling point than the corresponding alcohols.
Reason (R): Alcohols possess intramolecular H-bonding
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

13. **Assertion (A):** Aniline does not undergo the Friedel-Crafts reaction.

Reason (R): Diazonium salts of aromatic amines are more stable than those of aliphatic amines.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

14. **Assertion (A):** Secondary amines have higher boiling point than their respective tertiary isomers

Reason (R): H-bonding is absent in tertiary amines.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

15. **Assertion (A):** pK_b of aniline is higher than ethylamine.

Reason (R): The lone pair of $-NH_2$ group in aniline is involved in conjugation with a benzene ring.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

16. Match the reaction given in Column I with the statements given in Column II.

Column I		Column II	
A.	Ammonolysis	I.	Amine with a lesser number of carbon atoms
B.	Gabrielphthal imide synthesis	II.	Detection test for primary amines
C.	Hofmann bromamide reaction	III.	Reaction of phthalimide with KOH and R–X
D.	Carbylamine reaction	IV	Reaction of alkyl halides with NH_3

	A	B	D	C
(1)	II	III	IV	I
(2)	III	I	IV	II
(3)	I	IV	III	II
(4)	IV	III	I	II

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)

(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)

(3) (A) is true but (R) is false

(4) Both (A) and (R) are false

17. **Assertion (A):** Nitration of aniline at a low temperature gives 47% m-nitroaniline.
Reason (R): In acidic medium NH_2 group is converted into $-\overset{+}{N}H_3$ group which is m-directing.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

18. **Assertion (A):** CH_3NH_2 on reaction with chloroform and KOH gives isocyanide.
Reason (R): The reaction involve carbocation formation

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

19. **Assertion (A):** Ethyl acetate is more reactive than acetamide towards nucleophilic substitution.
Reason (R): $-OC_2H_5$ is more electron attraction than $-NH_2$ group.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Ans.	2	1	2	2	2	1	3	3	1	1	4	4	2	1	1	4	1	3	1