ULTIMATE KCET CRASH COURSE 2026

CHEMISTRY

DPP: 1

BIOMOLECULES

Q1 α-D-glucose and β-D-glucose differ from each other with respect to the:

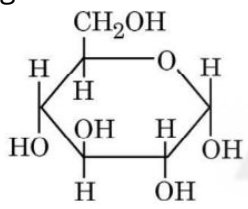
(A) configuration at the C_1 carbon

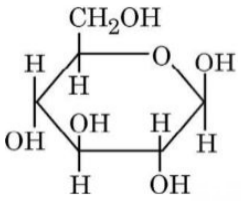
(B) number of -OH groups

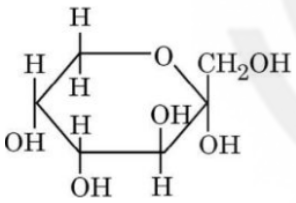
(C) configuration at the C_2 carbon

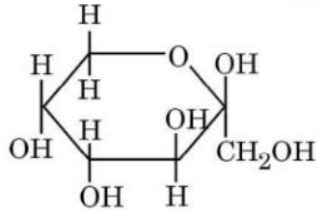
(D) size of the hemiacetal ring

Q2 Which of the following structures represents α -D-glucose?

(A) 

(B) 

(C) 

(D) 

Q3 Which of the following reactions of glucose can be explained only by its cyclic structure?

(A) Glucose forms pentaacetate.

(B) Pentaacetate of glucose does not react with hydroxylamine.

(C) Glucose reacts with hydroxylamine to form an oxime.

(D) Glucose is oxidised by nitric acid to gluconic acid.

Q4 The glycosidic linkage involved in linking the glucose units in amylase part of starch is:

(A) $C_1 - C_4$ β linkage

(B) $C_1 - C_6$ β linkage

(C) $C_1 - C_6$ α linkage

(D) $C_1 - C_4$ α linkage

Q5 Which of the following disaccharides is formed from two identical monosaccharide units?

(A) Maltose (B) Lactose

(C) Fructose (D) Sucrose

Q6 Glucose and fructose are:

(A) isomers of each other.

(B) enantiomers of each other.

(C) Homologous of each other.

(D) anomers of each other.

Q7 Assertion (A): Sucrose is a disaccharide.

Reason (R): Sucrose is dextro rotatory.

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

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

(C) A is true but R is false.

(D) A is false but R is true.

Q8 Which of the following is a fibrous protein?

(A) Proteoses (B) Prolamine

(C) Keratin (D) Glycoprotein

Q9 α-helix structure refers to:

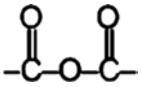
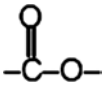
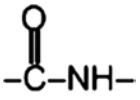
(A) secondary structure of protein

(B) primary structure of protein

(C) quaternary structure of protein

(D) tertiary structure of protein

Q10 Building unit of a protein is
(A) β – Aminoacid
(B) γ– Aminoacid
(C) α– Aminoacid
(D) λ – Aminoacid

Q11 Which of the following bonds is found in proteins and peptides?
(A) 
(B) 
(C) 
(D) – NH –

Q12 Assertion (A): Proteins are found to have two different types of secondary structures viz alphahelix and beta pleated sheet structure.
Reason (R): The secondary structure of proteins is stabilized by hydrogen bonding.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

Q13 Which of the following acts as a biocatalyst?
(A) Nitrogen molecule
(B) Amino acid
(C) Enzyme
(D) Carbohydrate

Q14 Curdling of milk which is caused due to
(A) disturbance in primary structure of milk proteins
(B) increase in pH
(C) fall in temperature
(D) formation of lactic acid by the bacteria present in milk and resulting denaturation

Q15 Assertion (A): All enzymes are proteins but all proteins are not enzymes.
Reason (R): Keratin is an enzyme.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

Q16 Assertion (A): The activity of an enzyme is pH-dependent.
Reason (R): Change in pH affects the solubility of the enzyme in water.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

Q17 Scurvy is caused due to deficiency of
(A) Ascorbic acid (B) Vitamin B_2
(C) Vitamin B_1 (D) Glutamic acid

Q18 A vitamin which plays a vital role in the clotting of blood is:
(A) Vitamin A (B) Vitamin D
(C) Vitamin K (D) Vitamin B

Q19 An example of globular protein is
(A) Histones
(B) Collagen
(C) Primary proteose
(D) Albumin

Q20 Water soluble vitamins must be supplied regularly in diet because
(A) they are not widely available.
(B) they are readily excreted in urine and cannot be stored (except vitamin B_{12}) in our body.
(C) they cannot be provided by synthetic means.
(D) they get used up very fast in body.

Q21 Assertion (A): Vitamin B_5 is also called as pyridoxin.
Reason (R): Deficiency of vitamin B_5 causes dermatitis and dementia.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

Q22 Nucleotides are composed of a:
(A) nitrogenous base and phosphoric acid
(B) pentose sugar and nitrogenous base
(C) pentose sugar and phosphoric acid
(D) nitrogenous base, pentose sugar and phosphoric acid

Q23 When a nucleoside is linked to phosphoric acid which of the following may be obtained?
(A) Ribonucleic acid
(B) Nucleotide
(C) Deoxyribonucleic acid
(D) An amino acid

Q24 Which of the following bases is not present in DNA ?
(A) Adenine (B) Cytosine
(C) Thymine (D) Uracil

Q25 DNA and RNA contain four bases each. Which of the following bases is not present in RNA ?
(A) Cytosine (B) Adenine
(C) Guanine (D) Thymine

Q26 Progesterone is responsible for
(A) development of secondary male characteristics.
(B) development of secondary female characteristics.
(C) controlling menstrual cycle.
(D) preparing the uterus for implantation of fertilised egg.

Q27 Which of the following compounds is not the component of a balanced diet?
(A) Carbohydrate (B) Hormone
(C) Vitamin (D) Fat

Q28 The two hormones which together regulate the glucose level in the blood
(A) Insulin and adrenaline
(B) Insulin and thyroxine
(C) Insulin and epinepherine
(D) Insulin and glucagon

Q29 Amino acids undergo internal acid-base reaction to form:
(A) zwitter ion (B) an amide
(C) a peptide (D) a lactum

Q30 Statement 1: Ammoniacal silver nitrate converts glucose to gluconic acid and metallic silver is precipiated.
Statement 2: Glucose acts as a weak reducing agent.
(A) If both statements are true and statement 2 is the correct explanation of statement 1.
(B) If both statements are true but statement 2 is not the correct explanation of statement 1.
(C) If statement 1 is true but statement 2 is false.
(D) If statement 1 is false but statement 2 is true.

Answer Key

Q1	A
Q2	A
Q3	B
Q4	D
Q5	A
Q6	A
Q7	B
Q8	C
Q9	A
Q10	C
Q11	C
Q12	A
Q13	C
Q14	D
Q15	C
Q16	B
Q17	A
Q18	C
Q19	D
Q20	B
Q21	D
Q22	D
Q23	B
Q24	D
Q25	D
Q26	D
Q27	B
Q28	D
Q29	A
Q30	A

Hints & Solutions

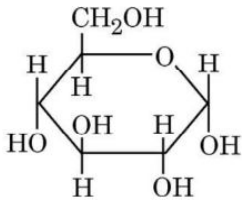
Note: scan the QR code to watch video solution

Q1 Text Solution:

configuration at the C_1 carbon

Video Solution:

Q2 Text Solution:



represents α-D-glucose

Video Solution:

Q3 Text Solution:

The pentaacetate of glucose does not react with the hydroxylamine indicating the absence of free CHO group. This property of the glucose can be explained only by its own cyclic structure.

Video Solution:

Q4 Text Solution:

Amylose is a glucose polymer linked through $C_1 - C_4$ α glycosidic linkage

Video Solution:

Q5 Text Solution:

Maltose is formed from two identical monosaccharide units, specifically two glucose molecules. In contrast, lactose is made from glucose and galactose, and sucrose is composed of glucose and fructose. Fructose is a monosaccharide, not a disaccharide. Therefore, maltose is the correct answer as it consists of two identical units.

Video Solution:

Q6 Text Solution:

Glucose and fructose differ structurally and stereochemically. They have same molecular formula i.e. $C_6H_{12}O_6$. Hence, these are isomers of each other.

Video Solution:

Q7 Text Solution:

Carbohydrates which upon hydrolysis yield two molecules of the same or different monosaccharides are called disaccharides. For example, sucrose on acid hydrolysis give one molecule of glucose and one molecule of fructose.

Video Solution:

Q8 Text Solution:

When the polypeptide chains run parallel and are held together by hydrogen and disulphide bonds, then fibre– like structure is formed. Such proteins called fibrous proteins are generally insoluble in water. A common example is keratin (present in hair, wool, silk).

Video Solution:

Q9 Text Solution:

secondary structure of protein

Video Solution:

Q10 Text Solution:

Proteins are the polymers of α-amino acids. So building unit of a protein is α – Aminoacid.

Video Solution:

Q11 Text Solution:

The correct answer is because it represents a peptide bond, which is the specific type of bond that links amino acids together in proteins and peptides. Peptide bonds are formed between the carboxyl group of one amino acid and the amino group of another, resulting in the release of a water molecule. This bond is essential for the structure and function of proteins. The other options do not depict peptide bonds or relevant structures found in proteins.

Video Solution:

Q12 Text Solution:

Two major factors stabilise the α-helix structure are intramolecular H-bonding and minimisation of steric interference between side chains.

Video Solution:

Q13 Text Solution:

The solution is correct because enzymes are biological molecules that speed up chemical reactions in living organisms. They act as biocatalysts, meaning they facilitate reactions without being consumed in the process. The other options—amino acids, nitrogen molecules, and carbohydrates—do not function as biocatalysts.

Video Solution:

Q14 Text Solution:

Curdling of milk is caused due to the formation of lactic acid by the bacteria present in milk. Milk contains proteins. When a protein in its native form, is subjected to physical change like change in temperature or chemical change like change in pH, the hydrogen bonds are disturbed. Due to this, globules unfold and helix get uncoiled and protein loses its biological activity. This is called denaturation of protein.

Video Solution:

Q15 Text Solution:

Only globular proteins which catalyse biochemical reactions are called enzymes, keratin is a fibrous protein.

Video Solution:

Q16 Text Solution:

The activity of an enzyme is pH-dependent. The activity of an enzyme is maximum at pH = 7.4 (physiological pH). In fact, as pH is increased, the enzyme activity rises, reaches a maximum level, and then falls off.

Change in pH affects the solubility of the enzyme in water. Both Assertion and Reason are correct but Reason is not the correct explanation for Assertion.

Video Solution:

Q17 Text Solution:

Ascorbic acid

Video Solution:

Q18 Text Solution:

Vitamin K helps to make various proteins that are needed for blood clotting and the building of bones. Prothrombin is a vitamin K-dependent protein directly involved with blood clotting.

Video Solution:

Q19 Text Solution:

Globular proteins are formed when the chains of polypeptides coil around to give a spherical shape. These are usually soluble in water. For example albumin and insulin.

Video Solution:

Q20 Text Solution:

B group vitamins and vitamin C are soluble in water so they are grouped together as water soluble vitamins. These must be supplied regularly in diet because they are readily excreted in urine and cannot be stored (except vitamin B_{12}) in our body.

Video Solution:

Q21 Text Solution:

Vitamin B_5 is called as Pantothenic acid. Its deficiency causes dermatities.

Pyridoxin is vit.B_6 .

Video Solution:

Q22 Text Solution:

nitrogenous base, pentose sugar and phosphoric acid

Video Solution:

Q23 Text Solution:

When nucleoside is linked to phosphoric acid at 5 – position of sugar moiety, we get a nucleotide.

Video Solution:

Q24 Text Solution:

DNA contains four bases viz. adenine (A), guanine (G), cytosine (C) and thymine (T). So Uracil is not present in DNA.

Video Solution:

Q25 Text Solution:

DNA contains four bases viz. adenine (A), guanine (G), cytosine (C) and thymine (T). RNA also contains four bases, the first three bases are same as in DNA but the fourth one is uracil (U).

Video Solution:

Q26 Text Solution:

Progesterone prepares uterus for implantation of the fertilised egg.

Video Solution:

Q27 Text Solution:

The solution is correct because hormones are not considered essential components of a balanced diet. A balanced diet typically includes vitamins, carbohydrates, and fats, which provide necessary nutrients and energy for the body. Hormones, on the other hand, are produced by the body and regulate various physiological processes, but they are not obtained directly from food.

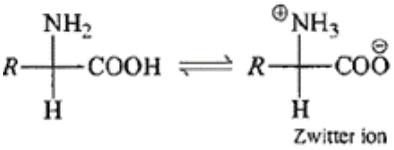
Video Solution:

Q28 Text Solution:

The role of insulin is to keep the blood glucose level within the narrow limit. Insulin is released in response to the rapid rise in blood glucose level. On the other hand hormone glucagon tends to increase the glucose level in the blood. The two hormones together regulate the glucose level in the blood.

Video Solution:

Q29 Text Solution:



Zwitter ion

Video Solution:

Q30 Text Solution:

If both statements are true and statement 2 is the correct explanation of statement 1.

The aldehydic group in glucose has a reducing charecter and gets converted to -COOH

Video Solution: