

# DPP

DAILY PRACTICE PROBLEMS

Class : XII<sup>th</sup>

Date :

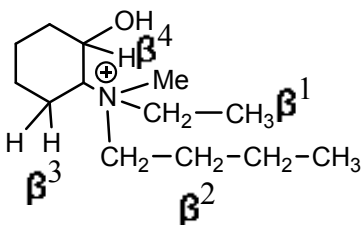
Solutions

Subject : CHEMISTRY

DPP No. : 9

## Topic :- Amines

1 (b)

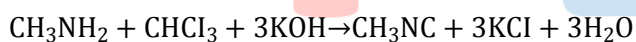


There are four  $\beta$ -hydrogens, in this quaternary ammonium salt.

On heating quaternary ammonium salt gives Hofmann elimination (abstraction of most acidic hydrogen which is  $\beta^1$ ).

Hence, major product is  $\text{CH}_2 = \text{CH}_2$ . (Least substituted alkene).

2 (b)



$\text{CH}_3\text{NC}$  or  $\text{CH}_3 - \text{N}^+ \equiv \text{C}^-$  methyl isocyanide or methyl carbylamine.

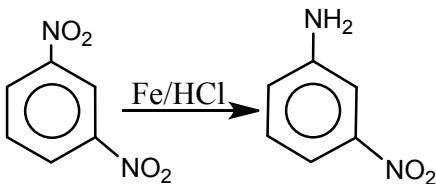
This reaction is an example of carbylamine reaction and it is used for the distinction of *p*-amines from *s*- and *t*-amines or identification of *p*-amino group.

5 (c)

Roullé first isolated urea (in 1773) from urine and named it as urea.

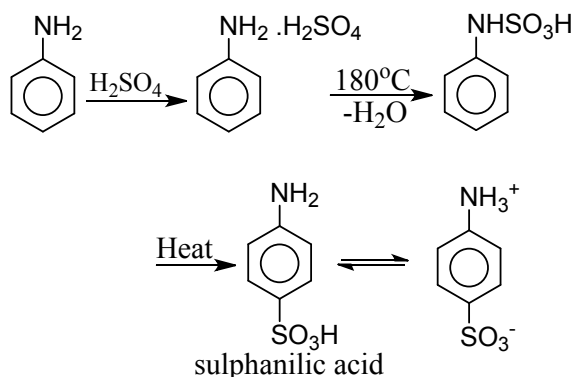
6 (d)

Reduction of  $\text{NO}_2$  group to  $\text{NH}_2$  group is taking place by  $\text{Fe}/\text{HCl}$ .



8

(d)



Sulphanilic acid exists as a dipolar ion which has acidic and basic groups in the same molecule. Such ions are called Zwitter ions or inner salts

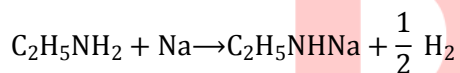
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(a)

For detection of secondary amines Liebermann's nitroso test is used.

11

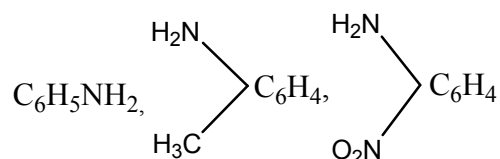
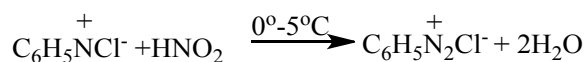
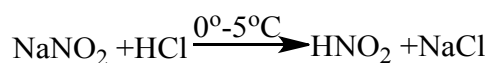
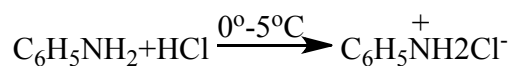
(c)



12

(b)

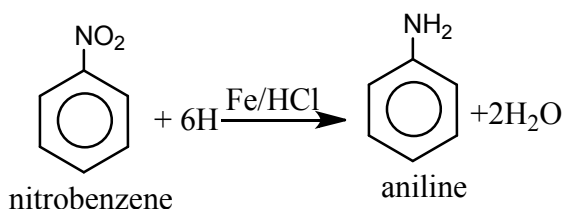
Only 1° aromatic amine (primary aromatic amine) from diazonium salts at low temperature (0° – 5°C). A reaction in which –NH<sub>2</sub> group is converted into diazo group (–N<sup>+</sup>≡N) is called diazotization. Diazotized salts are stable in cold aqueous solution.



Amines, so undergo diazotization but C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>NH<sub>2</sub> (aliphatic amine) will not undergo diazotisation.

13 (b)

Aniline is prepared by the reduction of nitrobenzene in acidic medium.



14 (b)

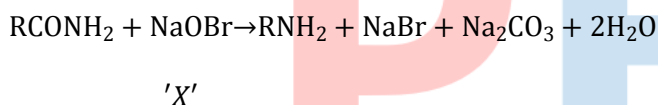
Amines possess fishy smell.

16 (a)

Electrons donors are bases. Greater the stabilisation of cation formed by loss of electron more will be basicity of amine.

2° amine is more basic than 3° amine because 2° amine is stabilized by hydrogen bonding with solvent molecule.

17 (c)



18 (d)

Benzyl amine ( $\text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$ ) is more basic than aniline ( $\text{C}_6\text{H}_5\text{NH}_2$ ) because N-atom of aniline is delocalized over the benzene ring. However in benzyl amine the lone pair of electrons on the N-atom is not conjugated with the benzene ring and therefore it is not delocalized. Hence, the lone pair of electrons on the N-atom in benzyl amine is more readily available for protonation than that on the N-atom of aniline. Thus, the benzyl amine is a stronger base than aniline.

19 (d)

Tertiary amines react as,  
 $(\text{CH}_3)_3\text{N} + \text{HNO}_2 \rightarrow (\text{CH}_3)_3\text{NHNO}_2$

| <b>ANSWER-KEY</b> |           |           |           |           |           |           |           |           |           |           |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Q.</b>         | <b>1</b>  | <b>2</b>  | <b>3</b>  | <b>4</b>  | <b>5</b>  | <b>6</b>  | <b>7</b>  | <b>8</b>  | <b>9</b>  | <b>10</b> |
| <b>A.</b>         | <b>B</b>  | <b>B</b>  | <b>D</b>  | <b>A</b>  | <b>C</b>  | <b>D</b>  | <b>B</b>  | <b>D</b>  | <b>D</b>  | <b>A</b>  |
|                   |           |           |           |           |           |           |           |           |           |           |
| <b>Q.</b>         | <b>11</b> | <b>12</b> | <b>13</b> | <b>14</b> | <b>15</b> | <b>16</b> | <b>17</b> | <b>18</b> | <b>19</b> | <b>20</b> |
| <b>A.</b>         | <b>C</b>  | <b>B</b>  | <b>B</b>  | <b>B</b>  | <b>C</b>  | <b>A</b>  | <b>C</b>  | <b>D</b>  | <b>D</b>  | <b>B</b>  |
|                   |           |           |           |           |           |           |           |           |           |           |

**PE**