

STARS ACADEMY LAHORE

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Roll No. of Candidate

Name of Candidate

STARS ENTRY TEST SYSTEM-2021

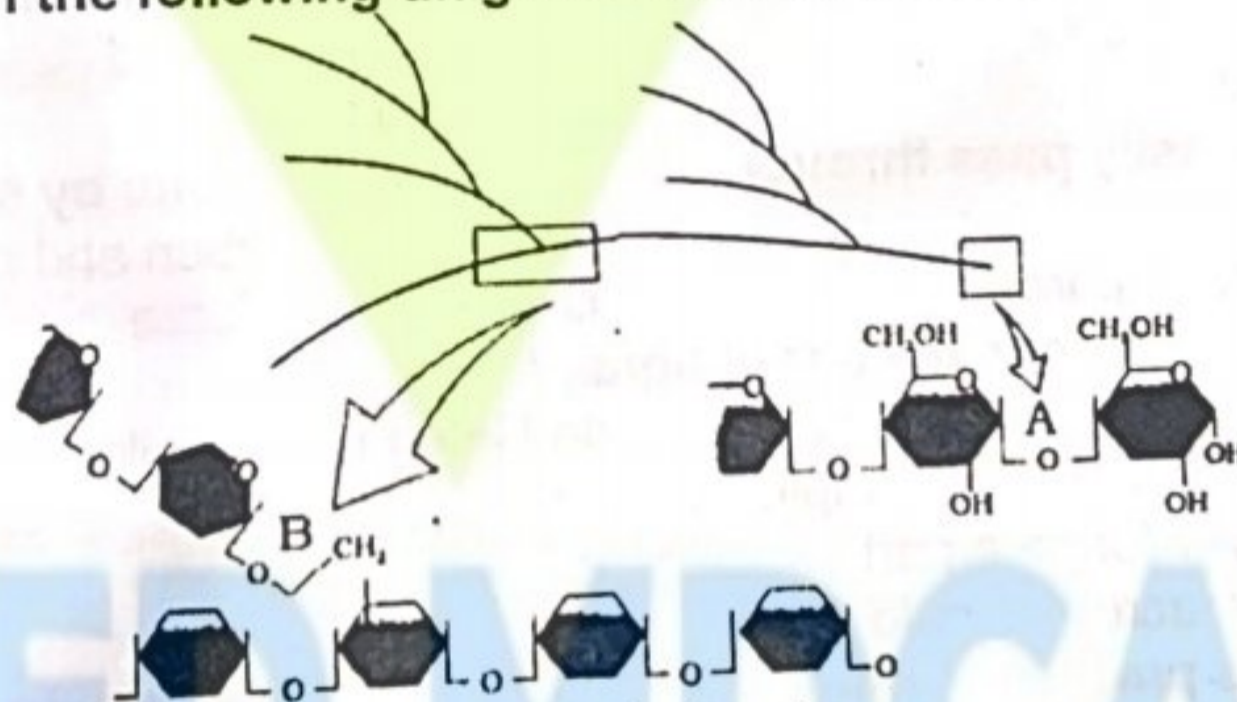
(MDCAT)

Test Code: B-2 (BIOLOGICAL MOLECULES and ENZYMES)

Time Allowed: 50 min

BIOLOGY

- Cohesive forces (H₂O) are the forces acting _____.**
 A) Due to gravity
 B) Between molecules of different materials
 C) Between water and glass capillary tube
 D) Between molecules of same material
- The properties of water that is the main contributory factor enabling homeotherms to adapt a range of environment?**
 A) Water has maximum density at 4 °C
 B) Water has a high heat of vaporization
 C) Water has high surface tension
 D) It has a low viscosity
- Protection against sudden thermal change is carried out by the help of:**
 A) Water
 B) Ions
 C) Salt
 D) Bonds
- Which of the following bonds has shortest time span in water?**
 A) Covalent bond
 B) Hydrogen bond
 C) Ionic bond
 D) All of these
- Three important polysaccharides made up of glucose monomers are _____.**
 A) Sucrose, Lactose, Maltose
 B) Starch, Glycogen, Cellulose
 C) Chitin, Glycogen, Starch
 D) RNA, DNA, Starch
- In animals, glucose is stored as _____, while in plants stored as _____.**
 A) Cellulose, starch
 B) Cellulose, glycogen
 C) Starch, glycogen
 D) Glycogen, Starch
- Identify A and B bonds in the following diagrammatic representation of a portion of glycogen _____.**

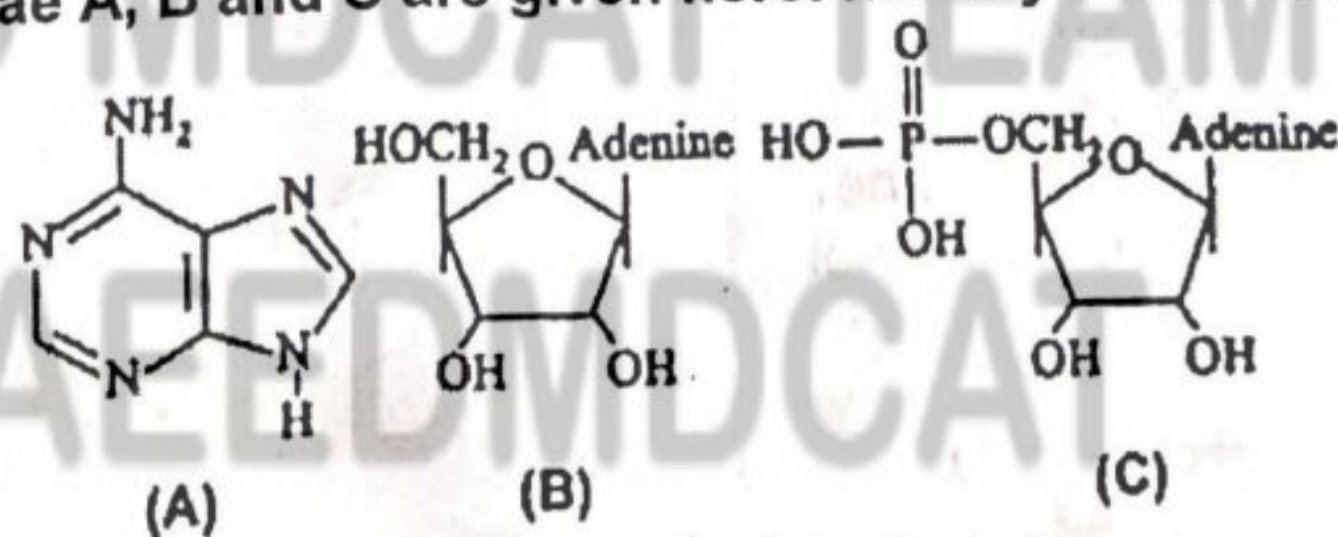


- A) A= 1-4 α -glycosidic bonds, B = 1-6 α -glycosidic bonds
 B) A= 1-6 α -glycosidic bonds, B = 1-4 α -glycosidic bonds
 C) A = 1-1 α -glycosidic bonds, B = 1-1 α -glycosidic bonds
 D) A= 1-4 α -glycosidic bonds, B = 1-4 α -glycosidic bonds

8. Match List-I with List-II and select the correct answer using the codes given below:

	A) List-I	List-II	
	B) (Sugar)	(Source)	
A	Cellulose	1. Honey	
B	Fructose	2. Sugarcane	
C	Maltose	3. Cotton wool	
D	Sucrose	4. Disaccharide	
Codes:	A	B	C
	1	2	3
A)	1	2	4
B)	3	1	4
C)	2	3	4
D)	4	1	2

9. Which one of the following molecules is a carbohydrate?
 A) $C_{51}H_{98}O_6$ B) $C_{60}H_{100}O_{50}$ C) $C_{45}H_{84}O_8PNc$ D) $C_{22}H_{49}O_{10}N_5$
10. Starch $\xrightarrow[\text{pH 6.8}]{\text{Salivary Amylase}}$ A. The A is _____.
 A) Glucose B) Fructose C) Galactose D) Maltose
11. Which protein is required for coagulation?
 A) Fibrinogen B) Albumin C) Globulin D) Immunogen
12. How many amino acids are used to form protein?
 A) 18 B) 21 C) 20 D) 22
13. $\begin{array}{c} \text{COOH} \\ | \\ \text{H}-\text{C}-\text{NH}_2 \\ | \\ \text{R} \end{array}$ is a structure of α -amino acid. Based on different R groups the following amino acids are formed. Select the correct amino acid according to different R group.
 A) R \rightarrow H (glycine), B) R \rightarrow CH₃ (alanine), C) R \rightarrow CH₂OH (serine) D) All the above
14. The chemical and physical property of amino acid is based on _____.
 A) -NH₂ group B) -R group C) -COOH group D) All of these
15. Proteins of hair, horns, feathers and other skin appendages is _____.
 A) storage protein B) structural protein C) enzymatic protein D) hormonal protein
16. The two chains of insulin are held together by _____.
 A) covalent bond B) hydrogen bond C) ionic bond D) di-sulfide bridges
17. Lipids are insoluble in water because lipids molecules are:
 A) Hydrophilic B) Neutral C) Hydrophobic D) Acidic
18. Which of the following are not polymeric?
 A) Proteins B) Lipids C) Polysaccharides D) Nucleic acids
19. Which of the following organic compound is the main constituent of Lecithin?
 A) Phosphoprotein B) Phosphatidic Acid C) Arachidonic acid D) Cholesterol
20. Steroid hormones easily pass through the plasma membrane by simple diffusion because they:
 A) Are water soluble B) Enter through protein pores C) Contain carbon and hydrogen D) Are lipid soluble
21. Which of the following is correct about lipids?
 A) On the basis on melting points they are divided into fats and oils
 B) Neural tissues are made up of simple lipids only
 C) Phospholipids never forms a part of cell membrane
 D) Lipids are strictly macromolecule
22. The fatty acid that is present in phospholipids:
 A) Oleic acid B) Palmitic acid C) Stearic acid D) Both A) & B)
23. Which of the following have the capacity to store highest amount of energy in same amount of substrate?
 A) Carbohydrates B) Lipids C) Proteins D) Nucleic acid
24. The three structural formulae A, B and C are given here. Identify them and select the correct option.



- A) A-Thymine (N-base), B-Adenosine (Nucleoside), C-Adenylic acid
 B) A-Adenine (N-base), B.-Adenosine (Nucleoside), C-Adenosine monophosphate (Nucleotide)
 C) A-Adenosine (Nucleoside), B-Adenylic acid (Nucleotide), C-Adenine (N-base)
 D) A-Adenosine (Nucleoside), B-Adenylic acid (Nucleotide), C-Deoxyadenylic acid.

- There are some nucleic acids that behaves like enzymes and are called _____.
26. A) DNase
B) Endonuclease
C) RNase
D) Ribozymes
27. In the context of genetic material: Base + Sugar →
A) Nucleotide
B) Nucleic acid
C) Nucleoside
D) Nuclein
28. mRNA directs the building of proteins through a sequence of _____.
A) Introns
B) Exons
C) Codons
D) Anticodons
29. Consider the following statements and select the correct answer from the codes given below:
1. In DNA, the base adenine, guanine, thymine and cytosine are found.
2. The nucleus contains almost all the DNAs of a cell.
3. In RNA, thymine is replaced with uracil.
4. RNA is mainly found to be in the cytoplasm.
Codes:
A) 1, 2 and 3
B) 1 and 4 only
C) 2 and 3 only
D) 1, 2, 3 and 4
30. Which of these structures contains RNA but not DNA?
A) Nucleus
B) Chloroplast
C) Mitochondrion
D) Ribosome
31. Which one of the following is best description of ATP?
A) A specialized RNA nucleotide with a purine base
B) A specialized DNA nucleotide with a purine base
C) A specialized RNA nucleotide with a pyrimidine base
D) A specialized DNA nucleotide with a pyrimidine base.
32. Which of the following membrane proteins lie on the surface of the cell?
A) Integral proteins
B) Intrinsic proteins
C) Peripheral proteins
D) Glycoproteins
33. The most abundant molecules in the chromosome is _____.
A) Lipoprotein
B) Nucleoprotein
C) Glycoprotein
D) Oxygen
34. The optimal pH for the enzyme pepsin is _____.
A) 1.0–2.0
B) 5.2–6.0
C) 4.0–5.0
D) 5.8–6.2
35. Maximum enzyme activity is observed at _____.
A) Acidic pH
B) Basic pH
C) Neutral pH
D) Optimum pH
36. Which of the following enzyme is non – protein in nature?
A) Ribozyme
B) Amylase
C) Lipase
D) Sucrase
37. If an enzyme solution is saturated with substrate, the most effective way to obtain an even faster yield of products would be:
A) Add more of the enzymes
B) Add an allosteric inhibitor
C) Add more substrate
D) Add a non-competitive inhibitor
38. The function of competitive inhibitors is defined by their ability to interact or bind to _____.
A) The active site of an enzyme
B) The site other than active site
C) Regulatory sub-units of an enzyme
D) Enzyme cofactors
39. The detachable cofactor if it is an inorganic ion is called _____.
A) Activator
B) Prosthetic group
C) Coenzyme
D) All of these
40. Feedback term refers to _____.
A) Effect of substrate on rate of enzymatic reaction
B) Effect of end product on rate reaction
C) Effect of enzyme concentration on rate of reaction
D) Effect of external compound on rate of reaction

40. In competitive inhibition, the inhibitor _____.
- A) Competes with the enzyme
B) Irreversibly binds with the allosteric site
C) Binds with the substrate
D) Competes with the substrate
41. Competitive inhibition can be relieved by raising the _____.
- A) Enzyme concentration
B) Substrate concentration
C) Inhibitor concentration
D) None of these
42. An enzyme is a _____.
- A) Carbohydrate
B) Protein
C) Lipid
D) DNA
43. What is the most important property of water for which it is needed in the body?
- A) It is in a liquid form
B) It is made of H_2 and O_2 , and this O_2 can be used in cellular metabolism
C) It is tasteless, colourless and odourless
D) It is a universal solvent
44. Of how many carbon atoms are monosaccharide composed of?
- A) 1 to 5 carbon atoms
B) 5 to 10 carbon atoms
C) 3 to 7 carbon atoms
D) 5 to 15 carbon atoms
45. Each fat molecule is formed from
- A) Three glycerol molecules and three fatty acid molecules
B) One glycerol molecule and one fatty acid molecule
C) One glycerol molecule and three fatty acid molecule
D) Three glycerol molecules and one fatty acid molecule
46. Membrane carbohydrates when linked to lipids are called
- A) Cholesterol
B) Phospholipids
C) Glycolipids
D) Sterol
47. NADP is
- A) An enzyme
B) A coenzyme
C) A part of soluble RNA
D) A part of transfer RNA
48. Which of the following is NOT an attribute of enzymes?
- A) These are proteinaceous in nature
B) These are specific in nature
C) These speed up the rate of biochemical reaction
D) These are used up in reaction
49. A non-reducing sugar is
- A) Glucose
B) Heparin
C) Sucrose
D) Erythromycin
50. Glycoproteins are known to play an important role in cell recognition. The specificity of this recognition is provided largely by
- A) Carbohydrate portion of these glycoproteins
B) Protein portion of these glycoproteins
C) Both carbohydrate and protein component of these glycoproteins
D) Lipid portion of glycoproteins

SUBJECT

1	A	B	C	<input checked="" type="radio"/>
2	A	<input checked="" type="radio"/>	C	D
3	<input checked="" type="radio"/>	B	C	D
4	A	<input checked="" type="radio"/>	C	D
5	A	<input checked="" type="radio"/>	<input checked="" type="radio"/>	D
6	A	B	C	<input checked="" type="radio"/>
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39	A	<input checked="" type="radio"/>	C	D
40	A	B	C	<input checked="" type="radio"/>

41	A	<input checked="" type="radio"/>	C	D
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43	A	<input checked="" type="radio"/>	C	D
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55	A	B	C	D
56	A	B	C	D
57	A	B	C	D
58	A	B	C	D
59	A	B	C	D
60	A	B	C	D

INST

- USE BLUE BALL
- FILL IN BUBBLE
- EXAMPLE (i): (
- DO NOT FOLD O
- MULTIPLE RESP
- PLEASE FILL IN
- THE UNIVERSITY
- ABOVE INSTRU

ROLL

0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9