ONTARIO BIOLOGY, GRADE 12, UNIVERSITY PREPARATION (SBI4U) · UNIT A

Biochemistry — Practice Test

Ontario Biology, Grade 12, University Preparation (SBI4U) • 25 questions

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Which element is present in proteins but is not present in carbohydrates or lipids**

- A Hydrogen
- B Nitrogen
- C Oxygen
- D Carbon

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2 **A monosaccharide with six carbon atoms is best classified as a**

- A Pentose
- B Hexose
- C Polysaccharide
- D Disaccharide

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3 **Which functional group defines an amino acid as different from a simple carboxylic acid**

- A Hydroxyl group
- B Carbonyl group
- C Methyl group
- D Amino group

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4 **The bond formed between two amino acids during protein synthesis is called a**

A Glycosidic bond

B Ionic bond

C Peptide bond

D Hydrogen bond

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5 **Which polysaccharide is the main energy storage molecule in animal cells**

A Starch

B Cellulose

C Chitin

D Glycogen

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6 **Cellulose differs from starch mainly in the**

A Number of carbon atoms

B Presence of nitrogen

C Type of glycosidic linkage

D Colour of the molecule

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7 **A fatty acid with no double bonds between carbon atoms is described as**

A Unsaturated

B Saturated

C Polyunsaturated

D Hydrogenated only

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8 **Which level of protein structure is the sequence of amino acids in a polypeptide chain**

A Quaternary structure

B Secondary structure

C Primary structure

D Tertiary structure

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9 **An alpha helix and a beta pleated sheet are examples of which level of protein structure**

A Primary structure

B Secondary structure

C Quaternary structure

D Tertiary structure

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10 **Denaturation of a protein most directly disrupts its**

A Three dimensional shape

B Number of carbon atoms

C Peptide bonds only

D Amino acid sequence

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11 **Which molecule is the main component of the cell membrane bilayer**

A Phospholipid

B Glycogen

C Starch

D Cellulose

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12 **In a phospholipid, the phosphate head is best described as**

- A Hydrophilic
- B Hydrophobic
- C Neutral and dry
- D Nonpolar only

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13 **Which nucleic acid base pairs with adenine in a DNA double helix**

- A Uracil
- B Thymine
- C Guanine
- D Cytosine

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14 **The backbone of a DNA strand is made of alternating**

A Guanine and cytosine

B Amino acids

C Sugar and phosphate groups

D Adenine and thymine

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15 **A DNA sample contains 22 percent adenine. The percentage of guanine in the sample is**

A 28 percent

B 44 percent

C 56 percent

D 22 percent

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16 **Which enzyme joins Okazaki fragments on the lagging strand during DNA replication**

A DNA polymerase

B Helicase

C DNA ligase

D Primase

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17 **During DNA replication, helicase has the main job of**

A Adding new nucleotides

B Unwinding the double helix

C Joining fragments together

D Removing RNA primers

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18 **Which statement best describes a condensation reaction in biochemistry**

A Water is added to break a bond

B Energy is released as heat only

C Water is removed to form a bond

D A bond breaks with no products

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19 **Hydrolysis of a disaccharide produces**

A Two monosaccharides

B One polysaccharide

C One fatty acid

D Two amino acids

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20 **Which test gives a positive result for a reducing sugar**

A Benedict test

B Iodine test

C Sudan test

D Biuret test

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21 **The Biuret test is used to detect the presence of**

A Protein

B Starch

C Glucose

D Lipid

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22 **A triglyceride is formed from glycerol and**

A Three monosaccharides

B Three amino acids

C Three fatty acids

D Three nucleotides

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23 **Which statement about enzymes is correct**

A Enzymes work at any pH equally

B Enzymes lower activation energy

C Enzymes are used up in a reaction

D Enzymes change the products formed

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24 **An enzyme works best at its optimum pH because at that pH its**

- **A** Active site shape fits the substrate
- **B** Substrate is destroyed
- **C** Amino acids break apart
- **D** Products cannot form

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25 **If a DNA strand has the sequence A T G C C A, the complementary strand reads**

- **A** T A C C G T
- **B** T A C G G T
- **C** A T G C C A
- **D** U A C G G U

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ANSWER KEY

1.	B	**10.**	A	**19.**	A
2.	B	**11.**	A	**20.**	A
3.	D	**12.**	A	**21.**	A
4.	C	**13.**	B	**22.**	C
5.	D	**14.**	C	**23.**	B
6.	C	**15.**	A	**24.**	A
7.	B	**16.**	C	**25.**	B
8.	C	**17.**	B		
9.	B	**18.**	C		

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