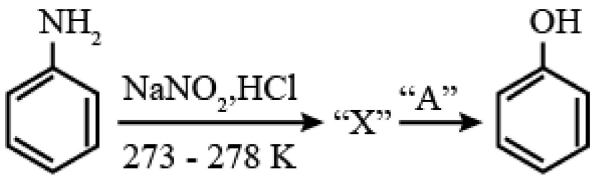
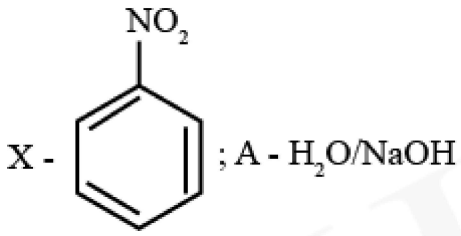
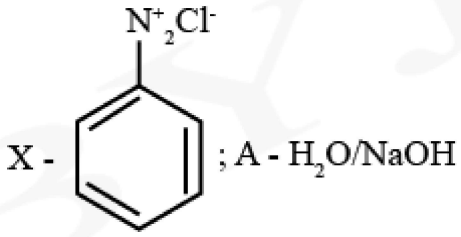
1. Choose the correct answer:

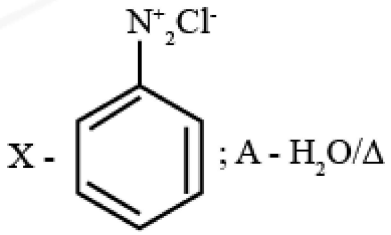


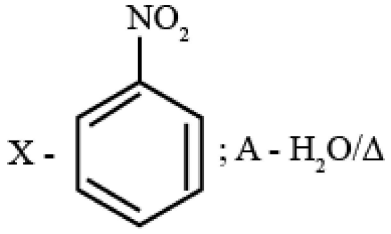
Major Product

In the above chemical reaction, intermediate "X" and reagent / condition "A" are

A. 

B. 

C. 

D. 

2. Ammonolysis of Alkyl halides followed by the treatment with NaOH solution can be used to prepare primary, secondary and tertiary amines. The purpose of NaOH in the reaction is

   A. To remove basic impurities

   B. To activate NH_3 used in the reaction

   C. To remove acidic impurities

   D. To increase the reactivity of alkyl halide

3. Which of the following reaction is an example of ammonolysis ?

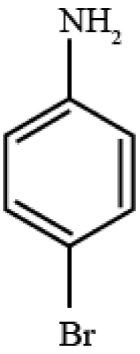
   A. $C_6H_5CH_2Cl + NH_3 \rightarrow C_6H_5CH_2NH_2$

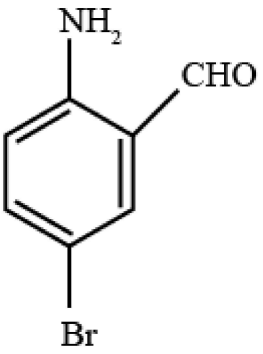
   B. $C_6H_5NH_2 \xrightarrow{HCl} C_6H_5NH_3^+Cl^-$

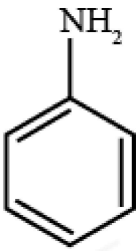
   C. $C_6H_5COCl + C_6H_5NH_2 \rightarrow C_6H_5CONHC_6H_5$

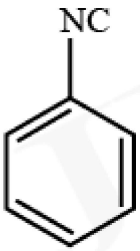
   D. $C_6H_5CH_2CN \xrightarrow{[H]} C_6H_5CH_2CH_2NH_2$

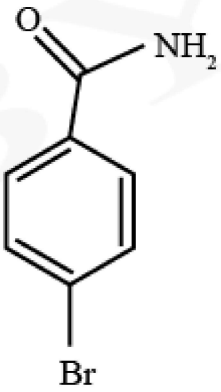
4. Hoffmann bromamide degradation of benzamide gives product A, which upon heating with $CHCl_3$ and $NaOH$ gives product B. The structures of A and B are:

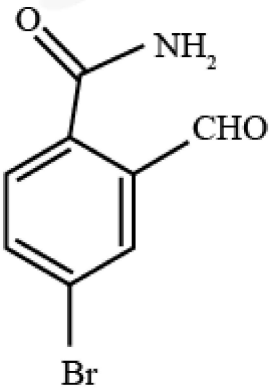
A. A - 

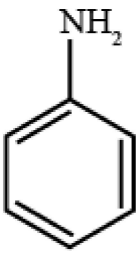
B - 

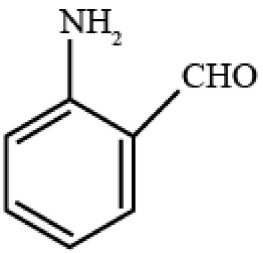
B. A - 

B - 

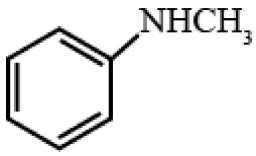
C. A - 

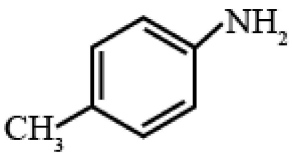
B - 

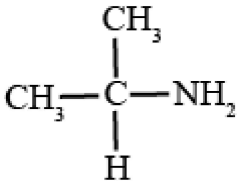
D. A - 

B - 

5. Which one of the following gives the most stable diazonium salt?

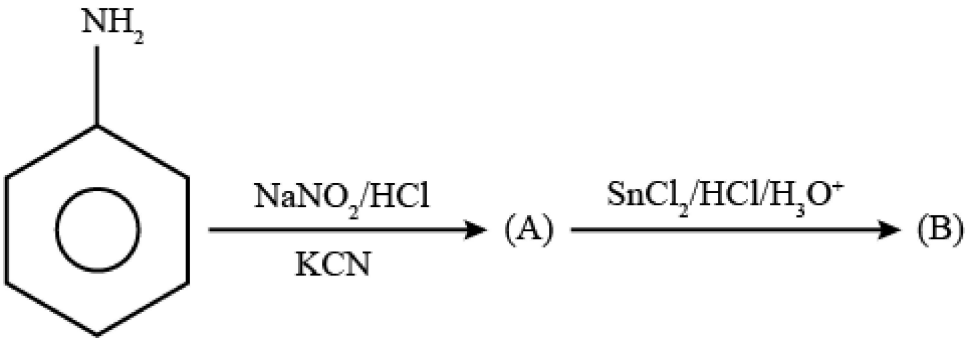
A. 

B. 

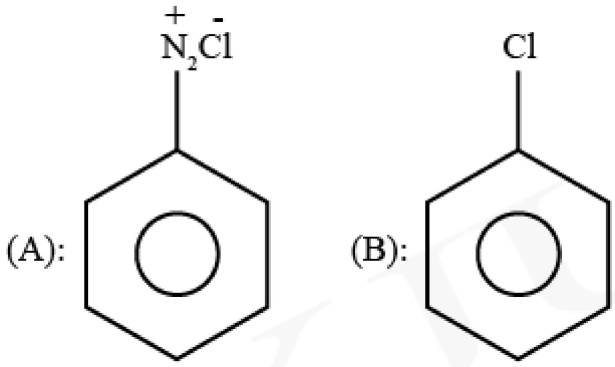
C. 

D. $CH_3—CH_2—CH_2—NH_2$

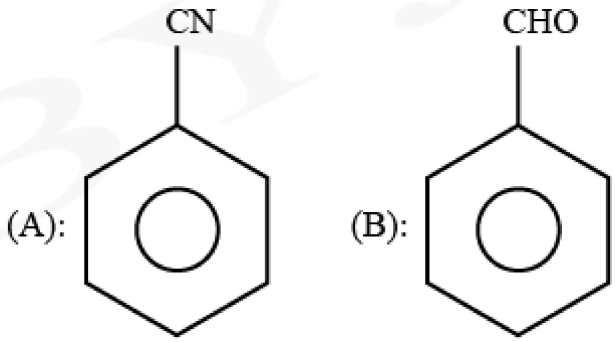
6. 'A' and 'B' in the following reactions are:



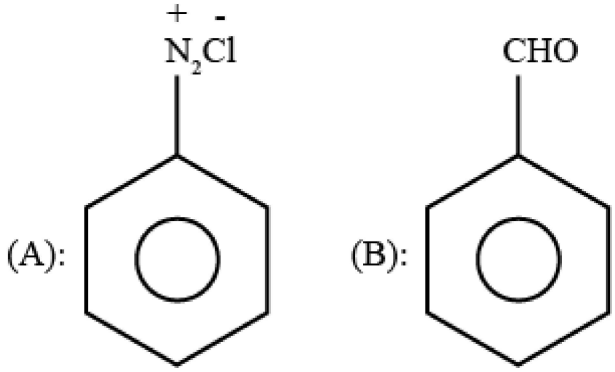
A.



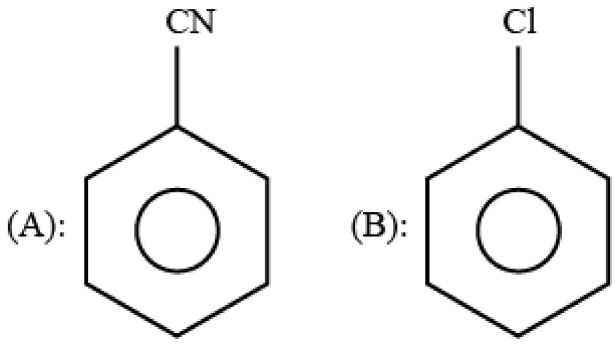
B.



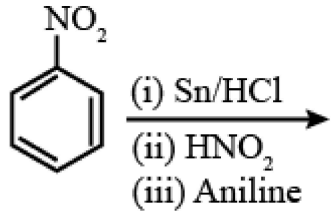
C.

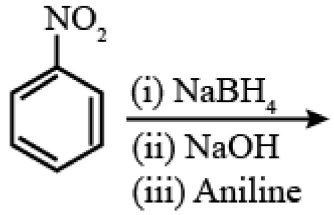


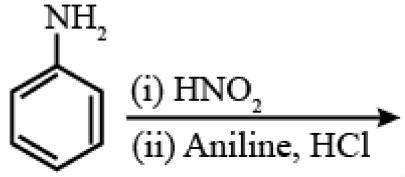
D.



7. Which of the following reaction/s will not give p - aminoazobenzene ?

A 

B 

C 

A. C only

B. B only

C. A only

D. A and B

8. Which one of the following vitamins has a role in blood clotting ?

A. Vitamin A

B. Vitamin D

C. Vitamin E

D. Vitamin K

9. Which among the following pairs of Vitamins is stored in our body relatively for longer duration?

   A. Ascorbic acid and Vitamin D

   B. Vitamin A and Vitamin D

   C. Thiamine and Ascorbic acid

   D. Thiamine and Vitamin A

10. The secondary structure of protein is stabilised by:

   A. Hydrogen bonding

   B. van der waals forces

   C. Glycosidic bond

   D. Peptide bond

11. Which of the following statement is not true for glucose?

   A. Glucose reacts with hydroxylamine to form oxime

   B. The pentaacetate of glucose does not react with hydroxylamine to give oxime

   C. Glucose exists in two crystalline forms α and β

   D. Glucose gives Schiff's test for aldehyde

12. $A,\ B\ and\ C$ are three biomolecules. the results of teh tests performed on them are given below :

	Molisch's Test	Barfoed Test	Biuret Test
A	Positive	Negative	Negative
B	Positive	Positive	Negative
C	Negative	Negative	Positive

$A,\ B\ and\ C$ are respectively:

A. $\mathrm{A} = \mathrm{Glucose}, \mathrm{B} = \mathrm{Fructose}, \mathrm{C} = \mathrm{Albumin}$

B. $\mathrm{A} = \mathrm{Lactose}, \mathrm{B} = \mathrm{Glucose}, \mathrm{C} = \mathrm{Alanine}$

C. $\mathrm{A} = \mathrm{Lactose}, \mathrm{B} = \mathrm{Fructose}, \mathrm{C} = \mathrm{Alanine}$

D. $\mathrm{A} = \mathrm{Lactose}, \mathrm{B} = \mathrm{Glucose}, \mathrm{C} = \mathrm{Albumin}$

13. The correct observation in the following reactions is :

$$\mathrm{Sucrose} \xrightarrow[\text{Cleavage (Hydrolysis)}]{\text{Glycosidic bond}} \mathrm{A} + \mathrm{B} \xrightarrow[\text{reagent}]{\text{Seliwanoff's}}$$

A. Formation of blue colour

B. Formation of violet colour

C. Formation of red colour

D. Gives no colour

14. Which of the following is a fully fluorinated polymer?

A. Neoprene

B. Teflon

C. Thiokol

D. PVC

15. Bakelite is obtained from phenol by reacting with:

    A. $(CH_2OH)_2$

    B. CH_3CHO

    C. CH_3COCH_3

    D. $HCHO$

16. The polymer containing strong intermolecular forces like hydrogen bonding is:

    A. Teflon

    B. Nylon-6,6

    C. Polystyrene

    D. Natural rubber

17. Consider the Assertion and Reason given below:
    Assertion (A): Ethene polymerized in the presence of Ziegler Natta catalyst at high temperature and pressure is used to make buckets and dustbins.
    Reason (R): High density polymers are closely packed and are chemically inert.
    Choose the correct answer from the following:

    A. (A) is correct but (R) is wrong

    B. (A) and (R) both are wrong

    C. Both (A) and (R) are correct and (R) is the correct explanation of (A)

    D. Both (A) and (R) are correct but (R) is not the correct explanation of (A)

18. Which polymer has ‘chiral’ monomer(s)?

A. PHBV

B. Nylon 6,6

C. Buna-N

D. Neoprene

19. Orlon fibres are made up of:

A. Cellulose

B. Polyesters

C. Polyamide

D. Polyacrylonitrile

20. A biodegradable polymer can be made from:

A. Glycine and isoprene

B. Glycine and aminocaproic acid

C. Styrene and caproic acid

D. Hexamethylenediamine and adipic acid

21. The S in Buna-S refers to:

A. Strength

B. Styrene

C. Sulphur

D. Sodium

22. Which statement is correct?

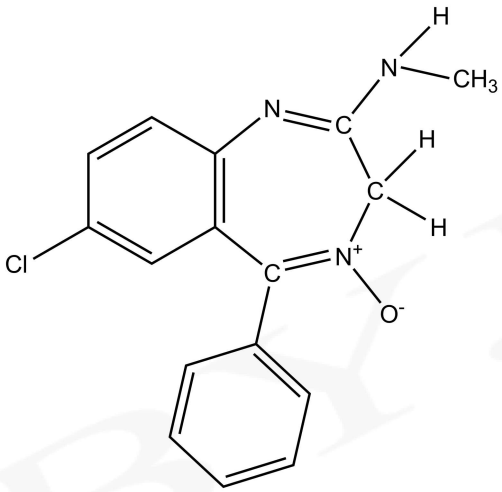
A. Synthesis of Buna-S needs nascent oxygen

B. Buna -S is a synthetic and linear thermosetting polymer

C. Buna -N is a natural polymer

D. Neoprene is an addition copolymer used in plastic bucket manufacturing

23.



chlordiazepoxide

The class of drug to which chlordiazepoxide with above structure belongs is:

A. Antacid

B. Analgesic

C. Tranquilizer

D. Antibiotic

24. If a person is suffering from the deficiency of nor-adrenaline, what kind of drug can be suggested?

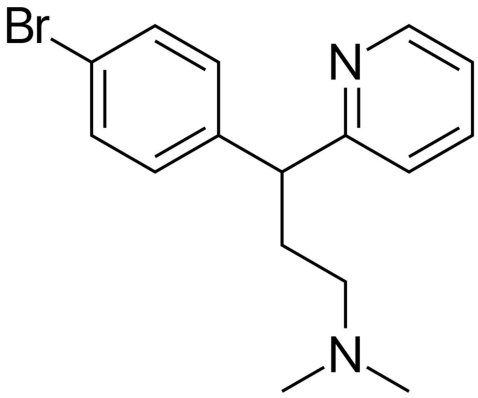
A. Antihistamine

B. Antidepressant

C. Anti-inflammatory

D. Analgesic

25. The following molecule (Brompheniramine) acts as an:



A. Antiseptic

B. Anti-bacterial

C. Anti-histamine

D. Anti-depressant

26. Which of the following is an anionic detergent ?

A. Sodium stearate

B. Sodium lauryl sulphate

C. Cetyltrimethyl ammonium bromide

D. Glyceryl oleate

27. Which of the following is a bactericidal antibiotic?

A. Ofloxacin

B. Tetracycline

C. Chloramphenicol

D. Erythromycin

28. The artificial sweetener that has the highest sweetness value in comparison to cane sugar is :

A. Aspartane

B. Saccharin

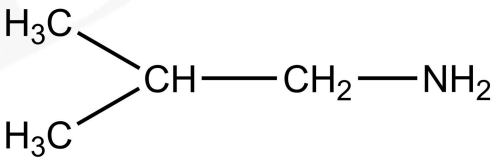
C. Sucralose

D. Alitame

29. The total number of reagents from those given below, that can convert nitrobenzene into aniline is _____. (Integer answer)

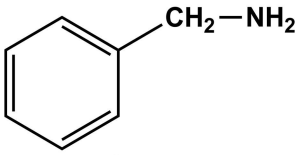
$Sn - HCl$
$Sn - NH_4OH$
$Fe - HCl$
$Zn - HCl$
$H_2 - Pd$
$H_2 - Raney\ Nickel$

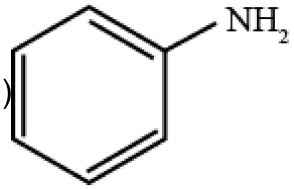
30. The total number of amines among the following which can be synthesised by Gabriel synthesis is _____.

(a) 

(b) $CH_3CH_2NH_2$

(c)



(d) 

31. A peptide synthesised by the reactions of one molecule each of Glycine, Leucine, Aspartic acid and Histidine will have ____ peptide linkages.

32. The number of chiral centres present in threonine is

33. The number of chiral carbons present in sucrose is