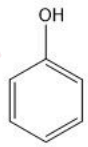
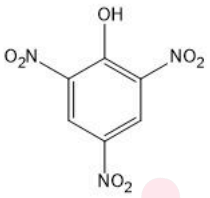
Section : **Chemistry**

Q.1

What product is formed when phenol is treated with conc. HNO_3?



1. 
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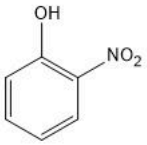
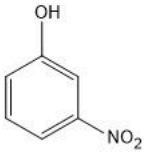
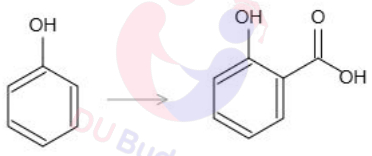
3. 
4. 

Options 1. 1
2. 2
3. 3
4. 4

Q.2

The reagents involved in the following conversion are



1. $CHCl_3$, NaOH, H^+
2. NaOH, CO_2, H^+
3. CO_2, H^+, $CHCl_3$
4. H_2SO_4, CO_2, H^+

Options 1. 1
2. 2
3. 3
4. 4

Q.3 **Which of the following compounds will undergo Cannizzaro reaction**

1. Benzaldehyde
2. Acetophenone
3. Benzophenone
4. Propionaldehyde

Options 1. 1
2. 2
3. 3
4. 4

Q.4 **What is the coordination number of Fe in $[Fe(CO)_5]$ and $[Fe(C_2O_4)_3]^{3-}$ respectively?**

1. 3 and 5
2. 6 and 5
3. 5 and 3
4. 5 and 6

Options 1. 1
2. 2
3. 3
4. 4

Q.5 **Arrange the following compounds in increasing order of their acidity:**

(A) Phenol
(B) 4-methylphenol
(C) 3-nitrophenol
(D) 4-nitrophenol

Choose the correct answer from the options given below:

1. (B), (A), (C), (D)
2. (A), (C), (B), (D)
3. (B), (D), (A), (C)
4. (C), (B), (D), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.6 **Select the correct statements from the following:**

(A) EDTA is used in the treatment of lead poisoning
(B) vitamin B 12 is a coordination complex of Co
(C) chlorophyll is a coordination complex of Fe
(D) Wilkinson catalyst is a rhodium complex used for hydrogenation of alkenes

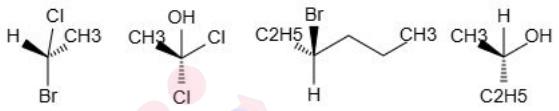
Choose the correct answer from the options given below:

1. (A), (B) and (D) only
2. (A) and (B) only
3. (B), (C) and (D) only
4. (B) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.7

Identify the chiral molecule from the following,



(A) (B) (C) (D)

Choose the **correct** answer from the options given below:

1. (A), (C) and (D) only
2. (A), (B), (C), (D)
3. (B), (A) and (C) only
4. (A), (B), and (D only

Options 1. 1
2. 2
3. 3
4. 4

Q.8 **While charging the lead storage battery.....**

1. $PbSO_4$ on anode is reduced to Pb

2. $PbSO_4$ on cathode is reduced to Pb
3. $PbSO_4$ on anode is oxidized to Pb
4. $PbSO_4$ on cathode is oxidized to Pb

Options 1. 1
2. 2
3. 3
4. 4

Q.9 The Hoffmann bromamide degradation reaction is used for conversion of

1. Nitro to amine
2. Amide to amine
3. Cyanide to amine
4. Amine to diazonium salt

Options 1. 1
2. 2
3. 3
4. 4

Q.10 The reaction of two molecules of 1-chlorobenzene with sodium metal in the presence of dry ether to form diphenyl is known as

1. Fittig reaction
2. Sandmeyer's reaction
3. Grignard reagent reaction
4. Wurtz reaction

Options 1. 1
2. 2
3. 3
4. 4

Q.11 Which of the following shows the least value for standard enthalpy of atomization?

1. Mn
2. Zn
3. Cu
4. V

Options 1. 1
2. 2
3. 3
4. 4

Q.12 Which of the following amine forms a stable diazonium salt?

1. Primary aliphatic amines
2. Secondary aliphatic amines
3. Primary aromatic amines
4. Secondary aromatic amines

Options 1. 1
2. 2
3. 3
4. 4

Q.13 The iodoform test is used for the detection of

1. $COCH_3$
2. COO^-
3. CHO
4. OH

Options 1. 1
2. 2
3. 3
4. 4

Q.14 Acetone can be prepared by the oxidation of

1. Methanol
2. Isopropyl alcohol
3. Propanol
4. Ethanol

Options 1. 1
2. 2
3. 3
4. 4

Q.15 **Calculate the Gibbs free energy for the given reaction, with the standard electrode potential equal to 1.1 V**

$Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$

1. $-106.15\ kJ/mol$
2. $212.27\ kJ/mol$
3. $-212.27\ kJ/mol$
4. $-312.4\ kJ/mol$

Options 1. 1
2. 2
3. 3
4. 4

Q.16 **The carbylamine reaction is used as a test for**

1. Primary amines
2. Tertiary amines
3. Primary and secondary amines
4. Secondary and tertiary amines

Options 1. 1
2. 2
3. 3
4. 4

Q.17 In the Cell reaction:
$Mg(s) + 2Ag^{+}(aq) \rightarrow Mg^{2+}(aq) + 2Ag(s)$
$E^{\circ}_{cell} = 3.17$ V. By doubling the concentration of Mg^{2+}, E_{cell} is:

1. doubled
2. halved
3. increases but less than double
4. decreases by a small fraction

Options 1. 1
2. 2
3. 3
4. 4

Q.18 Calculate the spin only magnetic moment of a Ni^{2+} in $[Ni(CN)_4]^{2-}$ (atomic number of Ni is 28).

1. 3.87 BM
2. 2.84 BM
3. 0
4. 1.73 BM

Options 1. 1
2. 2
3. 3
4. 4

Q.19 Vapour pressures of chloroform ($CHCl_3$) and dichloromethane (CH_2Cl_2) at 298 K are 200 mmHg and 415 mmHg,

respectively. Calculate the vapor pressure of the solution prepared by mixing 0.2 mol of $CHCl_3$ and 0.5 mol of CH_2Cl_2 at 298 K

1. 360.5 mmHg
2. 353.57 mmHg
3. 878.57 mmHg
4. 307.5 mmHg

Options 1. 1
2. 2
3. 3
4. 4

Q.20 **Arrange the following transition elements of the first series in increasing order of their densities**

(A) Sc
(B) V
(C) Zn
(D) Cu

Choose the correct answer from the options given below:

1. (C), (D), (A), (B)
2. (A), (B), (D), (C)
3. (C), (D), (B), (A)
4. (A), (B), (C), (D)

Options 1. 1
2. 2

3. 3
4. 4

Q.21 The reduction of cyclohexanone with $NaBH_4$ produces

1. Cyclohexanol
2. Cyclohexene
3. Cyclohexane-1,2-diol
4. Cyclohexane carboxylic acid

Options 1. 1
2. 2
3. 3
4. 4

Q.22 Match the items given in List-I with items given in List-II

List-I	List-II
(A) Interstitial Compounds	(I) Large number of complex
(B) Alloy formation	(II) Chemically inert
(C) Transition metals	(III) Ni
(D) Catalytic hydrogenation	(IV) Blend of different metals

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
3. (A) - (II), (B) - (IV), (C) - (I), (D) - (III)
4. (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Options 1. 1
2. 2
3. 3
4. 4

Q.23 Match List-I with List-II

List-I	List-II
(A) Acetone to secondary alcohol	$(I)CrO_3$
(B) Ethanol to Diethyl ether	$(II)Zn$
(C) Ethanol to ethanal	$(III)NaBH_4$
(D) Phenol to Benzene	$(IV)H_2SO_4$ at 413 K

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options 1. 1
2. 2
3. 3
4. 4

Q.24 The unit of conductance is:

1. S/m
2. ohm^{-1}
3. $S\ cm^2\ mol^{-1}$
4. $ohm\ cm^2\ mol^{-1}$

Options 1. 1
2. 2
3. 3
4. 4

Q.25 The reverse osmosis occurs when

1. Pressure on solution side is larger than osmotic pressure
2. Pressure on solution side is smaller than osmotic pressure
3. Pressure on solution side is equal to osmotic pressure
4. Pressure on solution side is equal to atmospheric pressure

Options 1. 1
2. 2
3. 3
4. 4

Q.26 Which of the following effectively inhibits the growth of tumours?

1. D-penicillamine
2. cis-platin
3. EDTA
4. desferrioxime B

Options 1. 1
2. 2
3. 3
4. 4

Q.27 Match List-I with List-II

List-I	List-II
(A) Freons	(I) Paint remover
(B) DDT	(II) Refrigeration
(C) Dichloromethane	(III) Fire extinguisher
(D) Tetrachloromethane	(IV) Insecticide

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
3. (A) - (II), (B) - (IV), (C) - (I), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options 1. 1
2. 2
3. 3
4. 4

Q.28 **2.5 g of the following substances are dissolved in 500 mL of water. Arrange the resultant solutions in increasing order of their molarity;**

1. (A) $C_6H_{12}O_6$ (180 g mol^{-1})
2. (B) NH_2CONH_2 (60 g mol^{-1})
3. (C) NaCl (58.5 g mol^{-1})
4. (D) $MgSO_4$ (120 g mol^{-1})

Choose the correct order from the options given below:

1. (A), (B), (C), (D)
2. (C), (B), (D), (A)
3. (A), (D), (B), (C)
4. (B), (C), (D), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.29 **Name a transition element which does not exhibit variable oxidation states**

1. Sc
2. Mn
3. Fe
4. Cu

Options 1. 1
2. 2
3. 3
4. 4

Q.30 Match List-I with List-II

List-I (Name of the test/Reaction)	List-II (Species)
(A) Tollen's Test	(I) Cu^{2+} $and $ OH^-
(B) Fehling's Test	(II) Zn-Hg $and $ HCl
(C) Clemmensen reduction	(III) $2[Ag(NH_3)_2]^+$ $and $ OH^-
(D) Wolff Kishner reduction	(IV) Hydrazine KOH/ethylene glycol

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (III), (B) - (I), (C) - (II), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (I), (C) - (IV), (D) - (II)

Options 1. 1
2. 2
3. 3
4. 4

Q.31 **Arrange the following complexes in increasing order of their magnetic moment**

(A) $[Cr(H_2O)_6]^{3+}$
(B) $[Co(NH_3)_6]^{3+}$
(C) $[FeCl_6]^{4-}$
(D) $[Mn(CN)_6]^{3-}$

Choose the correct answer from the options given below:

1. (C), (D), (A), (B)
2. (B), (D), (A), (C)
3. (B), (A), (C), (D)
4. (C), (A), (B), (D

Options 1. 1
2. 2
3. 3
4. 4

Q.32 **The nitration of chlorobenzene gives major product as:**

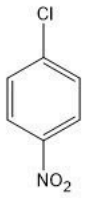
1. 1-Chloro-2,4-nitrobenzene

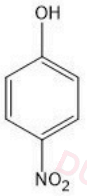
2. 1-Chloro-2-nitrobenzene
3. 1-Chloro-4-nitrobenzene
4. 1-Chloro-3-nitrobenzene

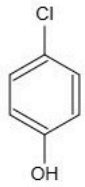
Options 1. 1
2. 2
3. 3
4. 4

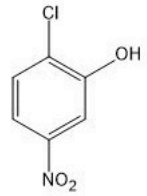
Q.33

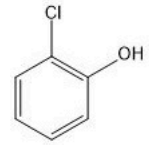
1-Chloro-4-nitro-benzene reacts with NaOH at 443K to form



1. 

2. 

3. 

4. 

Options 1. 1
2. 2
3. 3
4. 4

Q.34

For strong electrolytes, Λ_m increases with dilution and is represented by the equation $\Lambda_m = \Lambda_m^0 - Ac^{1/2}$. Here, the

(A) Nature of solvent.
(B) Temperature.
(C) Charges on cation and anions produced.
(D) Type of electrolyte.
Choose the correct answer from the options given below:
1. (A), (B) and (D) only
2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.35 **Arrange the following amines in increasing order of basicity in aqueous solution**

$(A)(CH_3)_2NH$

$(B)\mathrm{CH_3NH_2}$
$(C)(\mathrm{CH_3})_3\mathrm{N}$
$(D)\mathrm{NH_3}$

Choose the correct answer from the options given below:

1. (A), (B), (C), (D)
2. (A), (B), (D), (C)
3. (B), (A), (D), (C)
4. (D), (C), (B), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.36 **Calculate the lowering of vapour pressure caused by the addition of 50 g of sucrose (mol mass = 342 g/mol) to 750 g of water, if the vapour pressure of pure water at Ambient temperature is 23.8 mm Hg**

1. 0.083 mm Hg
2. 0.008 mm Hg
3. 0.045 mm Hg
4. 0.012 mm Hg

Options 1. 1
2. 2
3. 3
4. 4

Q.37 **Benzenediazonium chloride is a colourless solid that decomposes in**

1. Dry state
2. Cold water
3. Warm water
4. Both dry state and warm water

Options 1. 1
2. 2
3. 3
4. 4

Q.38 Match the complexes given in List-I with oxidation state and the type of complexes given in List-II

List-I	List-II
Complex	Oxidation state and type of complex
(A) $[\mathrm{Co(NH_3)_6}]^{3+}$	(I) +2 and Inner orbital complex
(B) $[\mathrm{CoF_6}]^{3-}$	(II) +2 and Outer orbital complex
(C) $[\mathrm{NiCl_4}]^{2-}$	(III) +3 and Outer orbital complex
(D) $[\mathrm{Ni(CN)_4}]^{2-}$	(IV) +3 and Inner orbital complex

Choose the correct answer from the options given below:

1. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)
2. (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
3. (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
4. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

Options 1. 1
2. 2
3. 3
4. 4

Q.39 Choose the correct statements from the following:

(A) two different solutions of sucrose of same molality prepared in different solventswill have the same depression in freezing point.

(B) the osmotic pressure of a solution is given by the equation $\Pi = \mathrm{CRT}$(where C is the molarity of the solution)

(C) decreasing order of osmotic pressure for 0.01 M aqueous solution of$\mathrm{BaCl_2}$, KCl, $\mathrm{CH_3COOH}$, and sucrose is $\mathrm{BaCl_2} > \mathrm{KCl} > \mathrm{CH_3COOH} >$ sucrose

(D) according to Raoult's law the vapor pressure exerted by a volatile component of asolution is directly proportional to its mole fraction in the solution

Choose the correct answer from the options given below:

1. (B) and (D) only
2. (A), (B) and (C) only
3. (B), (C) and (D) only
4. (A) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.40 **Which of the following statements is correct for ortho and para nitrophenols?**

(A) They can be separated by steam distillation
(B) o-Nitrophenol undergoes intramolecular hydrogen bonding
(C) p-Nitrophenol undergoes intermolecular hydrogen bonding

(D) p-Nitrophenol is less volatile

Choose the correct answer from the options given below:

1. (A), (B) and (C) only
2. (A), (B) and (D) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.41 **Read the passage carefully and answer the questions**

The chemical reactions proceed at different rates which depend on various factors like concentration, temperature, etc. Rate law is an expression which relates the rate of reaction with concentration of various reacting species in the reaction. For a first order reaction, the concentration of the reactant after time t is related with its initial concentration by the relation, $C = C_0 e^{-kt}$. The rate constants for different orders have different expressions. For a first order reaction, $k = \frac{2.303}{t} \log \frac{a}{a-x}$, where a is the initial concentration and x is the extent of reaction.

The Rate law relates the rate of a chemical reaction to

1. The temperature
2. The activation energy
3. The reaction mechanism
4. The concentration of reactants

Options 1. 1
2. 2
3. 3
4. 4

Q.42 **Read the passage carefully and answer the questions**

The chemical reactions proceed at different rates which depend on various factors like concentration, temperature, etc. Rate law is an expression which relates the rate of reaction with concentration of various reacting species in the reaction. For a first order reaction, the concentration of the reactant after time t is related with its initial concentration by the relation, $C = C_0 e^{-kt}$. The rate constants for different orders have different expressions. For a first order reaction, $k = \frac{2.303}{t} \log \frac{a}{a-x}$, where a is the initial concentration and x is the extent of reaction.

A reaction which is first order with respect to the reactant A has a rate constant of 6 min^{-1}. If the reaction is started with $[A] = 5.0 \text{ mol L}^{-1}$ when would $[A]$ reach the value of 0.05 mol L^{-1}

1. 0.7676 min
2. 0.4656 min
3. 0.0765 min
4. 0.54 min

Options 1. 1
2. 2
3. 3
4. 4

Q.43 **Read the passage carefully and answer the questions**

The chemical reactions proceed at different rates which depend on various factors like concentration, temperature, etc. Rate law is an expression which relates the rate of reaction with concentration of various reacting species in the reaction. For a first order reaction, the concentration of the reactant after time t is related with its initial concentration by the relation, $C = C_0 e^{-kt}$. The rate constants for different orders have different expressions. For a first order reaction, $k = \frac{2.303}{t} \log \frac{a}{a-x}$, where a is the initial concentration and x is the extent of reaction.

The quantity k in a rate law expression is

1. directly proportional to concentration of reactants.
2. inversely proportional to concentration of reactants.
3. doubled on increasing the concentration by 10 times.
4. independent of reactant concentration

Options 1. 1
2. 2
3. 3
4. 4

Q.44 **Read the passage carefully and answer the questions**

The chemical reactions proceed at different rates which depend on various factors like concentration, temperature, etc. Rate law is an expression which relates the rate of reaction with concentration of various reacting species in the reaction. For a first order reaction, the concentration of the reactant after time t is related with its initial concentration by the relation, $C = C_0 e^{-kt}$. The rate constants for different orders have different expressions. For a first order reaction, $k = \frac{2.303}{t} \log \frac{a}{a-x}$, where a is the initial concentration and x is the extent of reaction.

A first order reaction is one-fifth completed in 40 minutes. Calculate the time required for its 100 % completion

1. 100 min
2. infinite
3. 0.055 min
4. 0.45 min

Options 1. 1
2. 2
3. 3
4. 4

Q.45 **Read the passage carefully and answer the questions**

The chemical reactions proceed at different rates which depend on various factors like concentration, temperature, etc. Rate law is an expression which relates the rate of reaction with concentration of various reacting species in the reaction. For a first order reaction, the concentration of the reactant after time t is related with its initial concentration by the relation, $C = C_0 e^{-kt}$. The rate constants for different orders have different expressions. For a first order reaction, $k = \frac{2.303}{t} \log \frac{a}{a-x}$, where a is the initial concentration and x is the extent of reaction.

Which plot is linear with negative slope for a first order reaction

1. k vs ln[C]
2. ln k versus ln C
3. ln k versus time
4. ln[C] versus time

Options 1. 1
2. 2
3. 3
4. 4

Q.46 **Read the passage carefully and answer the questions**

Carbohydrates are naturally formed organic compounds from various plants. The common chemical formula, $C_x(H_2O)_y$, was considered as hydrates of carbon to derive the various carbohydrates. For instance, the general formula for glucose ($C_6H_{12}O_6$) easily fits into the above formula. Carbohydrates also called saccharides are classified on the basis of their behavior towards hydrolysis. Monosaccharides cannot be hydrolyzed further to simpler units of polyhydroxy aldehyde or ketones. About 20 monosaccharides are known to occur in nature. Carbohydrates that yield large number of monosaccharide units are called polysaccharides. Amino acids contain ($-NH_2$) and ($-COOH$), which can be classified in various forms. Proteins are polymers of alpha amino acids which are connected to each other by a peptide bond or peptide linkage. When a native protein is subjected to physical change, its globules unfold and helix get uncoiled and the protein loses its biological activity. The protein is said to be denaturated.

Sucrose on hydrolysis gives

1. Dextrorotatory Glucose and Laevorotatory Fructose
2. Laevorotatory Glucose and Laevorotatory Fructose
3. Laevorotatory Glucose and Dextrorotatory Fructose
4. Dextrorotatory Glucose and Dextrorotatory Fructose

Options 1. 1
2. 2
3. 3
4. 4

Q.47 **Read the passage carefully and answer the questions**

Carbohydrates are naturally formed organic compounds from various plants. The common chemical formula, $C_x(H_2O)_y$, was considered as hydrates of carbon to derive the various carbohydrates. For instance, the general formula for glucose ($C_6H_{12}O_6$) easily fits into the above formula. Carbohydrates also called saccharides are classified on the basis of their behavior towards hydrolysis. Monosaccharides cannot be hydrolyzed further to simpler units of polyhydroxy aldehyde or ketones. About 20 monosaccharides are known to occur in nature. Carbohydrates that yield large number of monosaccharide units are called polysaccharides. Amino acids contain ($-NH_2$) and ($-COOH$), which can be classified in various forms. Proteins are polymers of alpha amino acids which are connected to each other by a peptide bond or peptide linkage. When a native protein is subjected to physical change, its globules unfold and helix get uncoiled and the protein loses its biological activity. The protein is said to be denaturated.

During denaturation process of protein which structure(s) remain intact ?

1. Secondary structure
2. Primary structure
3. Tertiary structure
4. Quaternary Structure

Options 1. 1
2. 2
3. 3
4. 4

Q.48 **Read the passage carefully and answer the questions**

Carbohydrates are naturally formed organic compounds from various plants. The common chemical formula, $C_x(H_2O)_y$, was considered as hydrates of carbon to derive the various carbohydrates. For instance, the general formula for glucose ($C_6H_{12}O_6$) easily fits into the above formula. Carbohydrates also called saccharides are classified on the basis of their behavior towards hydrolysis. Monosaccharides cannot be hydrolyzed further to simpler units of polyhydroxy aldehyde or ketones. About 20 monosaccharides are known to occur in nature. Carbohydrates that yield large number of monosaccharide units are called polysaccharides. Amino acids contain ($-NH_2$) and ($-COOH$), which can be classified in various forms. Proteins are polymers of alpha amino acids which are connected to each other by a peptide bond or peptide linkage. When a native protein is subjected

to physical change, its globules unfold and helix get uncoiled and the protein loses its biological activity. The protein is said to be denaturated.

The peptide linkage formed between the reaction of glycine and alanine is represented as

1. -CO-NH-
2. -C-O-C-
3. -C-N-O-
4. -C-O-P-

Options 1. 1
2. 2
3. 3
4. 4

Q.49 **Read the passage carefully and answer the questions**

Carbohydrates are naturally formed organic compounds from various plants. The common chemical formula, $C_x(H_2O)_y$, was considered as hydrates of carbon to derive the various carbohydrates. For instance, the general formula for glucose ($C_6H_{12}O_6$) easily fits into the above formula. Carbohydrates also called saccharides are classified on the basis of their behavior towards hydrolysis. Monosaccharides cannot be hydrolyzed further to simpler units of polyhydroxy aldehyde or ketones. About 20 monosaccharides are known to occur in nature. Carbohydrates that yield large number of monosaccharide units are called polysaccharides. Amino acids contain ($-NH_2$) and ($-COOH$), which can be classified in various forms. Proteins are polymers of alpha amino acids which are connected to each other by a peptide bond or peptide linkage. When a native protein is subjected to physical change, its globules unfold and helix get uncoiled and the protein loses its biological activity. The protein is said to be denaturated.

The two monosaccharides units are joined together through which linkage ?

1. Alpha linkage
2. Glycosidic linkage
3. Beta linkage
4. Gamma linkage

Options 1. 1
2. 2
3. 3
4. 4

Q.50 **Read the passage carefully and answer the questions**

Carbohydrates are naturally formed organic compounds from various plants. The common chemical formula, $C_x(H_2O)_y$, was considered as hydrates of carbon to derive the various carbohydrates. For instance, the general formula for glucose ($C_6H_{12}O_6$) easily fits into the above formula. Carbohydrates also called saccharides are classified on the basis of their behavior towards hydrolysis. Monosaccharides cannot be hydrolyzed further to simpler units of polyhydroxy aldehyde or ketones. About 20 monosaccharides are known to occur in nature. Carbohydrates that yield large number of monosaccharide units are called polysaccharides. Amino acids contain ($-NH_2$) and ($-COOH$), which can be classified in various forms. Proteins are polymers of alpha amino acids which are connected to each other by a peptide bond or peptide linkage. When a native protein is subjected to physical change, its globules unfold and helix get uncoiled and the protein loses its biological activity. The protein is said to be denaturated.

Which of the following statements is incorrect for Lactose ?

1. Lactose is a reducing sugar
2. It is known as milk sugar
3. On hydrolysis it yields galactose and glucose
4. It is an invert sugar

Options 1. 1
2. 2
3. 3
4. 4