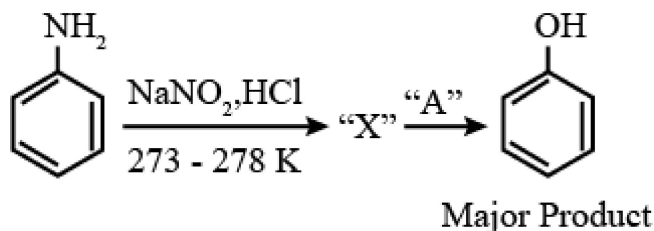
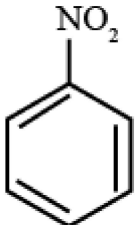
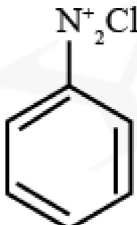
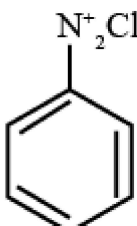
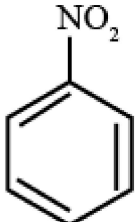


## Amines + Biomolecules + Polymers + CIEL

1. Choose the correct answer:

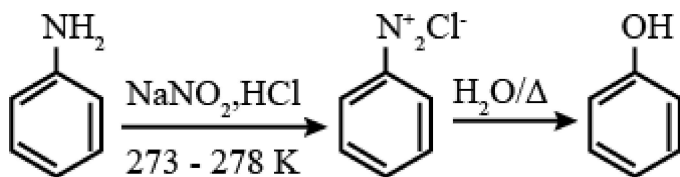


In the above chemical reaction, intermediate "X" and reagent / condition "A" are

- ☐ A.  ; A - H<sub>2</sub>O/NaOH
- ☐ B.  ; A - H<sub>2</sub>O/NaOH
- ☒ C.  ; A - H<sub>2</sub>O/Δ
- ☐ D.  ; A - H<sub>2</sub>O/Δ

## Amines + Biomolecules + Polymers + CIEL

$\text{NaNO}_2$  with  $\text{HCl}$  forms nitrous acid which gives nitrosonium ion. Amines reacts with nitrosonium ion to form diazonium salt. The nitrosonium ion is stable at  $0^\circ\text{C}$ .



Benzene diazonium salt with water gives phenol.

Benzene diazonium salt with  $\text{NaOH}$  gives phenoxide which can react with unreacted diazonium salt to give azo product.

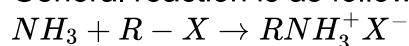
Hence, option (c) is the correct answer.

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

- ☒ A. To remove basic impurities
- ☒ B. To activate  $\text{NH}_3$  used in the reaction
- ☒ C. To remove acidic impurities
- ☒ D. To increase the reactivity of alkyl halide

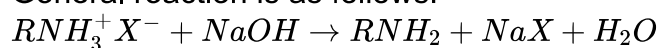
Alkyl and benzyl halides on reaction with an alcoholic solution of ammonia (nucleophile) undergo nucleophilic substitution of the halogen atom by the amino group ( $-\text{NH}_2$ ). This process is known as ammonolysis.

General reaction is as follows:



Then, the substituted ammonium salt reacts with strong base to give free amine.

General reaction is as follows:



Thus, it removes the acidic impurities as salt ' $\text{NaX}$ '

Hence, option (c) is correct.

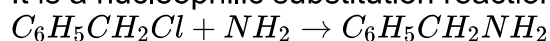
## Amines + Biomolecules + Polymers + CIEL

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

(a) Ammonolysis of alkyl halides is the reaction of alkyl halide with  $NH_3$  which leads to the preparation of amines.

It is a nucleophilic substitution reaction.



(b) In this reaction, aniline reacts with acid to form ammonium salt.

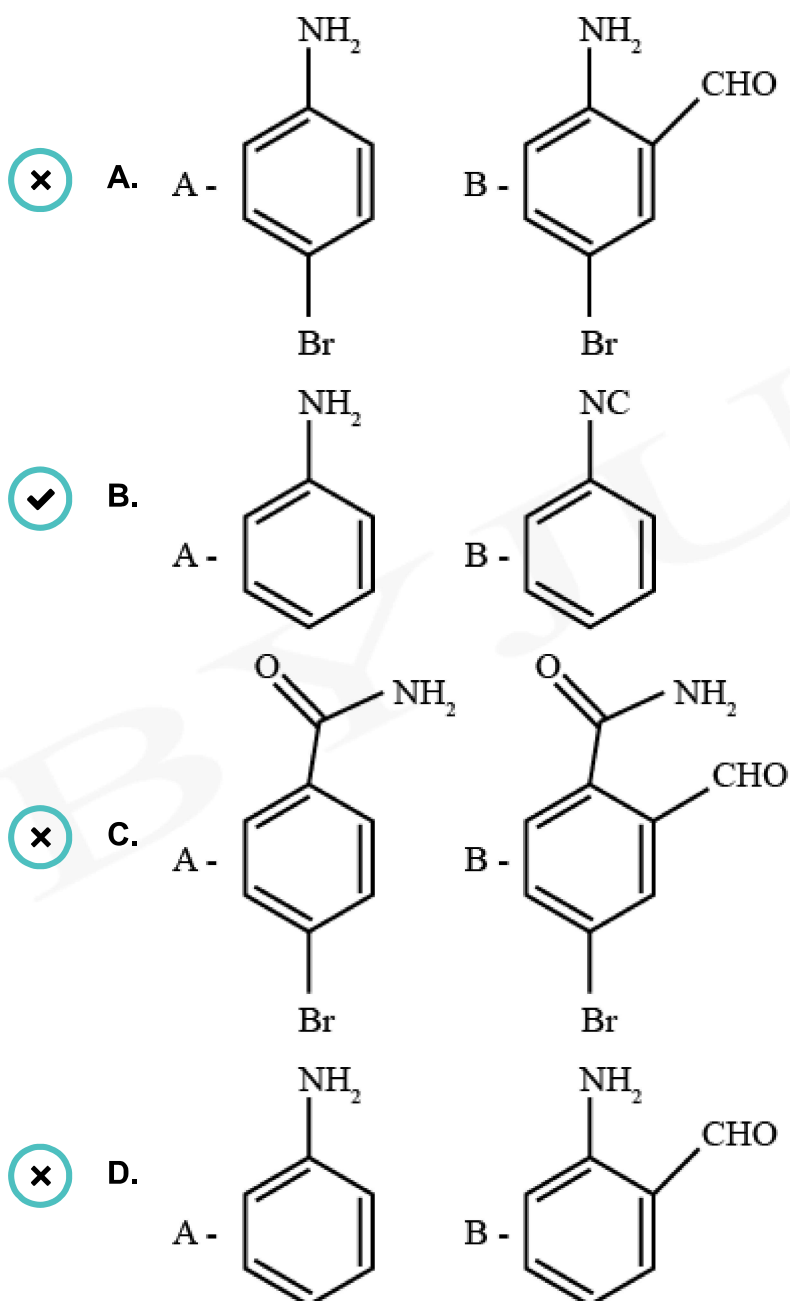
(c). It is a nucleophilic addition reaction.

(d). It is the reduction reaction of nitrile to amine.

Hence, option (a) is correct.

## Amines + Biomolecules + Polymers + CIEL

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:



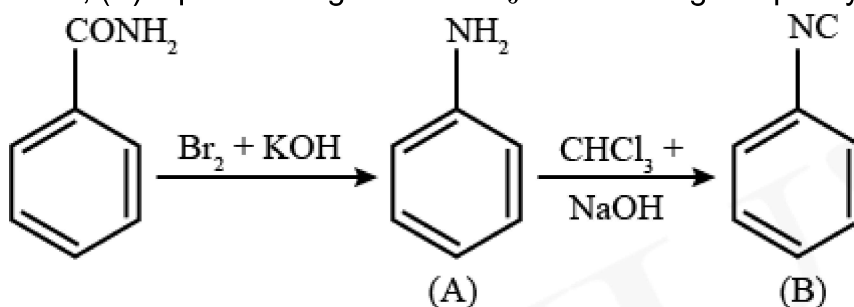
## Amines + Biomolecules + Polymers + CIEL

When an amide is treated with bromine in an aqueous or ethanolic solution of sodium hydroxide, degradation of amide takes place leading to the formation of primary amine. This reaction involving degradation of amide and is popularly known as Hoffmann bromamide degradation reaction. The primary amine thus formed contains one carbon less than the number of carbon atoms in that amide.

Hoffmann bromamide degradation of benzamide gives aniline.

Reaction of a primary amine with chloroform and a base will give isocyanides. This reaction is called Carbylamine reaction.

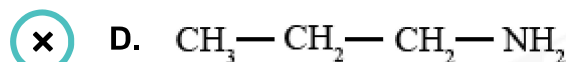
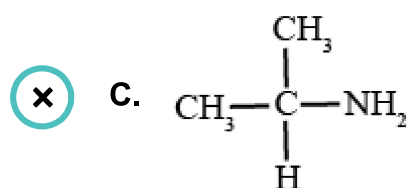
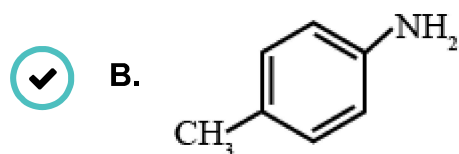
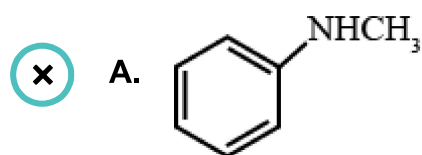
Thus, (A) upon heating with  $\text{CHCl}_3$  and NaOH gives phenyl isocyanide (B).



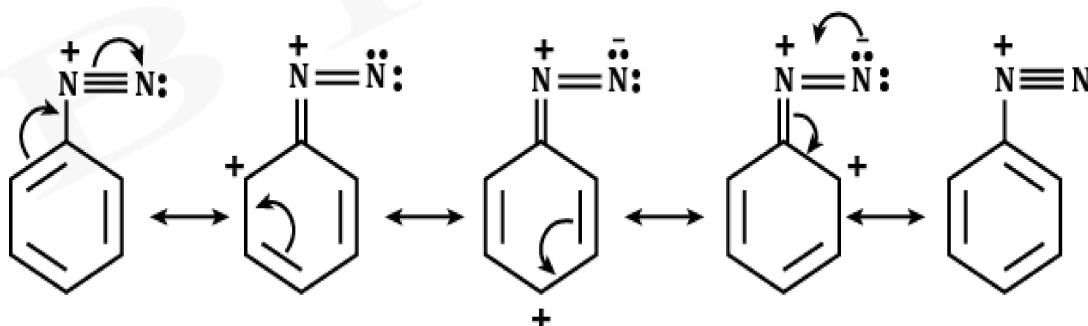
Hence, option (b) is the correct answer.

## Amines + Biomolecules + Polymers + CIEL

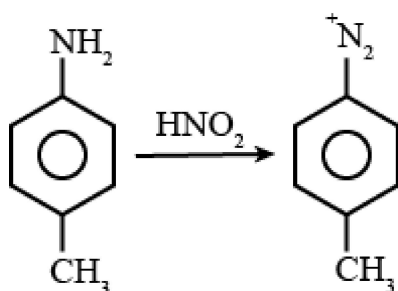
5. Which one of the following gives the most stable diazonium salt?



Due to resonance there is a dispersal of positive charge on the benzene ring. This resonance accounts for the stability of the diazonium ion. Hence, diazonium salts of aromatic amines are more stable than those of aliphatic amines.



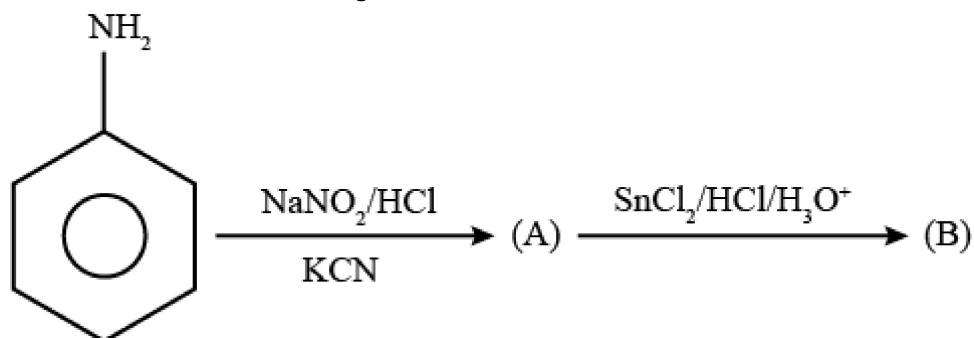
Since, partial double bond character is present between C and N in benzenediazonium cation, hence removal of  $-\text{N}_2$  is difficult.



Aliphatic amines, secondary amines and tertiary amines form less stable diazonium salt.

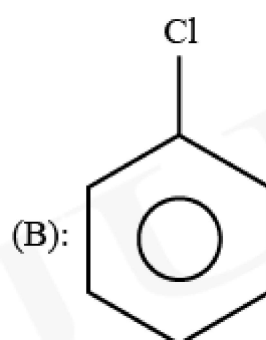
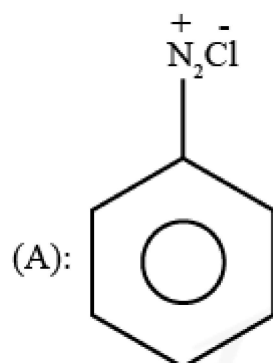
# Amines + Biomolecules + Polymers + CIEL

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



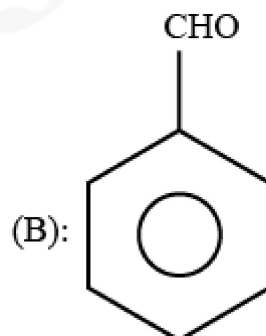
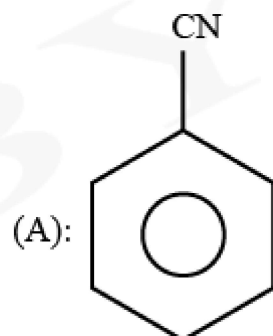
✗

A.



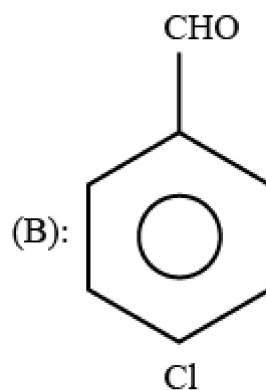
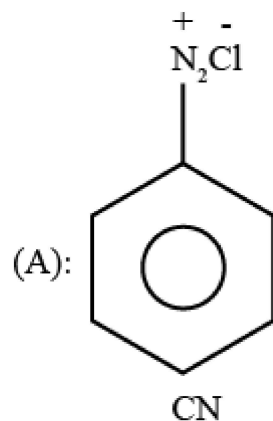
✓

B.



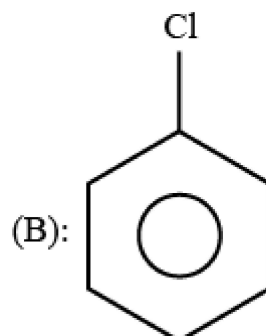
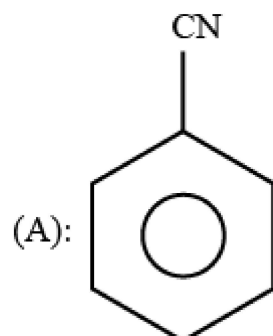
✗

C.



✗

D.

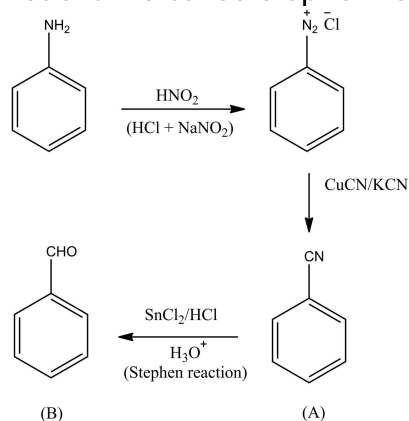


## Amines + Biomolecules + Polymers + CIEL

$\text{NaNO}_2$  with  $\text{HCl}$  forms nitrous acid which gives nitrosonium ion. Amines reacts with nitrosonium ion to form diazonium salt.

Diazonium salt on reacting with  $\text{CuCN}$ ,  $\text{CN}$  replace the  $\text{N}_2$  to form compound 'A' since it is a good leaving group.

Reaction of nitrile group with  $\text{SnCl}_2/\text{HCl}$  gives aldehyde product. This reaction is called stephen reaction.

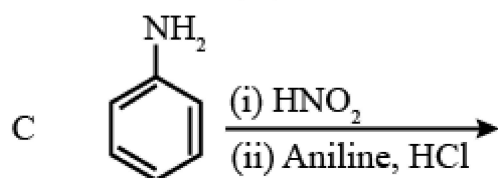
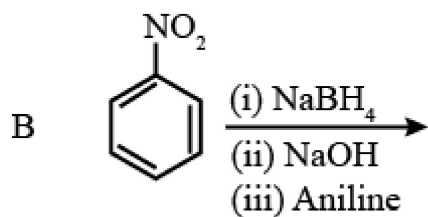
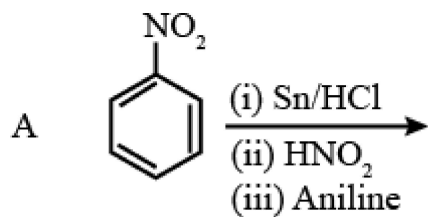


Hence, option (b) is correct.



## Amines + Biomolecules + Polymers + CIEL

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



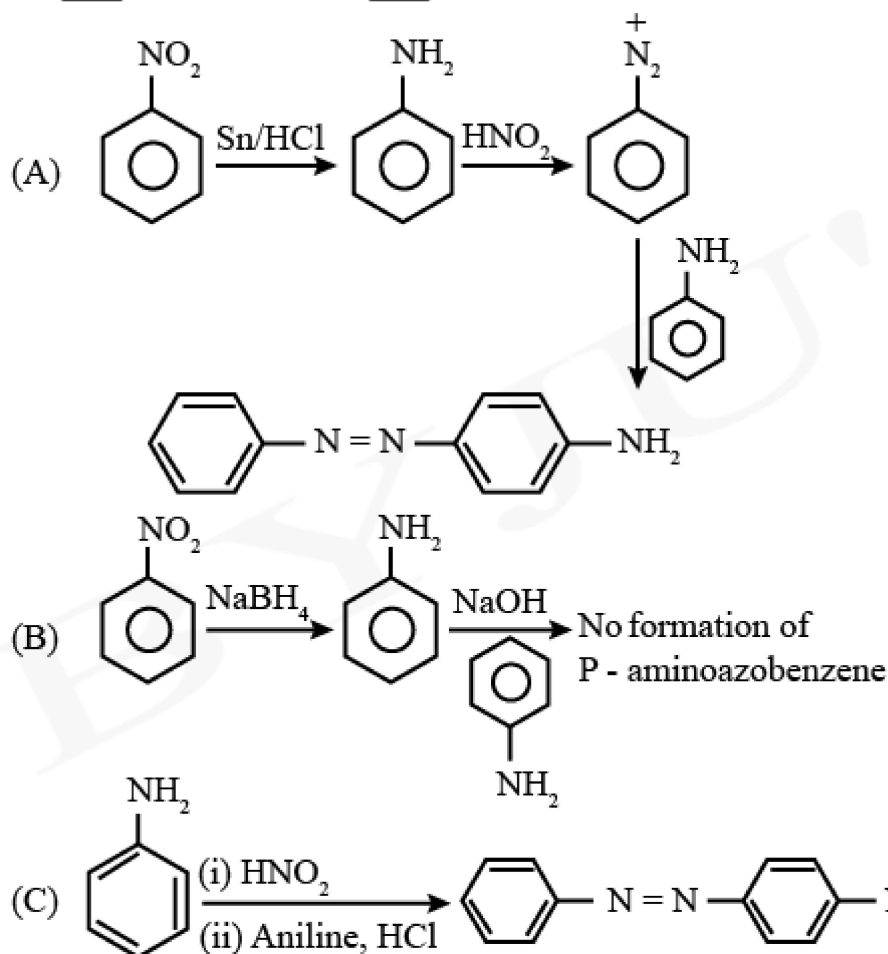
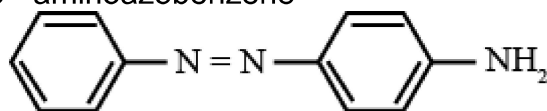
- ☒ A. C only
- ☒ B. B only
- ☒ C. A only
- ☒ D. A and B

## Amines + Biomolecules + Polymers + CIEL

$\text{Sn/HCl}$  is a reducing agent. It will reduce  $\text{NO}_2$  group to  $\text{NH}_2$  group. Aniline with  $\text{HNO}_2$  gives benzene diazonium salt which on reaction with aniline it gives an azo product (p-aminoazobenzene). This reaction is called azo coupling.

Para position is favourable due to less steric hindrance.

p - aminoazobenzene



Hence, option (b) is correct.

## Amines + Biomolecules + Polymers + CIEL

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

A. Vitamin A takes part in the formation of visual retinal pigments like rhodopsin, iodopsin etc. and thus, it is required for normal vision.  
 B. Vitamin D regulates the metabolism of calcium and phosphorus and in turn affects the growth of body by affecting the growth of bone and teeth.  
 C. Vitamin E is necessary for maintaining sterility.  
 D. Vitamin K is necessary for the formation of prothrombin (important component of blood clotting mechanism) in the liver of human beings and thus, it is involved in clotting of blood.  
 So, the correct answer is 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

Vitamins which are soluble in fat and oils but insoluble in water are fat soluble vitamins, which are stored in our body relatively for longer time.  
 e.g. *Vitamin A and Vitamin D*  
 Thiamine (*Vit B<sub>1</sub>*, ) and Ascorbic acid (*Vit C*) are water soluble.

## Amines + Biomolecules + Polymers + CIEL

10. The secondary structure of protein is stabilised by:

- ☒ A. Hydrogen bonding
- ☐ B. van der waals forces
- ☐ C. Glycosidic bond
- ☐ D. Peptide bond

The secondary structure of protein is stabilised by hydrogen bonding. For stabilization of the secondary structure of proteins, there is a major contribution of the hydrogen bonds. Strands of proteins or peptides have distinct characteristic of secondary structure, dependent on hydrogen bonding. The two main types of secondary structure are the  $\alpha$ -helix and the  $\beta$ -sheet.

The  $\alpha$ -helix is a right-handed coiled strand. The side-chain substituents of the amino acid groups in an  $\alpha$ -helix extend to the outside. Hydrogen bonds form between the oxygen of the  $C=O$  of each peptide bond in the strand and the hydrogen of the  $N-H$  group of the peptide bond four amino acids below it in the helix.

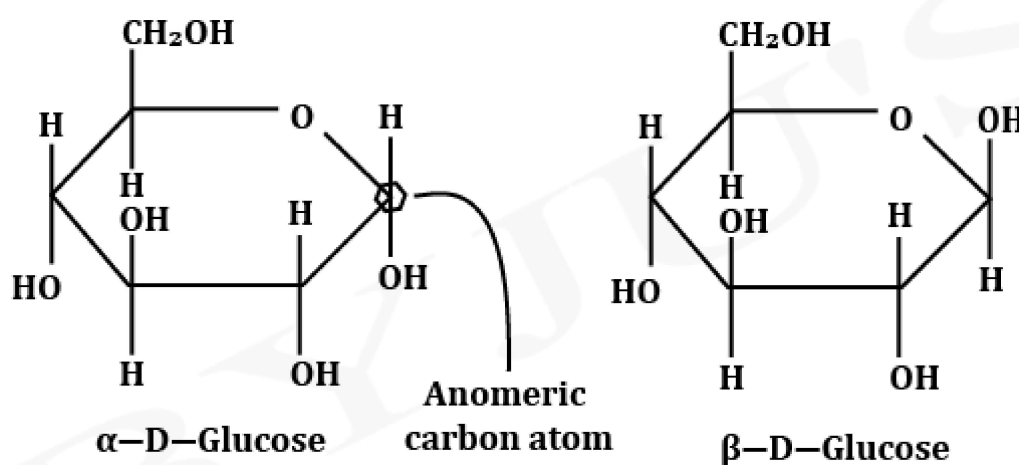
The hydrogen bonding in a  $\beta$ -sheet is between strands (inter-strand) rather than within strands (intra-strand). The sheet conformation consists of pairs of strands lying side-by-side.

## Amines + Biomolecules + Polymers + CIEL

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  $\alpha$  and  $\beta$
- ☒ D. Glucose gives Schiff's test for aldehyde

Glucose exists in two anomeric forms  $\alpha$  and  $\beta$  by mutarotation.



Aldehyde group react with hydroxylamine to give oxime.

Glucose with anomeric hydroxyl group can convert to ring opening structure which contain aldehyde.

Thus, it forms oxime with  $NH_2OH$  and its pentaacetate does not react with  $NH_2OH$  because its anomeric  $OH$  group is converted into acetate group.

Pyranose structure (Closed ring) is quite stable and is not broken down by Schiff's reagent which is a weak base. Hence, it does not form hydrazone and giving a negative Schiff's test.

Hence, option (d) is correct answer.

## Amines + Biomolecules + Polymers + CIEL

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
<i>A</i>	Positive	Negative	Negative
<i>B</i>	Positive	Positive	Negative
<i>C</i>	Negative	Negative	Positive

*A, B and C* are respectively:

- ☒ **A.** *A* = Glucose, *B*= Fructose, *C* = Albumin
- ☒ **B.** *A*=Lactose, *B*= Glucose, *C*= Alanine
- ☒ **C.** *A*= Lactose, *B*= Fructose, *C* = Alanine
- ☒ **D.** *A* = Lactose, *B* =Glucose, *C*= Albumin

## Amines + Biomolecules + Polymers + CIEL

### 1. Molisch's test :

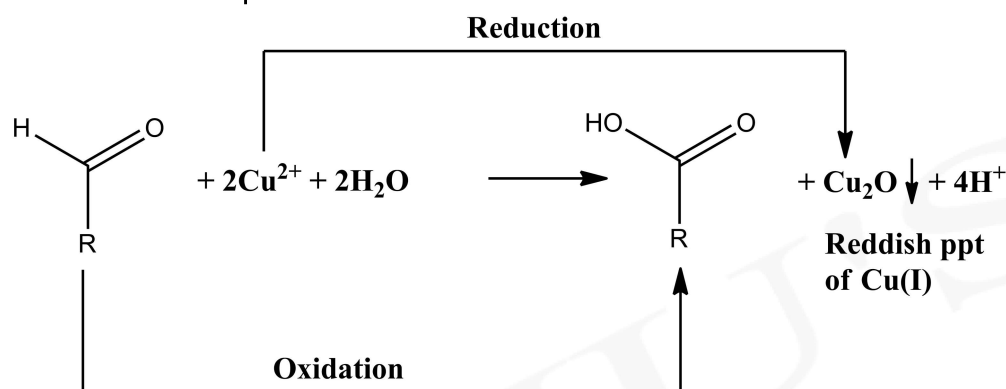
→ It detects the presence of carbohydrate.

eg. Lactose, Glucose, Fructose

This test based on the dehydration of the carbohydrate by sulfuric acid or hydrochloric acid to produce an aldehyde, which condenses with two molecules of a phenol (usually  $\alpha$ -naphthol), resulting in a violet ring.

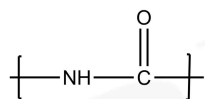
### 2. Barfoed's test:

→ It detects the presence of Monosaccharides.



### 3. Biuret's test:

→ It detects the presence of peptide bond.



Peptide linkage

Lactose - carbohydrate (Disaccharide)

Glucose - Carbohydrate (Monosaccharide)

Albumin - Protein (Peptide bonds will be present)

Alanine - Amino acid (No peptide bond).

Fructose - Carbohydrate (Monosaccharide).

Sucrose - Carbohydrate (Disaccharide).

Lactose: Only Molisch's Test

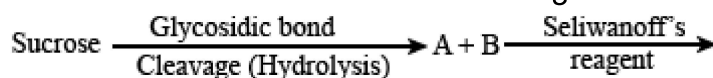
Glucose: Molisch's Test and Barfoed Test

Albumin: Only Biuret Test

So, A, B, and C respectively are Lactose, Glucose and Albumin.

## Amines + Biomolecules + Polymers + CIEL

13. The correct observation in the following reactions is :



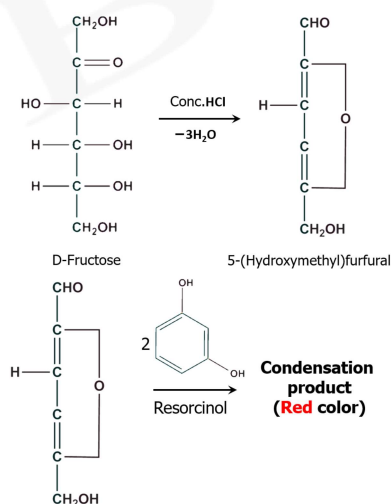
- ☒ A. Formation of blue colour
- ☒ B. Formation of violet colour
- ☒ C. Formation of red colour
- ☒ D. Gives no colour

Seliwanoff's test is used to distinguish aldoses and ketoses. Ketoses give positive test for Seliwanoff test. Sucrose on hydrolysis gives glucose and fructose. Fructose is ketose sugar so it gives positive test.

While heating hexoses and ketoses with seliwanoff's reagenet, the dehydration will takes place and followed by reaction with resorcinol gives a condensation product (Red colour).

Since the rate dehydration of ketoses is higher it readily form red colour solution.

Upon prolonged heating, hexose also can give a appreciable colour.



It is a specific test for ketose.

Hence, option (c) is the correct answer.



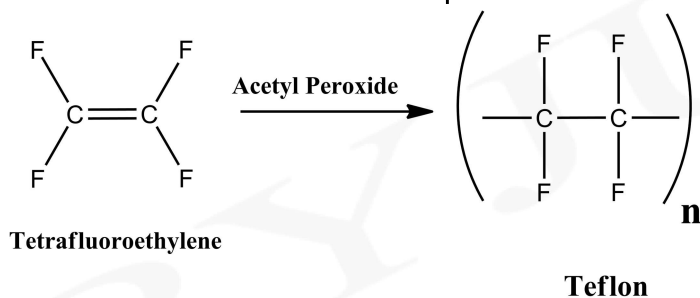
## Amines + Biomolecules + Polymers + CIEL

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

- ☒ A. Neoprene
- ☒ B. Teflon
- ☒ C. Thiokol
- ☒ D. PVC

Fully fluorinated polymers mean a polymer that contains only fluorine rather than other substituents.

Teflon or polytetrafluoroethylene (PTFE) is a fully fluorinated polymer. It is prepared when tetrafluoroethylene is subjected to polymerization in presence of acetyl peroxide which gives rise to an additional polymer. The above reaction involved in this process is written below:



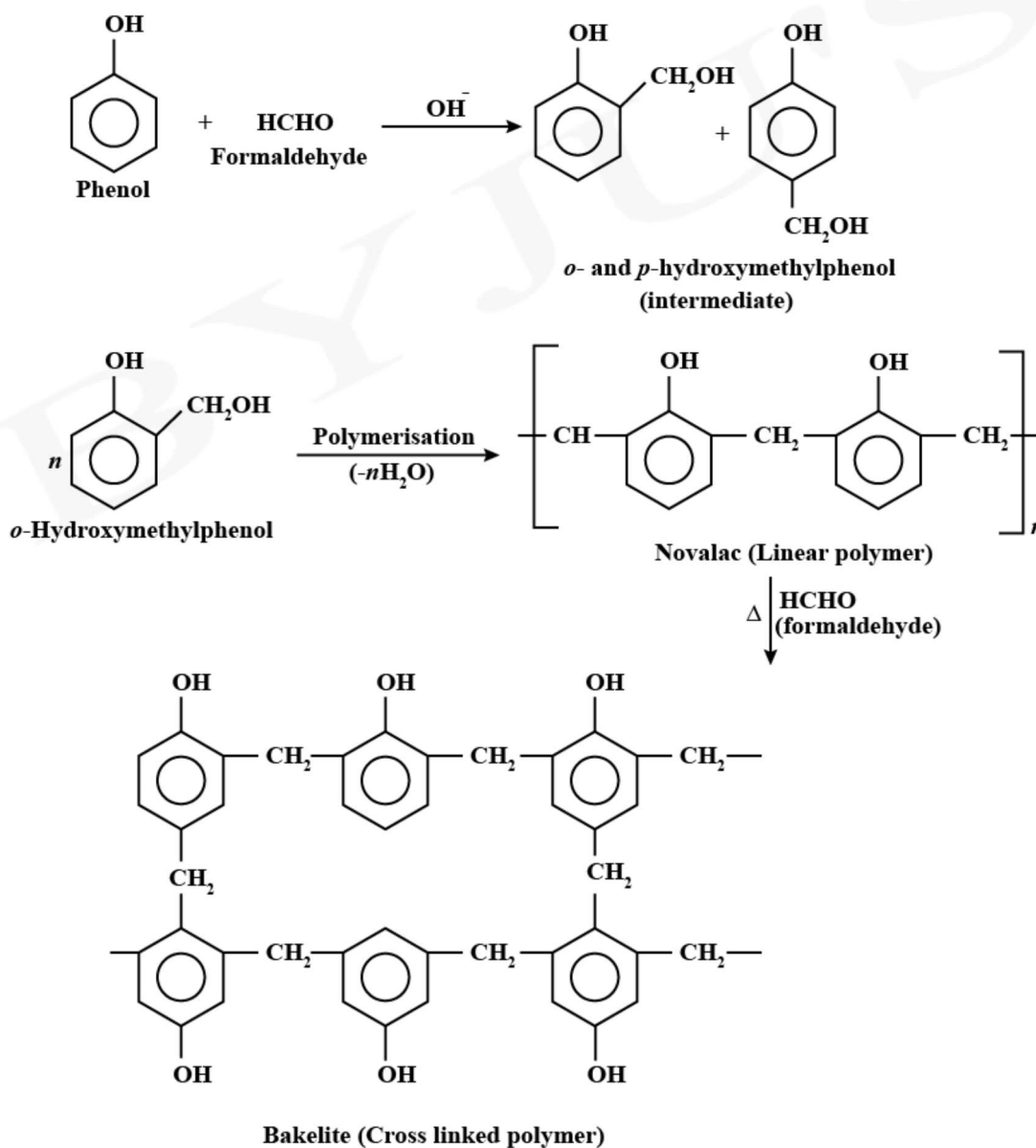
Hence, Teflon is a fully fluorinated polymer.

## Amines + Biomolecules + Polymers + CIEL

15. Bakelite is obtained from phenol by reacting with:

- ☒ A.  $(CH_2OH)_2$
- ☒ B.  $CH_3CHO$
- ☒ C.  $CH_3COCH_3$
- ☒ D.  $HCHO$

Bakelite is obtained by the condensation reaction of phenol with formaldehyde. It is a type of cross-link polymer.



Option (d) is correct

## Amines + Biomolecules + Polymers + CIEL

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

- ☒ A. Teflon
- ☒ B. Nylon-6,6
- ☒ C. Polystyrene
- ☒ D. Natural rubber

A. Teflon: Teflon is tetrafluoroethylene. It does not form hydrogen bonding as in this case hydrogen atom is not attached to any electronegative atom like O, F, N etc.

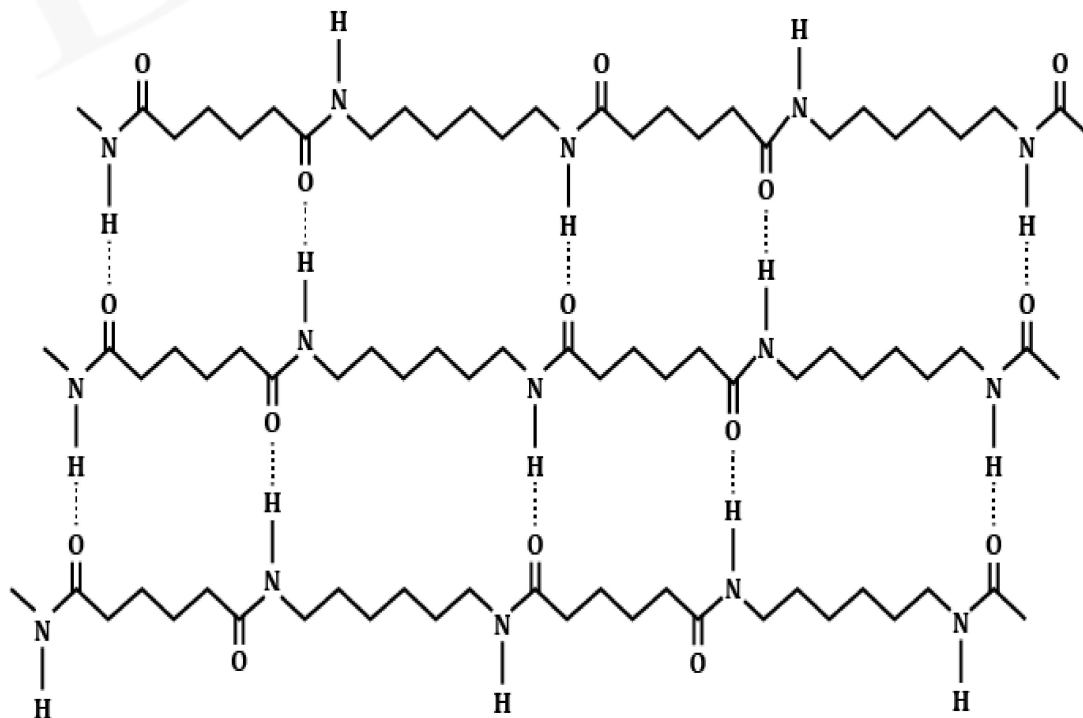
B. Nylon-6,6:

Nylon 66 is made of two monomers each containing 6 carbon atoms, hexamethylenediamine and adipic acid, which give nylon 66 its name. It is a polyamide. It can form hydrogen bonds as the H atom is attached to amide N-atom.

C. Polystyrene: It is a repeating unit of monomer styrene. It cannot form hydrogen bonding as in this case hydrogen is not attached with any electronegative atom like O, F, N etc.

D. Natural rubber: It is cis - 1,4-polyisoprene. It cannot form H bonds as H-atom is not attached to N, O or F.

Thus, a polymer containing strong intermolecular forces like hydrogen bonding is Nylon-6,6.



## Amines + Biomolecules + Polymers + CIEL

17. Consider the Assertion and Reason given below:

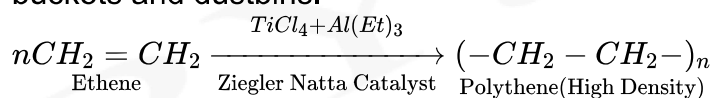
Assertion (A): Ethene polymerized in the presence of Ziegler Natta catalyst at high temperature and pressure is used to make buckets and dustbins.

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)

High-density polyethylene (HDPE) or polyethylene high-density (PEHD) is a thermoplastic polymer produced from the monomer ethylene. With a high strength-to-density ratio, HDPE is used in the production of plastic bottles, corrosion-resistant piping, geomembranes and plastic lumber including buckets and dustbins.



High density polythene are closely packed and are chemically inert.

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

Hence, option (c) is correct answer.

## Amines + Biomolecules + Polymers + CIEL

18. Which polymer has 'chiral' monomer(s)?

- ☒ A. PHBV
- ☐ B. Nylon 6,6
- ☐ C. Buna-N
- ☐ D. Neoprene

## Amines + Biomolecules + Polymers + CIEL

In a chiral molecule, there is a chiral center. Chiral centers are tetrahedral, mostly carbons, that have four different substituents.

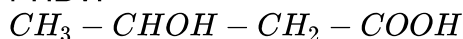
In the given options, there are four polymers which are PHBV; Nylon 6,6; Buna-N; Neoprene. The structures of these polymers are as follows,

- PHBV:  
 $(-O-CHCH_3-CH_2-CO-O-CHC_2H_5-CH_2-CO-)_n$
- Nylon 6,6:  
 $[-CO(CH_2)_4CO-NH(CH_2)_6NH-]_n$
- Buna-N:  
 $[-CH_2-CH=CH-CH_2-CH(CN)-CH_2-]_n$
- Neoprene:  
 $(-CH_2-CH=CCl-CH_2-)_n$

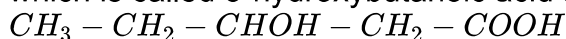
The monomers that are the subunits of the above polymers are as follows:

1.

PHBV:



which is called 3-hydroxybutanoic acid and



which is called 3-hydroxypentanoic acid, are the two monomers of PHBV.

2.

Nylon 6,6:



which is called adipic acid and  $H_2N-(CH_2)_6-NH_2$

which is called hexamethylenediamine, are the two monomers of Nylon 6,6.

3.

Buna-N:

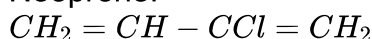


which is called 1,3-butadiene and  $CH(CN)=CH_2$

which is called acrylonitrile, are the two monomers of Buna-N.

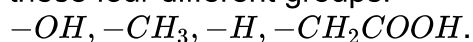
4.

Neoprene:

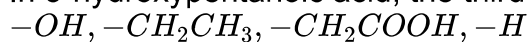


which is called chloroprene is the monomer of Neoprene.

In both the monomers of PHBV, the chiral center or the chiral carbon has four different substituents. In 3-hydroxybutanoic acid, the third carbon has these four different groups:



In 3-hydroxypentanoic acid, the third carbon has these four different groups:



Hence, both these monomers are chiral.

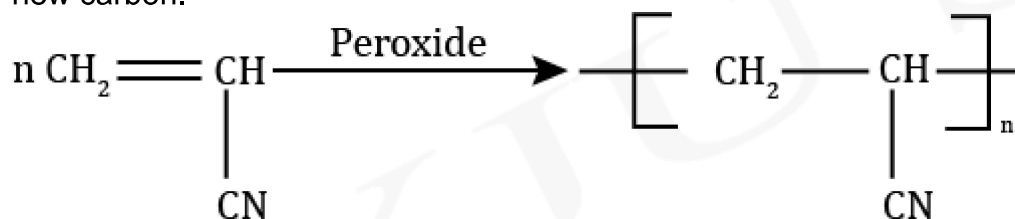
Therefore, the correct answer is option (a) that is PHBV.

## Amines + Biomolecules + Polymers + CIEL

19. Orlon fibres are made up of:

- ☐ A. Cellulose
- ☐ B. Polyesters
- ☐ C. Polyamide
- ☒ D. Polyacrylonitrile

Orlon is prepared by the addition reaction of vinyl cyanide or in other words acrylonitrile molecules or can be called as PAN which stands for Poly acrylonitrile. In this reaction the double bonds of the central carbons are broken to form single bonds and an additional new bond is formed with a new carbon.



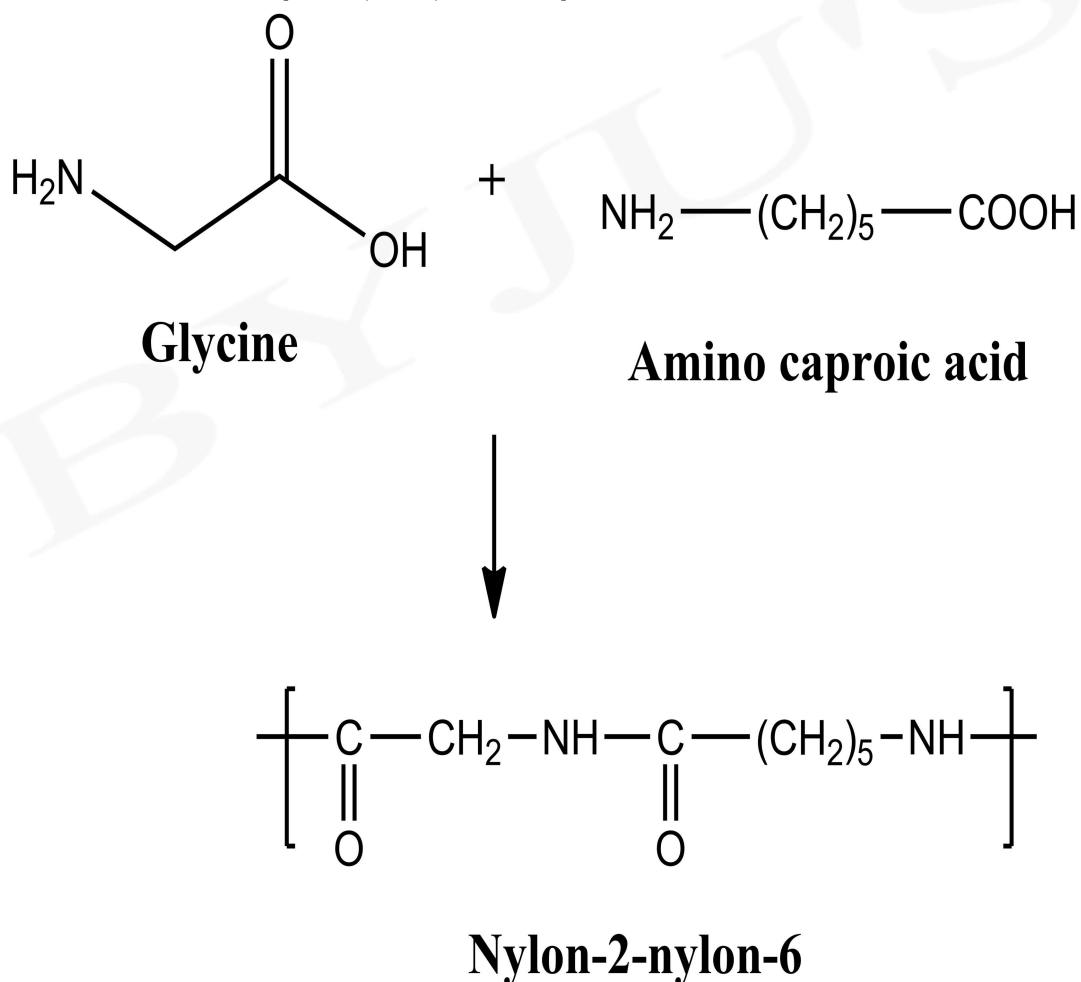
Hence, option (d) is correct answer.

## Amines + Biomolecules + Polymers + CIEL

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

Nylon-2-nylon-6 is a biodegradable polymer. It is a polyamide and is obtained by condensation of monomers glycine ( $H_2N - CH_2 - COOH$ ) and amino caproic acid [ $H_2N(CH_2)_5COOH$ ].





## Amines + Biomolecules + Polymers + CIEL

21. The S in Buna-S refers to:

- ☐ A. Strength
- ☒ B. Styrene
- ☐ C. Sulphur
- ☐ D. Sodium

The S in Buna-S refers to styrene. Bu stands for butadiene and na for sodium.

Buna-S refers to styrene butadiene rubber (SBR). It is copolymer of buta-1,3-diene and styrene in the ratio of 3:1 in the presence of 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

Synthesis of Buna-S needs nascent oxygen. It is polymerised by addition polymerisation method which needs radical initiator for chain propagation step. Nascent oxygen can be used as a radical initiator

Buna -S is a synthetic and Elastomers.

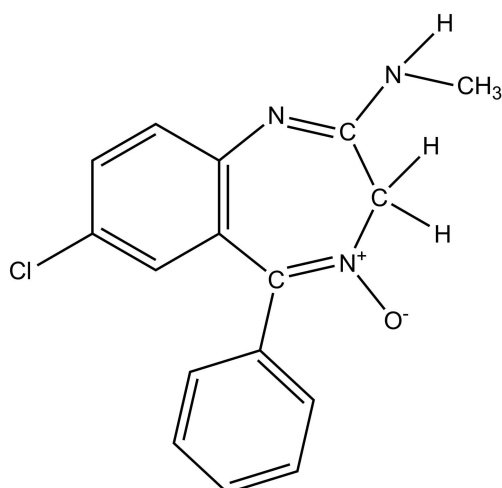
Buna -N is a Synthetic polymer

Neoprene is homopolymer of 2-chlorobuta-1,3-diene used for manufacturing conveyor belts, gaskets and hoses.

Therefore, option (a) is correct.

## Amines + Biomolecules + Polymers + CIEL

23.



chlordiazepoxide

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

- ☒ A. Antacid
- ☒ B. Analgesic
- ☒ C. Tranquilizer
- ☒ D. Antibiotic

Chlordiazepoxide, tranquilizing drug used in the treatment of anxiety  
Chlordiazepoxide belongs to a group of chemically related compounds called benzodiazepines.

Tranquilizers are a class of chemical compounds used for the treatment of stress, and mild or even severe mental diseases. These relieve anxiety, stress, irritability or excitement by inducing a sense of well-being. They form an essential component of sleeping pills.

## Amines + Biomolecules + Polymers + CIEL

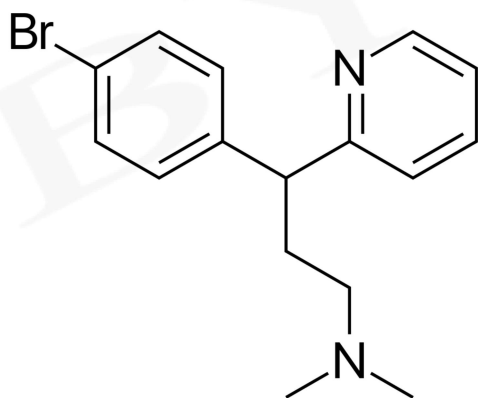
24. If a person is suffering from the deficiency of nor-adrenaline, what kind of drug can be suggested?

- ☐ A. Antihistamine
- ☒ B. Antidepressant
- ☐ C. Anti-inflammatory
- ☐ D. Analgesic

Low level of noradrenaline is the cause of depression. Anti-depressant drugs are needed to cure this problem. They inhibit enzymes that catalyze noradrenaline degradation. Hence, the metabolism of noradrenaline is slowed down and the neurotransmitter can activate its receptor for longer periods of time.

Iproniazid and phenelzine are two such drugs.

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



- ☐ A. Antiseptic
- ☐ B. Anti-bacterial
- ☒ C. Anti-histamine
- ☐ D. Anti-depressant

Brompheniramine is an antihistamine that is used to treat sneezing, runny nose, and itchy or watery eyes caused by allergies, hay fever, and the common cold.

## Amines + Biomolecules + Polymers + CIEL

26. Which of the following is an anionic detergent ?

- ☐ A. Sodium stearate
- ☒ B. Sodium lauryl sulphate
- ☐ C. Cetyltrimethyl ammonium bromide
- ☐ D. Glyceryl oleate

Sodium lauryl sulphate is an anionic detergent. It has anion at the soluble end of the chain.

It is a sodium salt of the sulfonated long chain of lauryl alcohol.

It is used in many personal care goods (soaps, shampoos, toothpaste, etc.) and is an anionic detergent and surfactant.

$CH_3(CH_2)_{11}OSO_3Na$  = Sodium Lauryl Sulphate

27. Which of the following is a bactericidal antibiotic?

- ☒ A. Ofloxacin
- ☐ B. Tetracycline
- ☐ C. Chloramphenicol
- ☐ D. Erythromycin

**Bacteriostatic:** (static means to stop), the substances which stop the growth of bacteria by altering change in the bacterial structure. E.g. tetracyclines, sulphonamides.

**Bactericidal:** (cidal means to kill), the substances which act by killing the bacteria as a whole by interfering with their replication, transcription, and translation. E.g. fluoroquinolones.

In the given question, Ofloxacin is a bactericidal antibiotic. It belongs to fluoroquinolones. It acts by blocking the DNA gyrase enzyme which is responsible for DNA replication.

Tetracyclines are produced by *Streptomyces* bacteria and are bacteriostatic in action which acts by binding to S ribosomal subunit and blocks aminoacyl tRNA.

Chloramphenicol is bacteriostatic in action. It stops bacterial growth by binding to bacterial ribosomes. It is used against gram-negative bacteria and *Streptococcus pneumoniae*.

Erythromycin is a macrolide antibiotic that is bacteriostatic in action. It acts by binding to the S subunit of ribosomes of bacterial rRNA.

The correct answer is option (a)

## Amines + Biomolecules + Polymers + CIEL

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

- ☐ A. Aspartane
- ☐ B. Saccharin
- ☐ C. Sucralose
- ☒ D. Alitame

Alitame is the artificial sweetener that has the highest sweetness value in comparison to cane sugar. Alitame is about 2000 times sweeter than the cane sugar. It is stable at higher temperature.

## Amines + Biomolecules + Polymers + CIEL

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

$\text{Sn} - \text{HCl}$

$\text{Sn} - \text{NH}_4\text{OH}$

$\text{Fe} - \text{HCl}$

$\text{Zn} - \text{HCl}$

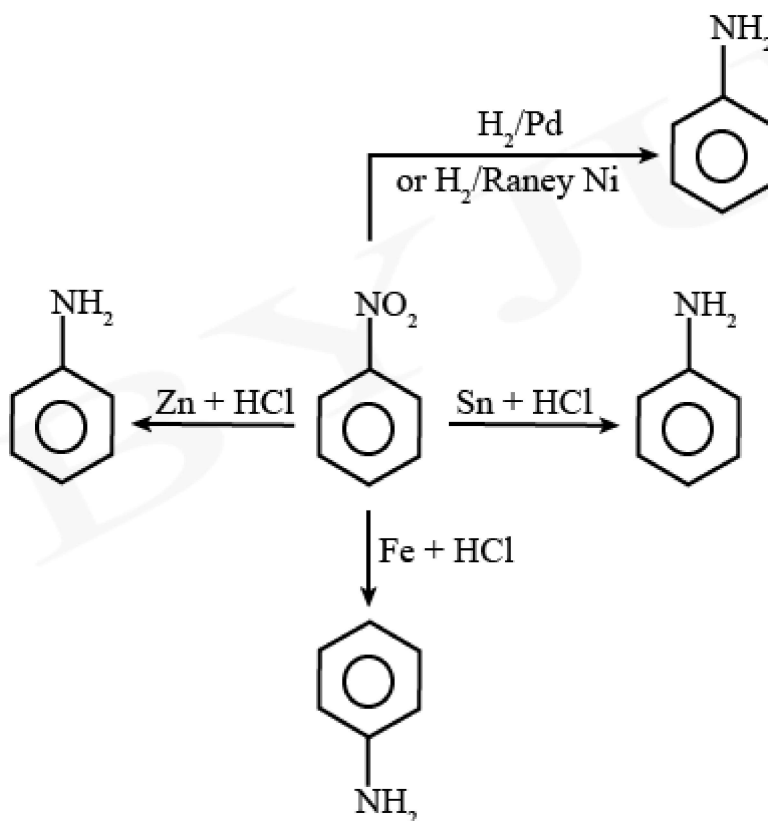
$\text{H}_2 - \text{Pd}$

$\text{H}_2 - \text{Raney Nickel}$

Accepted Answers

5      5.0      5.00

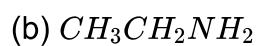
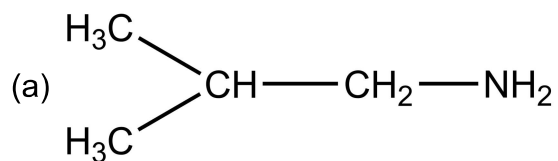
Solution:



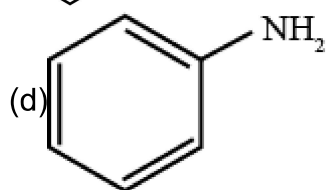
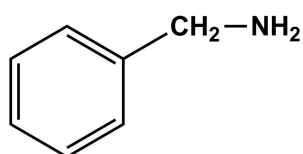
Hence, answer is 5

## Amines + Biomolecules + Polymers + CIEL

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



(c)



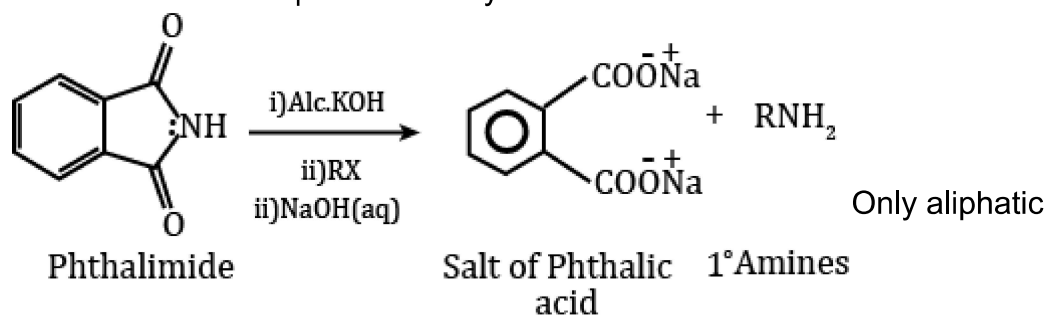
Accepted Answers

3      3.0      3.00

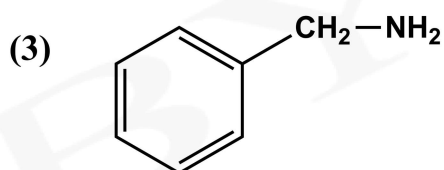
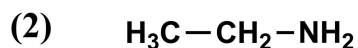
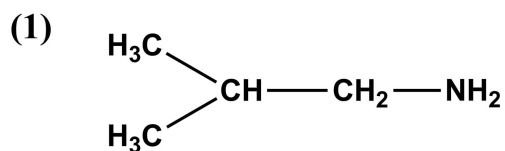
Solution:

## Amines + Biomolecules + Polymers + CIEL

Gabriel phthalimide synthesis is a method for preparation of primary amine. The Gabriel phthalimide synthesis reaction is as follows:



primary amines can be synthesised by Gabriel phthalimide synthesis. Out of the given amines the following amines can be synthesised by Gabriel synthesis are



Hence, answer is 3.





## Amines + Biomolecules + Polymers + CIEL

33. The number of chiral carbons present in sucrose is

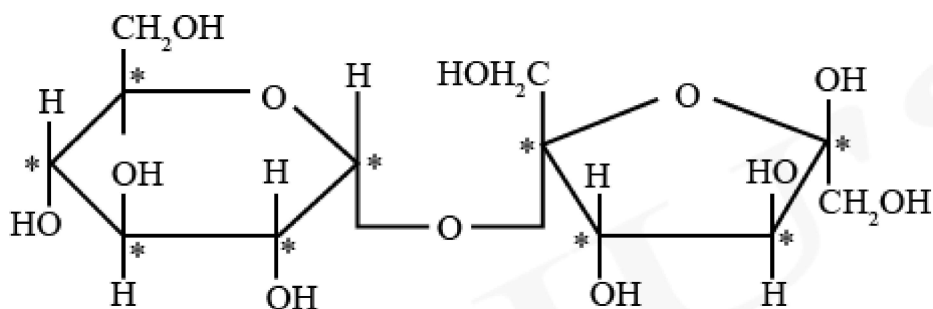
Accepted Answers

9      9.0      9.00

Solution:

Chiral carbon is an asymmetrical carbon which has 4 different groups attached to it.

The structure of sucrose is



No. of chiral centres = 9.