

***Advanced Human Nutrition 5th edition Medeiros Test
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Information Field: Complexity

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Highest Answer Letter: D

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NAS ISBN13: XXXXXXXXXXXXX, add to Ahead, Title tags

Chapter 01 – Multiple Choice

1. What is cell signaling?

- A) The process a cell goes through before it becomes functional
- B) Nerve impulses that cause motion
- C) Biochemical reactions that convey a message to a DNA promoter
- D) The process of protein catabolism

Ans: C

Complexity: Moderate

Ahead: Cell Structure and Organelles

Subject: Chapter 1

2. What is the site of most ATP production within the cells?

- A) Lysosomes
- B) Ribosomes
- C) Golgi apparatus
- D) Mitochondria

Ans: D

Complexity: Easy

Ahead: Cell Structure and Organelles

Subject: Chapter 1

3) All of the following RNAs may silence gene expression, *except*:

- A) ribosomal RNA (rRNA).
- B) microRNA (miRNA).

C) small interfering RNA (siRNA).

D) small hairpin RNA (shRNA).

Ans: A

Complexity: Difficult

Ahead: The Nucleus and Genetic Aspects

Subject: Chapter 1

4. Within the electron transport system, which of the following are involved in ATP formation?

- A) cytochrome c oxidase
- B) NADH and FADH₂
- C) coenzyme Q
- D) All-of-the-following

Ans: D

Complexity: Difficult

Ahead: Electron Transport Chain and Oxidative Phosphorylation

Subject: Chapter 1

5. Which of the following is an example of a second messenger for hormones?

- A) Phospholipase C
- B) Cyclic AMP
- C) Glucose-6-phosphate
- D) Phospholipase C and cyclic AMP

Ans: D

Complexity: Difficult

Ahead: Cellular Protein Functions

Subject: Chapter 1

6. How many bones does the human skeleton contain?

- A) 202
- B) 306
- C) 200
- D) 206

Ans: D

Complexity: Easy

Ahead: Organ Systems

Subject: Chapter 1

7. White blood cells are also called:

- A) Lysosomes
- B) Leukocytes
- C) Hemoglobin
- D) Mitochondria

Ans: B

Complexity: Easy

Ahead: Organ Systems

Subject: Chapter 1

8. While all of the following compounds can initiate mitochondrial biogenesis, the major one is:

- A) mtTFA.
- B) NRF-1.
- C) PGC-1 α .
- D) ATP synthetase.

Ans: C

Complexity: Difficult

Ahead: The Nucleus and Genetic Aspects

Subject: Chapter 1

9. Which of the following best describes hydroxyapatite?

- A) Vitamin complexes
- B) Cells that respond to electrical impulses
- C) Mineral deposits
- D) Carbohydrate reserves

Ans: C

Complexity: Moderate

Ahead: Organ Systems

Subject: Chapter 1

10. The glomerulus capsule of the kidneys:

- A) maintains the integrity of the collecting duct.
- B) helps form the ultrafiltrate that contains water and various ions.
- C) is where red blood cells are produced.
- D) All of these are correct.

Ans: B

Complexity: Moderate

Ahead: Organ Systems

Subject: Chapter 1

True/False

1. Small hairpin RNA initiates the sequence of events for mitochondrial biogenesis.

Ans: False

Complexity: Difficult

Ahead: The Nucleus and Genetic Aspects
Subject: Chapter 1

2. Aldosterone is produced by the thyroid gland to reabsorb sodium.

Ans: False

Complexity: Moderate

Ahead: Tissue

Subject: Chapter 1

3. Peroxisomes are the cell organelles in which fatty acids longer than 20 carbons (known as very long chain fatty acids) undergo beta oxidation.

Ans: True

Complexity: Moderate

Ahead: Cell Structure and Organelles

Subject: Chapter 1

4. Protein synthesis is an ATP-expensive operation.

Ans: True

Complexity: Moderate

Ahead: Protein Synthesis

Subject: Chapter 1

5. ATP is constantly being used and regenerated in human cells.

Ans: True

Complexity: Moderate

Ahead: Protein Synthesis

Subject: Chapter 1

6. Enzymes allow cells to use less energy (ATP) in biochemical reactions.

Ans: True

Complexity: Moderate

Ahead: Cellular Protein Functions

Subject: Chapter 1

7. shRNA copies the sequence of DNA in the cell nucleus, whereby it is sent to the cytoplasm to synthesize proteins.

Ans: False

Complexity: Moderate

Ahead: The Nucleus and Genetic Aspects

Subject: Chapter 1

8. A major compound called mtTFA, or mitochondrial transcription factor, is known to increase the number of mitochondria synthesized.

Ans: True

Complexity: Easy

Ahead: Cell Structure and Organelles

Subject: Chapter 1

9. Purines and pyrimidines are important to the structure of DNA as they form the double helix of DNA.

Ans: False

Complexity: Moderate

Ahead: Elements and Molecules

Subject: Chapter 1

10. The evolving biotechnology referred as CRISPR has been successful at treating dementia.

Ans: False

Ahead: Organ Systems

Complexity: Difficult

Subject: Chapter 1

Essay

1. What is the most abundant element in the human body?

Ans: Oxygen

Complexity: Easy

Ahead: Elements and Molecules

Subject: Chapter 1

2. How many fatty acids per glyceride are there?

Ans: Three

Complexity: Easy

Ahead: Elements and Molecules

Subject: Chapter 1

3. In which organelle does protein synthesis occur?

Ans. Endoplasmic reticulum

Complexity: Moderate

Ahead: Cell Structure and Organelles

Subject: Chapter 1

4. What functions do hyaluronic and chondroitin sulfate provide?

Ans: They are proteoglycan components of mucus and glandular secretions. They are the primary components of connective tissue such as bone and cartilage.

Complexity: Difficult

Ahead: Cell Structure and Organelles

Subject: Chapter 1

5. In protein synthesis, what is translation?

Ans: The assembly of amino acids from reading the mRNA base pairs.

Complexity: Moderate

Ahead: Protein Synthesis

Subject: Chapter 1

6. Where is epithelial tissue found in the human body? What are the four types?

Ans: Epithelial tissue is found in the blood vessels, digestive system, reproductive system, various ducts, skin, and urinary tract. The four types are simple squamous, stratified squamous, columnar, and cuboidal.

Complexity: Moderate

Ahead: Tissue

Subject: Chapter 1

7. What bone cells are available to either break down existing cells or synthesize new ones?

Ans. Osteoclasts are large phagocytic cells that secrete proteolytic enzymes and acids to break down bone matrix and release calcium. Osteoblasts build new bone by secreting bone components.

Complexity: Difficult

Ahead: Organ Systems

Subject: Chapter 1

8. What is transcription in molecular biology?

Ans. The sequence and type of amino acids compose protein and is under the control of DNA in the nucleus. Here a molecule, messenger RNA, makes a copy of one strand of the double DNA helix and migrates to the endoplasmic reticulum where the sequence and amino acid are assembled to generate a protein.

Complexity: Difficult

Ahead: The Nucleus and Genetic Aspects

Subject: Chapter 1