Advanced Human Nutrition 5th edition Medeiros Test Bank

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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 $FADH_2$
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-1α.
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 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

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7. What bone cells are available to either break down existing cells or synthesize new ones?
Ans. Osteoclasts are large phagocytic cells that secret proteolytic cells 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

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