

## **Huether: Understanding Pathophysiology, 4<sup>th</sup> Edition**

### **Test Bank**

### **Chapter 3: Altered Cellular and Tissue Biology**

#### **MULTIPLE CHOICE**

1. Muscular atrophy involves a decrease in muscle cell:

- A. number.
- B. size.
- C. vacuoles.
- D. lipofuscin.

ANS: B                      PTS: 1                      REF: Pg. 63

2. During childhood, the thymus decreases in size, referred to as:

- A. physiologic atrophy.
- B. pathologic atrophy.
- C. disuse atrophy.
- D. dysplasia.

ANS: A                      PTS: 1                      REF: Pg. 63

3. In response to an increased workload, cardiac myocardial cells will:

- A. increase in size.
- B. decrease in length.
- C. increase in excitability.
- D. increase in number.

ANS: A                      PTS: 1                      REF: Pg. 63-64

4. A 55-year-old male with a 30-year history of smoking is examined for respiratory disturbance. Examination of his airway (bronchial) reveals that stratified squamous epithelial cells have replaced the normal columnar ciliated cells. The type of cellular adaptation is called:

- A. hypertrophy.
- B. hyperplasia.
- C. metaplasia.
- D. dysplasia.

ANS: C                      PTS: 1                      REF: Pg. 65

5. The mammary glands enlarge during pregnancy primarily as a consequence of:

- A. compensatory hyperplasia.
- B. hormonal hyperplasia.
- C. hormonal anaplasia.
- D. hormonal dysplasia.

ANS: B                      PTS: 1                      REF: Pg. 64

6. A 24-year-old female presents with excessive menstrual bleeding. Laboratory results reveal an imbalance of progesterone and estrogen, with estrogen secretion being elevated. This imbalance would most likely cause endometrial changes referred to as:
- A. dysplasia.
  - B. pathologic dysplasia.
  - C. hyperplasia.
  - D. pathologic hyperplasia.

ANS: D                      PTS: 1                      REF: Pg. 64

7. A 55-year-old male is diagnosed with hepatocellular cancer secondary to hepatitis C. If the cancerous region of the liver were removed, the remaining cells would undergo:
- A. dysplasia.
  - B. metaplasia.
  - C. compensatory hyperplasia.
  - D. compensatory dysplasia.

ANS: C                      PTS: 1                      REF: Pg. 64

8. A 40-year-old female is undergoing treatment for cervical cancer. Which of the following cellular changes is most likely to be associated with her cancer?
- A. Metaplasia
  - B. Atrophy
  - C. Hypertrophy
  - D. Dysplasia

ANS: D                      PTS: 1                      REF: Pg. 64

9. A 75-year-old male presents with chest pain with exertion. He was previously diagnosed with arteriosclerosis. The chest pain is most likely due to hypoxic injury secondary to:
- A. malnutrition.
  - B. free radicals.
  - C. ischemia.
  - D. chemical toxicity.

ANS: C                      PTS: 1                      REF: Pg. 66

10. Progressive cell injury that causes cell death with severe cell swelling and breakdown of organelles is referred to as:
- A. adaptation.
  - B. pathologic calcification.
  - C. apoptosis.
  - D. necrosis.

ANS: D                      PTS: 1                      REF: Pg. 66

11. Cellular injury can be caused by:

- A. lead, carbon monoxide, and ethanol.
- B. atrophy, water, and glycogen.
- C. melanin, hyperplasia, and proteins.
- D. pigments, calcium, and lipids.

ANS: A                      PTS: 1                      REF: Pg. 72-73

12. Sodium and water accumulation in an injured cell are a direct result of:
- A. decreased ATP production.
  - B. reverse osmosis.
  - C. ribosome detachment.
  - D. cellular atrophy.

ANS: A                      PTS: 1                      REF: Pg. 67

13. The early dilation (swelling) of the cell's endoplasmic reticulum results in:
- A. increased aerobic metabolism.
  - B. autodigestion.
  - C. reduced protein synthesis.
  - D. decreased  $\text{Na}^+/\text{K}^+$  pump function.

ANS: C                      PTS: 1                      REF: Pg. 67

14. A 52-year-old male suffered a myocardial infarction secondary to atherosclerosis and ischemia. Once oxygen returned to the damaged heart, reperfusion injury occurred as a result of:
- A. free radical formation.
  - B. vacuolation.
  - C. increased metabolic state.
  - D. lactic acid accumulation.

ANS: A                      PTS: 1                      REF: Pg. 67

15. A 75-year-old female with Alzheimer disease has increased lipid peroxidation secondary to free radical production. Lipid peroxidation results in:
- A. organelle membrane reconstruction.
  - B. increased lipid transportation.
  - C. increased protein synthesis.
  - D. cell membrane damage.

ANS: D                      PTS: 1                      REF: Pg. 68

16. A family presents to their physician complaining of headache, nausea, weakness, and vomiting. Which of the following would be the most likely explanation for these symptoms?
- A. Lead exposure
  - B. Carbon monoxide poisoning
  - C. Ethanol exposure
  - D. Mercury poisoning

ANS: B                      PTS: 1                      REF: Pg. 72

17. Fatty liver, as a result of carbon tetrachloride (CCL<sub>4</sub>) poisoning, is related to:
- A. decreased apoproteins.
  - B. lysosomal injury.
  - C. increased membrane permeability.
  - D. fatty acid endocytosis.

ANS: A                      PTS: 1                      REF: Pg. 70

18. A common pathway of irreversible cell injury involves increased intracellular:
- A. sodium.
  - B. potassium.
  - C. magnesium.
  - D. calcium.

ANS: D                      PTS: 1                      REF: Pg. 66

19. A 50-year-old male sustained a closed head injury as a result of a motor vehicle accident. CT scan revealed a collection of blood between the inner surface of the dura mater and the surface of the brain. Which of the following describes the injury?
- A. Subdural hematoma
  - B. Epidural hematoma
  - C. Contusion
  - D. Abrasion

ANS: A                      PTS: 1                      REF: Pg. 76

20. A 20-year-old male presents to the ER with a jagged sharp-force injury that is longer than it is deep. Which of the following best describes this injury?
- A. Stab wound
  - B. Incised wound
  - C. Puncture wound
  - D. Chopping wound

ANS: B                      PTS: 1                      REF: Pg. 77-78

21. A 30-year-old female presents with a gunshot wound to the head. The wound has seared edges and a deep penetration of smoke and gunpowder fragments. This wound could be characterized as a(n):
- A. muzzle imprint.
  - B. intermediate range entrance wound.
  - C. contact range entrance wound.
  - D. indeterminate range entrance wound.

ANS: C                      PTS: 1                      REF: Pg. 78-79

22. A 15-year-old female presents to the ER following a physical assault. She has internal damage to the neck with deep bruising. X-ray reveals fracture of hyoid bone and tracheal and cricoid cartilage. Which of the following most likely caused her injuries?

- A. Chemical asphyxiant
- B. Choking asphyxiation
- C. Ligature strangulation
- D. Manual strangulation

ANS: D                      PTS: 1                      REF: Pg. 80-81

23. A 55-year-old male has swelling of the feet secondary to hypoxia. Which of the following aided in development of swelling?
- A. Increased ATP
  - B.  $K^+$  movement out of the cell
  - C.  $Na^+$  movement into the cell
  - D. Decreased osmotic pressure

ANS: C                      PTS: 1                      REF: Pg. 83

24. A 60-year-old male alcoholic is suffering from cirrhosis and liver failure. Liver biopsy revealed a yellow, greenish fatty liver. Which of the following could have contributed to this condition?
- A. Increased conversion of fatty acids to triglycerides
  - B. Decreased triglyceride synthesis
  - C. Increased lipid binding to apoproteins
  - D. Increased lipoprotein synthesis

ANS: A                      PTS: 1                      REF: Pg. 84

25. A 35-year-old female is diagnosed with multiple myeloma. Biopsy of the tumor reveals Russell bodies, and laboratory testing reveals kidney dysfunction. Accumulation of which of the following is associated with these symptoms?
- A. Glycogen
  - B. Protein
  - C. Pigment
  - D. Melanin

ANS: B                      PTS: 1                      REF: Pg. 84

26. A newborn male is diagnosed with albinism based on skin, eye, and hair appearance. Which of the following is associated with these features?
- A. Increased melanin
  - B. Increased hemoproteins
  - C. Inability to convert tyrosine to DOPA
  - D. Increased bilirubin

ANS: C                      PTS: 1                      REF: Pg. 85

27. A 23-year-old male develops a “black” eye following a fight. This bruising is due to an accumulation of:
- A. cytochromes.
  - B. bilirubin.
  - C. albumin.

D. hemosiderin.

ANS: D                      PTS: 1                      REF: Pg. 85

28. Which of the following is an effect of excess circulating  $\text{Ca}^{2+}$ ?
- A. Increased phospholipid production
  - B. Activation of proteases
  - C. Decreased endonuclease activity
  - D. Protein kinase deactivation

ANS: B                      PTS: 1                      REF: Pg. 86

29. Liquefactive necrosis occurs in the brain because:
- A. debris is not digested by hydrolases.
  - B. of protein denaturation.
  - C. it is rich in hydrolytic enzymes and lipids.
  - D. ischemia results in chemical injury.

ANS: C                      PTS: 1                      REF: Pg. 88

30. A woman decided to poison her middle-aged husband with mercuric chloride. Following ingestion of the poison, his kidney function was impaired and his heart began to fail. Which of the following was the most likely cause?
- A. Karyorrhexis
  - B. Coagulative necrosis
  - C. Liquefactive necrosis
  - D. Caseous necrosis

ANS: B                      PTS: 1                      REF: Pg. 87-88

31. A group of prison inmates developed tuberculosis following exposure to an infected inmate. On examination, tissues were soft and granular like clumped cheese. Which of the following is the most likely cause?
- A. Coagulative necrosis
  - B. Liquefactive necrosis
  - C. Caseous necrosis
  - D. Autolysis

ANS: C                      PTS: 1                      REF: Pg. 87-88

32. A 50-year-old female became infected with *Clostridium* bacteria and died a week later. Examination of her red blood cells revealed lysis of membranes and cause of death was ruled as shock. Which of the following was the most likely cause of her death?
- A. Fat necrosis
  - B. Wet gangrene
  - C. Gangrenous necrosis
  - D. Gas gangrene

ANS: D                      PTS: 1                      REF: Pg. 89

33. Apoptosis is a condition in which cells program themselves to:
- A. atrophy.
  - B. die.
  - C. regenerate.
  - D. age.

ANS: B                      PTS: 1                      REF: Pg. 89

34. A 50-year-old male IV drug user is diagnosed with hepatitis C. Examination of the liver reveals cell death secondary to:
- A. fat necrosis.
  - B. physiologic apoptosis.
  - C. pathologic apoptosis.
  - D. pyknosis.

ANS: C                      PTS: 1                      REF: Pg. 90

35. In distinguishing aging from diseases:
- A. it is difficult to tell the difference because both processes are believed to result from cell injury.
  - B. it is easy to tell normal processes from abnormal processes.
  - C. disease, unlike aging, has a genetic component.
  - D. aging is defined as exceeding life expectancy but not maximal life span.

ANS: A                      PTS: 1                      REF: Pg. 90

36. The theory of aging proposing that aging is the result of DNA damage, inefficiency of repair, or loss of the integrity of DNA synthesis is referred to as the:
- A. catastrophic theory.
  - B. error-prone theory.
  - C. somatic mutation hypothesis.
  - D. neuroendocrine theory.

ANS: C                      PTS: 1                      REF: Pg. 92

37. Muscle stiffening occurring within 6 to 14 hours after death is called:
- A. livor mortis.
  - B. gangrene.
  - C. algor mortis.
  - D. rigor mortis.

ANS: D                      PTS: 1                      REF: Pg. 94