

EXAMPLE QUESTIONS

UIL BIOLOGY 2022-2023

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HINTS!!

- **Usually** two from each main topic
 - Almost never from the same subtopic in a single test
 - Attempt to spread subtopics across tests
 - Topics become more blurred as tests progress, especially State test
- Questions sometimes piggy back on content from other tests
 - Study Tip: Determine why the incorrect answers are wrong, or in what situation/context could they be correct
 - Look up incorrect answers to learn about them
- Bolded words in textbooks are super helpful for creating a foundation
- Diseases
 - Gram-positive bacterial diseases
 - In the news...CDC,WHO,NIH,public health

“PIGGY BACK” QUESTIONS

Invitational B: The *cis* face of the Golgi apparatus generally faces towards the

- A. plasma membrane.
- B. nucleus.
- C. endoplasmic reticulum.
- D. mitochondria.
- E. nucleolus.

District: Modified proteins leaving the Golgi apparatus in secretory vesicles would do so on the _____
_____ side of the Golgi body.

- A. cis
- B. trans
- C. cytoplasmic
- D. exocytosis
- E. endocytosis

“PIGGY BACK” QUESTIONS

Invitational A: Some RNA molecules can catalyze chemical reactions. These are collectively called

- A. enzymes.
- B. ribonucleases.
- C. ribozymes.
- D. ribosomes.
- E. mRNAs.

District: The ribosome is classified as a

- A. ribozyme.
- B. catabolic enzyme.
- C. ribonuclease.
- D. structural protein.
- E. DNA-binding protein.

SAMPLE QUESTIONS

Relationship Between Structure and Function

- Basic biochemistry, cell biology, biological membranes, membrane transport, structure and function of organic macromolecules

EXAMPLE
QUESTION
– LEVEL I

Phospholipids are found in _____
_____.

- A) membranes
- B) DNA
- C) the cytosol
- D) proteins

EXAMPLE
QUESTION
– LEVEL 2

Molecule X is polar and at a higher concentration within the interstitial fluid than within the cytosol of a cell. Movement of X into the cell will likely occur via _____.

- A) active transport
- B) simple diffusion
- C) facilitated diffusion
- D) secondary active transport
- E) a pump

EXAMPLE
QUESTION
– LEVEL 3

The transport of the secondary molecule, glucose, is linked to the Na^+ -K pump. If primary export of Na^+ could be blocked, which of the following would occur?

- A) Glucose would decrease inside the cell.
- B) More ATP would be hydrolyzed.
- C) K^+ would increase in the cytosol.
- D) Na^+ would easily diffuse across the membrane.

SAMPLE QUESTIONS

Gene Expression

- Protein synthesis, regulation of gene expression, effects of mutations

EXAMPLE
QUESTION
– LEVEL I

A mutation that replaces an adenine with a cytosine in DNA would be called a _____.

- A. frameshift
- B. deletion
- C. insertion
- D. substitution
- E. reversion

EXAMPLE
QUESTION
– LEVEL
2/3

Compare the two DNA template sequences and determine the consequence of the mutation.

wild type 3'-TACAAAATAGCA-5'

mutation 3'-TACAAAATTGCA-5'

- A. silent
- B. nonsense
- C. missense
- D. frameshift
- E. deletion

A genetic code table would be provided, in most cases.

EXAMPLE
QUESTION
– LEVEL 3

A mutation was introduced within the gene that codes for peptidyltransferase activity of the ribosome. Select the most immediate effect of this mutation.

- A) tRNAs would not be able to bind to the ribosome.
- B) The ribosome would not translocate.
- C) Codons would be prevented from binding to anticodons.
- D) Peptide bond formation would cease.
- E) The two subunits of the ribosome would disassociate.

THE END