

**Objective 2 Assignment From 9-28 Practice TAKS Test**

1. The endoplasmic reticulum is an organelle found in animal cells. One of the main functions of the endoplasmic reticulum is to carry materials from one part of a cell to another. One way that the endoplasmic reticulum helps maintain the body's homeostasis is by —

- A** transferring energy from carbohydrates to ATP
- B** using genetic information to manufacture muscle proteins
- C** transporting oxygen from the lungs to all parts of the body
- D** delivering hormones to the cell membrane, where they can be secreted

\_\_\_\_\_ Explain your answer:

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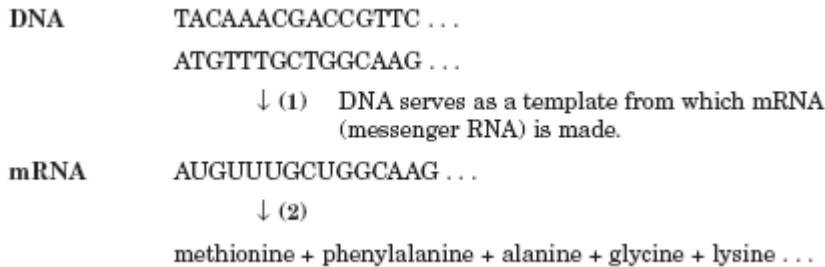
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2. Which statement best describes the process at Step 2 in the diagram?



- A** An mRNA molecule signals which nucleotides should be joined to form a nucleic acid.
- B** The codons of an mRNA molecule signal proteins to create a carbohydrate chain.
- C** The genetic information coded in an mRNA molecule is translated into an amino acid chain.
- D** A protein chain acts as a pattern for creating an mRNA molecule with the proper sequence.

\_\_\_\_\_ Explain your answer:

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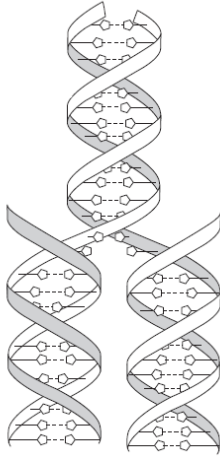
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3. A person drives a car up to a railroad crossing and stops. The driver is startled by the sound of a train blowing its whistle. The driver's heart rate immediately increases, and the driver is more alert. Which body systems are most involved in causing the driver's heart rate and alertness to increase as a result of sudden fright?

- A** Skeletal and muscular
- B** Nervous and endocrine
- C** Circulatory and excretory
- D** Respiratory and integumentary

\_\_\_\_\_ Explain your answer:

4.



Which cellular process is modeled in this diagram?

- A** Replication, in which DNA is copied before mitosis occurs
- B** Deletion, in which a chromosome breaks and a piece of DNA is lost
- C** Transcription, in which the information stored in DNA is copied to mRNA
- D** Translation, in which the information stored in mRNA is used to synthesize a protein

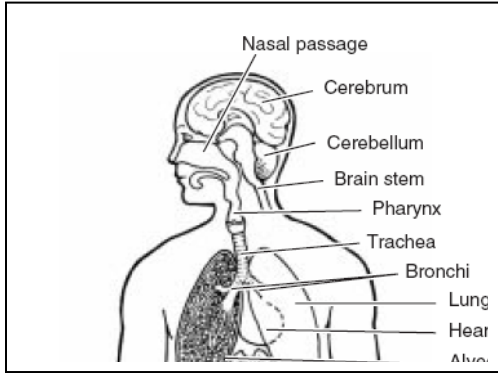
\_\_\_\_\_ Explain your answer:

5. A group of scientists discover a new species in a rain forest. They take a tissue sample from one of the organisms and look at it under a microscope. The cells making up the tissue have nuclei and cell walls. Next the scientists take several of the organisms and place them in damp soil that is rich in organic material. Half of the organisms are exposed to full sunlight, and half are kept in constant darkness. The group that receives sunlight grows and thrives, but the group that is kept in darkness gradually dies. In which kingdom should the new species be classified?

- A** Eubacteria
- B** Fungi
- C** Plantae
- D** Animalia

\_\_\_\_\_ Explain your answer:

6. An increase in the amount of carbon dioxide in the blood stimulates the respiratory center in the brain. As a result, a message is sent from the brain to the —



- A** bronchi, causing them to narrow in diameter
- B** diaphragm, causing an increase in the breathing rate
- C** alveoli, causing them to actively transport oxygen
- D** lungs, causing a decrease in the breathing rate

\_\_\_\_\_ Explain your answer:

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7.

	DNA	mRNA	Phenotype
Normal	C-T-T →	G-A-A →	Normal blood cells
Mutation 1 (sickle-cell mutation)	C- <b>A</b> -T →	G- <b>U</b> -A →	Sickle-shaped blood cells
Mutation 2	C-T- <b>C</b> →	G-A- <b>G</b> →	Normal blood cells

What is one possible reason that Mutation 2 leads to the production of normal blood cells rather than sickle-shaped blood cells?

- A** The mRNA codons GAA and GAG both code for the same amino acid.
- B** The mRNA codon GAG acts as a stop signal rather than coding for an amino acid.
- C** The mRNA codon GAG is unreadable and is therefore skipped over during protein synthesis.
- D** The mRNA codon GAG corresponds to the tRNA molecule that can carry more than one amino acid.

\_\_\_\_\_ Explain your answer:

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8. Histamine is a polar chemical that can lead to an allergic response when it is released by the body's immune system. An antihistamine is a drug that can help prevent the allergic reactions associated with histamine. An antihistamine is a similar molecule to histamine in size, shape, and polarity. How does an antihistamine most likely prevent the effects of histamine?

- A It increases the diffusion of histamine across the membranes of target cells.
- B It binds to histamine receptors on the surfaces of target cells.
- C It causes target cells to increase production of histamine receptors.
- D It blocks histamine receptors found in the cytoplasm of target cells.

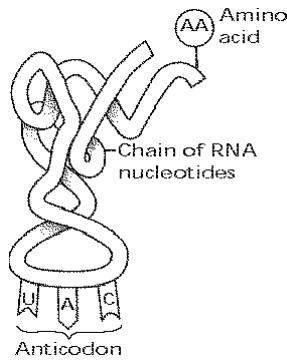
\_\_\_\_\_ Explain your answer:

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9. Which of the following nitrogen base sequences will complement the anticodon shown?

- A. AUG
- B. GUA
- C. TCG
- D. AUT

\_\_\_\_\_ Explain your answer:

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10. Which three systems are involved in the excretion of wastes in humans?

- A. Urinary, skeletal, reproductive
- B. Circulatory, integumentary, muscular
- C. Digestive, respiratory, urinary
- D. Nervous, endocrine, immune

\_\_\_\_\_ Explain your answer:

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11. Which of the following pairs of systems are affected by a broken bone that breaks the skin?

- A. Muscular and immune
- B. Circulatory and skeletal
- C. Endocrine and integumentary
- D. Nervous and reproductive

\_\_\_\_\_ Explain your answer:

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12. Which of the following correctly sequences organisms from simplest to most complex?

- A. Eubacteria, plant, protist
- B. Eubacteria, protist, animal
- C. Fungi, animal, archaeobacteria
- D. Plant, fungi, protist

\_\_\_\_\_ Explain your answer:

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13. What is the main difference between a prokaryote and a eukaryote?

- A. The need for nutrients
- B. Plasma membranes
- C. Organelles
- D. Algae

\_\_\_\_\_ Explain your answer:

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14. Which organelle is most like a miniature stomach?

- A. Vacuole
- B. Golgi apparatus
- C. Chloroplast
- D. Lysosome

\_\_\_\_\_ Explain your answer:

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15. If a strand of DNA had bases in the following order—ATCCGTC, what would be the order of the bases in the other strand of DNA?

- A. ATCCGTC
- B. TAGGCAG
- C. GAGGCAT
- D. GCTTACT

\_\_\_\_\_ Explain your answer:

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