BIOLOGY · ALASKA

Biology
Practice Test

Unit 1: Cells and Molecular Biology

25 Questions

Original practice test based on the Alaska curriculum. Work through each question, then check your answers at the end.

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.

© 2026 Brett Robbins. All Rights Reserved.

Question 1

Cell theory states that all new cells arise from

A) Nonliving matter

B) Minerals in soil

C) Preexisting cells

D) Energy from sunlight

Understand It with Pulse Flag a mistake

Question 2

A prokaryotic cell stores its DNA in a region of the cytoplasm because it lacks a

A) Membrane bound nucleus

B) Cell wall

C) Plasma membrane

D) Cytoplasm

Understand It with Pulse Flag a mistake

Question 3

Which organelle releases energy from glucose for use by the cell

A) Chloroplast

B) Mitochondrion

C) Nucleus

D) Ribosome

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.



Question 4

Which organelle captures light energy in a plant cell

A) Mitochondrion

B) Vacuole

C) Golgi body

D) Chloroplast

Understand It with Pulse Flag a mistake

Question 5

The plasma membrane is best described as a phospholipid bilayer that is

A) Fully open to all substances

B) Selectively permeable

C) Made only of protein

D) Found only in plant cells

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.



Question 6

Two potato strips of equal mass were placed in different liquids for one hour In distilled water the strip gained mass In salty water the strip lost mass What happened to water in the distilled water setup

A) Water moved into the cells

B) Water moved out of the cells

C) Water stopped moving

D) Water turned into glucose

Understand It with Pulse Flag a mistake

Question 7

Facilitated diffusion differs from simple diffusion because it uses

A) Light energy

B) ATP directly

C) Protein channels in the membrane

D) Heat from the cell

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 8

A white blood cell engulfs a bacterium by wrapping its membrane around it This process is

A) Osmosis

B) Diffusion

C) Exocytosis

D) Endocytosis

Understand It with Pulse Flag a mistake

Question 9

The sodium potassium pump moves ions against their concentration gradient It must use

A) Sunlight

B) ATP

C) DNA

D) Glucose alone

Understand It with Pulse Flag a mistake

Question 10

An enzyme was tested at four pH values and its reaction rates were recorded At pH 3 the rate was 2 At pH 5 the rate was 8 At pH 7 the rate was 20 At pH 9 the rate was 4 At which pH does this enzyme work best

A) pH 3

B) pH 5

C) pH 7

D) pH 9

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 11

Which class of macromolecule is used for long term energy storage in animals

A) Lipid

B) Protein

C) Nucleic acid

D) Enzyme

Understand It with Pulse Flag a mistake

Question 12

Which macromolecule provides quick energy and includes sugars and starches

A) Lipid

B) Protein

C) Nucleic acid

D) Carbohydrate

Understand It with Pulse Flag a mistake

Question 13

A DNA strand reads ATCG What is the matching strand in the same order

A) ATCG

B) TAGC

C) CGTA

D) GCTA

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 14

RNA differs from DNA because RNA is usually single stranded and contains the base

A) Uracil

B) Thymine

C) Deoxyribose

D) Guanine only

Understand It with Pulse Flag a mistake

Question 15

Transcription takes place in the nucleus and produces a molecule of

A) DNA

B) Protein

C) Messenger RNA

D) Lipid

Understand It with Pulse Flag a mistake

Question 16

A short messenger RNA sequence and the amino acid for each codon are given AUG codes for methionine

UUU codes for phenylalanine The sequence is AUGUUU Which two amino acids are coded for in order

A) Phenylalanine then methionine

B) Methionine then methionine

C) Phenylalanine then phenylalanine

D) Methionine then phenylalanine

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 17

Which list gives the phases of mitosis in the correct order

A) Prophase metaphase anaphase telophase

B) Metaphase prophase telophase anaphase

C) Anaphase telophase prophase metaphase

D) Telophase anaphase metaphase prophase

Understand It with Pulse Flag a mistake

Question 18

During the cell cycle DNA is copied during which stage

A) Cytokinesis

B) S phase of interphase

C) Anaphase

D) Telophase

Understand It with Pulse Flag a mistake

Question 19

A diploid parent cell divides by mitosis and cytokinesis. How many cells are produced, and what is their ploidy?

A) Four haploid cells

B) One diploid cell

C) Two diploid cells

D) Two haploid cells

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 20

Cellular respiration breaks down glucose with oxygen Which of these is a product

A) Glucose

B) Oxygen

C) Sunlight

D) Carbon dioxide

Understand It with Pulse Flag a mistake



Question 21

In photosynthesis a plant uses light energy water and carbon dioxide to make

A) Glucose and oxygen

B) ATP and nitrogen

C) Protein and water

D) Lipid and salt

Understand It with Pulse Flag a mistake

Question 22

ATP stores energy in the bonds between its phosphate groups Energy is released when

A) A phosphate is added

B) A phosphate is removed

C) Glucose is added

D) Water is removed

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

Question 23

Fermentation in muscle cells occurs when oxygen is scarce It produces ATP and

A) Oxygen

B) Glucose

C) Lactic acid

D) Carbon monoxide

Understand It with Pulse Flag a mistake

Question 24

Yeast cells were kept at four temperatures and gas bubbles were counted for five minutes At 20 degrees Celsius 12 bubbles were counted At 30 degrees Celsius 28 bubbles were counted At 40 degrees Celsius 45 bubbles were counted At 50 degrees Celsius 18 bubbles were counted At which temperature was the respiration rate highest

A) 20 degrees Celsius

B) 30 degrees Celsius

C) 40 degrees Celsius

D) 50 degrees Celsius

Understand It with Pulse Flag a mistake

Question 25

One cell divides by mitosis five times in a row with no cells dying How many cells result

Understand It with Pulse Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

ANSWER KEY

1.	C	**10.**	C	**18.**	B
2.	A	**11.**	A	**19.**	C
3.	B	**12.**	D	**20.**	D
4.	D	**13.**	B	**21.**	A
5.	B	**14.**	A	**22.**	B
6.	A	**15.**	C	**23.**	C
7.	C	**16.**	D	**24.**	C
8.	D	**17.**	A	**25.**	32
9.	B				

© 2026 Brett Robbins. All Rights Reserved.