Transweb Educational Services Pvt Ltd
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Class: 12
Subject: chemistry
Topic: Amines
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 603

1. Carbylamine test is answered by

A. methylamine
B. dimethylamine
C. trimethylamine
D. methylaniline

Solution: A

Only primary amines answer carbylamine reaction

2. Mark the correct statement

A. Methylamine is slightly acidic
B. Methylamine is less basic than ammonia
C. Methylamine is a stronger base than ammonia
D. Methylamine forms salts with alkalies

Solution: C

Methyl amine is a stronger base than ammonia due to +I effect. The alkyl groups which are electron releasing groups increase the electron density around the nitrogen thereby increasing the availability of the lone pair of electrons to proton or lewis acid and making the amine more basic

$$\underset{K_b = 1.8 \times 10^{-5}}{NH_3} \quad \underset{44 \times 10^{-5}}{CH_3NH_2}$$

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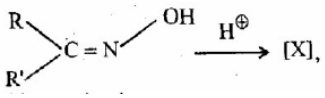
3. 

the product and name of this reaction is

A. $R-\overset{\overset{O}{\|}}{C}-NHR'$; Pinnacole rearrangem ent

B. $R-\overset{\overset{O}{\|}}{C}-NHR'$; Fries rearrangem ent

C. $R-\overset{\overset{O}{\|}}{C}-NHR'$; Beckmann' s rearrangem ent

D. $R-\overset{\overset{O}{\|}}{C}-NHR'$; Allylic rearrangem ent

Solution: C

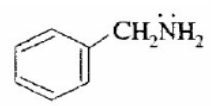
Back mann rearrangement is use to form N-alky1 amide

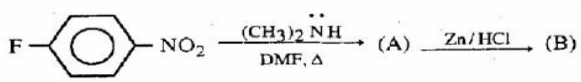
4. Among the following the most basic compound is

A. P-nitroaniline
B. acetanilide
A. c. aniline
B. d. benzylamine

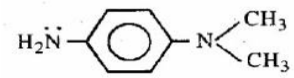
Solution: D

Benzylamine is most basic . in others the basic character is suppressed due to Resonance.

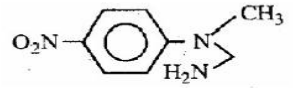


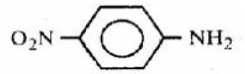


5. (B) is –

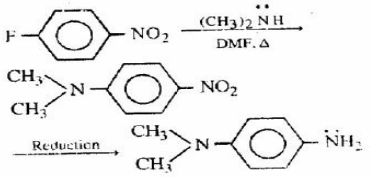
A. 

B. 

C. 

D. 

Solution: A



6. In the reaction,

$RNH_2 \xrightarrow{HNO_2} A + B + C\uparrow; C$ is

A. NH_3
B. N_2
C. O_2
D. CO_2

Solution: B

$$\underset{(A)}{RNH_2} \xrightarrow{HNO_2} \underset{(B)}{ROH} + \underset{(C)}{H_2O} + N_2\uparrow$$

7. The compound obtained by heating a mixture of a primary amine and chloroform with ethanolic potassium hydroxide (KOH) is

A. an alky1 cyanide
B. a nitro compound
C. an alky1 isocyanide

D. an amide

Solution: C

we know that

$$CH_3CH_2NH_2 + CHCl_3 + 3KOH \rightarrow CH_3CH_2NC + 3KCl + 3H_2O$$

In this reaction, bad smelling compound ethy1 isocyanide

(CH_3CH_2 NC)is produced This equation is know as carbylamin e reaction

8. An organic amino compound reacts with aqueous nitrous acid at low temperature to produce an oily nitrosoamine. The compound is

A. CH_3NH_2
B. $CH_3CH_2NH_2$
C. $CH_3CH_2NHCH_2CH_3$
D. $(CH_3CH_2)_3N$

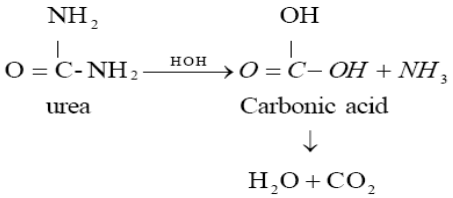
Solution: C

Since the organic amino compound on reaction with nitrous acid low temperature produces an oily nitrosoamine so the organic amino compound is a secondary aliphatic amines

9. Hydrolysis of urea

A. NH_3
B. H_2O
C. CO_2
D. all of these

Solution: D



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10. p-Chloroanilineand anilinium hydrogen chloride can distinguished by

A. Sandmeyer reaction
B. Carbylamine reaction
C. Hinsberg' s reaction
D. $AgNO_3$

Solution: D

p-Chloroaniline and anilinium hydrogen chloride can be distinguished by $AgNO_3$. Anilinium hydrogen chloride will give white ppt of AgCl on reaction with $AgNO_3$ but *p*-Chloroaniline will not react with it because Cl is directly attached to benzene nucleus

11. Which one of the following is the strongest base in aqueo solution?

A. Methylamine
B. Trimethylamine
C. Aniline
D. Dimethylamine

Solution:D

Aromatic amines are less basic than aliphatic amines. Among aliphatic amines the order of basicity is $2° > 1° > 3°$ The electron density is decreased in $3°$ amine due to crowding of alkyl group over N atom which makes the approach and bonding by a proton relatively difficult. Therefore the basicity decreases. Further Phenyl group show - I effect, thus decreases the electron density on nitrogen atom and hence the basicity. $\therefore$ dimethylam ine ($2°$ aliphatic amine) is strongest base among given choices.

12. The starting compound in the manufacture of sulpha drugs is

A. benzaldehyde
B. Aniline
C. methy1 aminesalicylic acid
D. Magnine

Solution:B

Aniline is first converted to sulphanilic acid. It is then used as the starting substance for the manufacture of sulpha drugs

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13 Identify the wrong statement

A. Carbyl amine is a cyanide
B. Due to its characteristic smell, methyl isocyanide is readily identified
C. Production of carbyl amine can be used as a test for all the three types of amines
D. After the carbyl amine test, the contents of the test tube is acidified to stop the production of morecarbyl amine

Solution: C

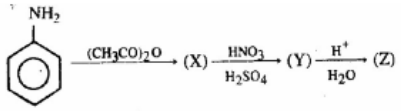
Carbylamine test is answered only by a primary amine containing -NH_2 group

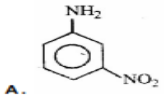
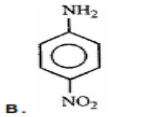
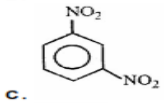
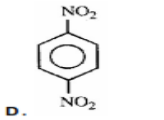
14.Carbylamine test is used in the detection of

A. aliphatic secondary amine
B. aliphatic primary amine
C. aromatic primary amine
D. both aliphatic and aromatic primary amines

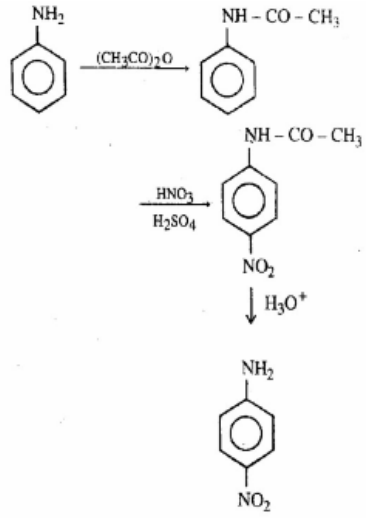
Solution: D

Any primary amine containing - NH_2 group can answer carbylamine test

15. Product Z of the reaction 

A. 
B. 
C. 
D. 

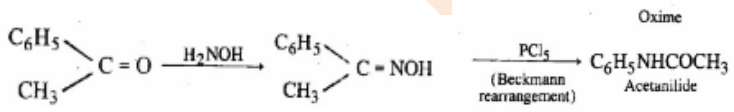
Solution: B



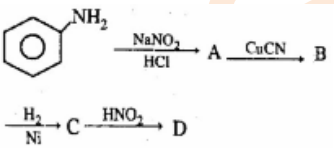
16.The conversion of acetophenone to acetanilide is best accomplished by using

A. Beckmann rearrangement
B. Curtius rearrangement
C. Lossen rearrangement
D. Hofmann rearrangement

Solution: A



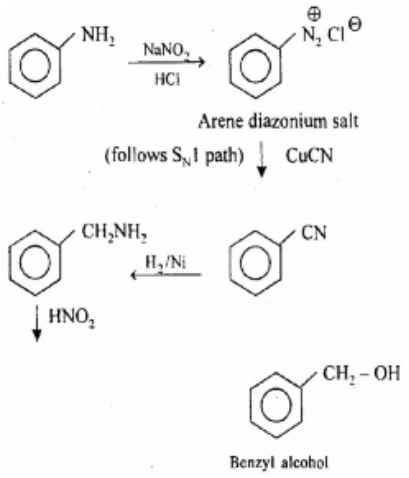
17.Aniline in a set of reactions yielded a product D.



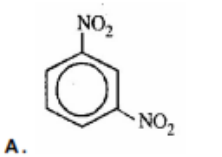
The structure of the product D would be

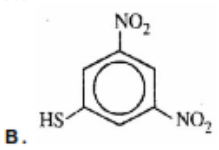
A. C_6H_5NHOH
B. $C_6H_5NHCH_2CH_3$
C. $C_6H_5CH_2NH_2$
D. $C_6H_5CH_2OH$

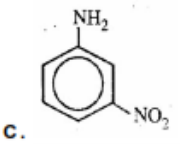
Solution: D

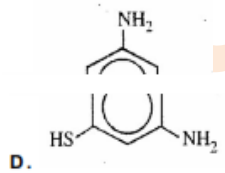


18.The major product (70% to 80%) of the reaction between m-dinitrobenzene withNH_4HS is









Solution: C

19. Which one of the following is the weakest base?

A. Dimethyl amine
B. Ammonia
C. Aniline
D. Methyl amine

Solution: C

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20. Which of the following will produce isopropyl amine

1. $(CH_3)_2CO \xrightarrow{NH_2OH} X \xrightarrow{LiAlH_4}$
2. $CH_3\text{-}CH_2\text{-}CHO \xrightarrow[heat]{NH_3} X \xrightarrow{LiAlH_4}$
3. $(CH_3)_2CH\text{-}OH + PCl_5 \rightarrow X \xrightarrow{NH_3}$
4. $CH_3\text{-}CH_2\text{-}CH_2\text{-}NH_2 \xrightarrow{heat}$

A. II, II
B. II, III
C. I, III
D. IV only

Solution: C

$$CH_3CH_2CN \xrightarrow{H^+/H_2O} CH_3CH_2COOH \xrightarrow[\Delta]{NH_3} >$$

$$CH_3CH_2CONH_2 \xrightarrow[NaOBr]{Hoffman\ bromide\ reaction} > CH_3CH_2NH_2$$