# Craft, Gordon: Understanding Pathophysiology, 2nd Edition

## Chapter 02: Homeostasis

## Test Bank

### MULTIPLE CHOICE

1. Homeostasis:

a. keeps the body in a static state.
b. works towards a dynamic equilibrium.
c. modifies the external environment to protect bodily function.
d. maintains variables at one precise set point.

ANS: B REF: p 21

2. The normal or reference range of blood pH is:

a. 7.35–7.45.
b. 7.25–7.55.
c. 7.25–7.85.
d. 7.35–7.55.

ANS: A REF: p 21

3. Tom had his blood pH measured twice at the hospital. The first time his blood pH was 7.39, and the second time his blood pH was 7.42. The doctor said that these values are normal and are nothing to worry about. The doctor's conclusion can be explained by the fact that

a. blood pH should always have the same value but sometimes hospital equipment is not accurate.
b. normal blood pH values occur within a range rather than a set point.
c. Tom's first reading was not normal, but his blood pH was corrected in time for the second reading.
d. normal blood pH occurs anywhere within the range 7.25-7.55.

ANS: B REF: p 21

4. The fluid that is located between cells is called:

a. cytoplasm.
b. plasma fluid.
c. interstitial fluid.
d. intravascular fluid.

ANS: C REF: p 21

5. The biggest fluid compartment in the human body is the:

a. interstitial compartment.
b. intravascular compartment.
c. extracellular compartment.
d. intracellular compartment.

ANS: D REF: p 22

6. In a normal healthy adult male, the total body water as a percentage in relation to body weight is:

a. 50%.
b. 60%.
c. 70%.
d. 80%.

ANS: B REF: p 22

7. The extracellular fluid compartment contains _____ of the total body water.

a. one-third
b. one-quarter
c. three-quarters
d. two-thirds

ANS: A REF: p 22

8. In order to maintain cellular homeostasis:

a. oxygen and carbon dioxide move from the blood into the cell.
b. oxygen and carbon dioxide move from the cell into the blood.
c. carbon dioxide and lactic acid move from the blood into the cell.
d. carbon dioxide and lactic acid move from the cell into the blood.

ANS: D REF: p 22

9. Which of the following electrolytes are found in a higher proportion inside the cell than in the extracellular compartment?

a. sodium
b. potassium
c. calcium

d. carbon

ANS: B REF: p 23

10. Which of the following electrolytes are found in higher proportion in the extracellular compartment than in the cell?

a. sodium
b. potassium
c. calcium
d. A and C only

ANS: D REF: p 23

11. Which of the following statements is true of neuron signalling?

a. During neuron signalling, most of the sodium is in the extracellular fluid.
b. Following neuron signalling, sodium must be returned to the extracellular fluid to allow another signal to be sent.
c. When the neuron is at rest, most of the sodium is in the intracellular compartment.
d. Following neuron signalling, sodium must be returned to the intracellular fluid to allow another signal to be sent.

ANS: B REF: p 24

12. Which of the following is an example of cellular homeostasis?

a. blood clotting following a small cut
b. wound healing following a small wound
c. extracellular fluid moving into a dehydrated cell
d. an immune response against invading bacteria

ANS: C REF: p 24

13. Which of the following is an example of homeostasis of the local area?

a. carbon dioxide entering the blood from a cell
b. sodium moving into a neuron during signalling
c. extracellular fluid moving into a dehydrated cell
d. an immune response against invading bacteria

ANS: D REF: p 24

14. Blood glucose levels will rise after eating a meal, which will result in a/an _____ in insulin release and therefore a/an _____ in blood glucose.

a. decrease; decrease
b. decrease; increase
c. increase; decrease
d. increase; increase

ANS: C REF: p 26

15. The central nervous system detects changes to a variable using:

a. an effector.
b. a control centre.
c. a sensor.
d. a hormone.

ANS: C REF: p 26

16. In the case of a pain reflex arc, the control centre is located in the:

a. damaged tissue.
b. spinal cord.
c. brain.
d. central endocrine organ.

ANS: B REF: p 26

17. The control centre in the negative feedback pathway is located in the:

a. central nervous system.
b. endocrine system.
c. cardiac system.
d. respiratory system.

ANS: A REF: p 26

18. The effector in a negative feedback pathway is:

a. the part of the nervous system that send signals to mediate a response.
b. the section of the nervous system that matches information from the sensor with information about the normal range.
c. that neuron that can detect a variable.
d. the target organ.

ANS: A REF: p 26

19. When the levels of carbon dioxide in the body build up, the normal homeostatic response is to:

a. increase breathing.
b. decrease breathing.
c. increase urine output.
d. decrease heart rate.

ANS: A REF: p 29

20. When the levels of carbon dioxide in the body decrease below normal, the normal homeostatic response is to:

a. increase breathing.
b. decrease breathing.
c. increase urine output.
d. decrease heart rate.

ANS: B REF: p 26

21. John arrives at the emergency ward with tachypnoea (a fast breathing rate). John is most likely experiencing an imbalance in his blood _____ levels.

a. carbon dioxide
b. fluid
c. glucose
d. sodium

ANS: A REF: p 26

22. Maintenance of blood pressure and fluid balance homeostasis is controlled by:

a. the brain only.
b. the endocrine system only.
c. both the nervous and endocrine systems.
d. both the nervous and respiratory systems.

ANS: C REF: p 28

23. The sensor that detects abnormalities in sodium levels is located in the:

a. brain.
b. spinal cord.
c. intestine.
d. kidneys.

ANS: D REF: p 27

24. Ruby is on a diet that she read about in a women's magazine that suggests that she can lose weight by drinking at least three litres of water a day. Ruby drinks two litres of water in one sitting, which causes her blood volume and blood pressure to increase. Which of the following mechanisms will help to correct Ruby's blood volume and pressure?

a. Effector signals to the blood vessels causing vasoconstriction
b. Effector signals from the brain causing increased thirst
c. Effector signals to the endocrine system causing decreased urination
d. Hormone signals causing water retention in the urine

ANS: D REF: p 28

25. Which of the following is NOT a homeostatic mechanism that maintains fluid balance?

a. regulation of blood sodium levels
b. regulation of urine output
c. vasoconstriction
d. thirst reflex

ANS: C REF: p 28