

TEST-B

SOLVED

Time:1 hr.

Max. Marks: 30

SECTION-A

Tick the correct option:

- The reagent which can be used to distinguish between ethylamine and dimethylamine is [1]
(i) Benzene sulphonyl chloride (ii) Chloroform and ethanolic potash
(iii) Both (i) and (ii) (iv) None of these
- Which of the following is not a Sandmeyer reaction? [1]
(i) $\text{C}_6\text{H}_5\text{N}_2^+\text{Cl}^- \xrightarrow{\text{Cu}_2\text{Cl}_2/\text{HCl}} \text{C}_6\text{H}_5\text{Cl} + \text{N}_2$
(ii) $\text{C}_6\text{H}_5\text{N}_2^+\text{Cl}^- \xrightarrow{\text{Cu}_2\text{Br}_2/\text{HBr}} \text{C}_6\text{H}_5\text{Br} + \text{N}_2$
(iii) $\text{C}_6\text{H}_5\text{N}_2^+\text{Cl}^- \xrightarrow{\text{CuCN/KCN}} \text{C}_6\text{H}_5\text{CN} + \text{N}_2$
(iv) $\text{C}_6\text{H}_5\text{N}_2^+\text{Cl}^- \xrightarrow{\text{Cu}_2\text{I}_2/\text{HI}} \text{C}_6\text{H}_5\text{I} + \text{N}_2$
- How many amines with a molecular formula $\text{C}_3\text{H}_9\text{N}$ will liberate colourless, odourless nitrogen gas on treatment with $\text{NaNO}_2 + \text{HCl}$? [1]
(i) 1 (ii) 2 (iii) 3 (iv) zero

Assertion-Reason type Questions:

- (i) If assertion and reason both are correct and reason is the correct explanation of assertion.
(ii) If assertion and reason both are correct and reason is not the correct explanation of assertion.
(iii) If assertion is correct and reason is wrong.
(iv) If assertion is wrong and reason is correct.
- Assertion: Benzene diozonium chloride undergo coupling reaction with phenol to form azodyes. [1]
Reason: Coupling reaction is an example of electrophilic substitution reaction.
- Assertion: Aniline can be protected from oxidation by conc. HNO_3 by using acetylation. [1]
Reason: Acetylation converts aniline into acetanilide.

One word /One Sentence type Questions.

- Draw the structure and write IUPAC name of the sulphanilic acid. [1]
- Write chemical equation for the following conversion [1]



8. Arrange the following in order of increasing property indicated:

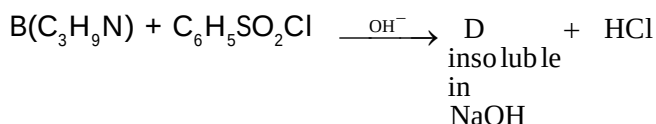
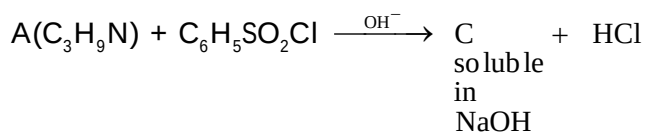
[2]

(i) $C_6H_5NH_2$, $C_6H_5CH_2NH_2$, $(C_2H_5)_2NH$, $CH_3CH_2NH_2 \rightarrow$ base strength

(ii) $C_6H_5NH_2$, $(C_2H_5)_2NH$, C_2H_5OH , $C_2H_5NH_2 \rightarrow$ solubility in water.

9. Identify A, B, C and D in the following sequence of reactions

[2]



10. Convert

[2]

(i) Isopropyl amine to propanone

(ii) Acetamide to methylamine

11. (a) Explain the following name reactions:

[2+1]

(i) Gabriel phthalimide synthesis

(ii) Gattermann reaction

(b) Give one use of quaternary ammonium salts.

12. Account for the following:

[3]

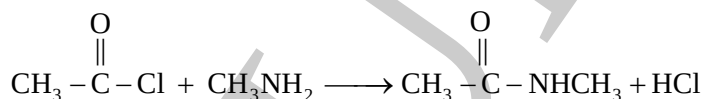
(i) Although amino group is o- and p-directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline.

(ii) Diazonium salts of aromatic amine are more stable than those of aliphatic amines.

(ii) Aniline does not undergo Friedel-Craft's reaction.

13. (a) Explain the mechanism of the following reaction:

[2+1]

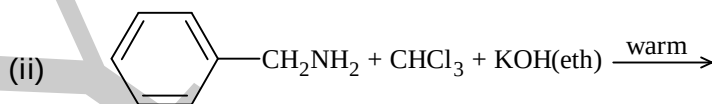
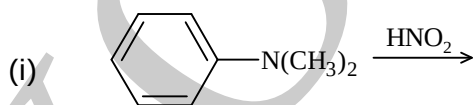


(b) Convert 4-nitrotoluene to 2-bromobenzoic acid.

14. Write structures of different isomers corresponding to the molecular formula C_3H_9N . Write IUPAC names of the isomers which will liberate nitrogen gas on reaction with HNO_2 . [3]

15. (a) Write the structure of the major product of the following reactions:

[2+3]



(b) Write the structures of A, B and C in each of the following sequence of reactions:

