MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Water occupies two main fluid compartments within the body, the intracellular fluid compartment and the extracellular fluid compartment. Which of the following statements is true concerning the volume of intracellular fluid?
A) All of the water is in the intracellular fluid compartment.
B) Approximately two-thirds of the water is in the intracellular fluid compartment.
C) The intracellular fluid compartment changes, so it is impossible to determine the amount of water at any given time.
D) Approximately one-third of the water is in the intracellular fluid compartment.

2) Which of the following hormones is important in the regulation of sodium ion concentrations in the extracellular fluid?
A) antidiuretic hormone
B) erythropoietin
C) aldosterone
D) renin

3) Atrial natriuretic peptide is a hormone that is made in the atria of the heart. The influence of this hormone is:
A) to enhance atrial contractions.
B) to activate the renin-angiotensin mechanism.
C) to prevent pH changes caused by organic acids.
D) to reduce blood pressure and blood volume by inhibiting sodium and water retention.

4) Respiratory acidosis can occur when:
A) a person consumes excessive amounts of antacids.
B) a person's breathing is shallow due to obstruction.
C) a runner has completed a very long marathon.
D) the kidneys secrete hydrogen ions.

5) Which of the following two organs function as the most important physiological buffer systems?
A) the lungs and the kidneys
B) the adrenal glands and the testes
C) the thyroid gland and the heart
D) the stomach and the liver

6) The major reason older adults should monitor their intake of fluids is that:
A) older people suffer decreased levels of antidiuretic hormone.
B) older people do not exercise, so fluids do not move from compartment to compartment easily.
C) total body water decreases with age, and restoration of homeostasis is slower.
D) most older people do not eat the proper foods.

7) Whereas sodium is found mainly in the extracellular fluid, most ________ is found in the intracellular fluid.
A) iron
B) chloride
C) potassium
D) magnesium

8) Which of the following describes the distribution of sodium and potassium between cells and body fluids?
A) K+ mainly in the cells, Na+ in the body fluids
B) Na+ mainly in the cells, K+ in the body fluids
C) equal amounts of each ion in the cells and body fluids
D) little of either in the cells, but large amounts of each in the body fluids

9) A falling blood pH and a rising partial pressure of carbon dioxide due to pneumonia or emphysema indicates:
A) respiratory acidosis.
B) respiratory alkalosis.
C) metabolic acidosis.
D) metabolic alkalosis.

10) Parathyroid hormone:
A) is the most important control of calcium homeostasis.
B) activates osteoblasts that deposit ionic calcium in bone.
C) prevents excess calcium absorption by deactivating vitamin D in the small intestine.
D) decreases renal absorption while simultaneously increasing phosphate reabsorption.

11) Chemical buffering systems of the body may include:
A) phosphate.
B) ammonia.
C) hydrochloric acid.
D) sodium hydroxide.

12) Which of the following statements is true regarding fluid shifts?
A) Nonelectrolytes are the controlling factor in directing fluid shifts.
B) Electrolytes are not as important as proteins in regulating fluid shifts in the body.
C) Electrolytes have greater osmotic power than nonelectrolytes and therefore have the greatest ability to cause fluid shifts.
D) There are always more positive electrolytes than negative in a solution; it is therefore impossible to follow fluid shifts.

13) The total body water is divided into intracellular and extracellular fluids. Plasma is considered:
A) extracellular.
B) intracellular.
C) interstitial.
D) lymph.

14) The maintenance of the proper pH of the body fluids may be the result of:
A) the control of respiratory ventilation.
B) the operation of the various buffer systems in the stomach.
C) the active secretion of OH- into the filtrate by the kidney tubule cells.
D) control of the acids produced in the stomach.

15) Select the correct statement about renal mechanisms of acid-base balance.
A) The kidneys are not able to excrete phosphoric acid.
B) Excreted hydrogen ions are unbound in the filtrate.
C) Kidney tubule cells are able to synthesize bicarbonate ion.
D) The kidneys are the most important mechanism for eliminating all bicarbonate ions.

16) Blood analysis indicates a low pH, and the patient is breathing rapidly. Given your knowledge of acid-base balance, which of the following is most likely?
A) respiratory acidosis
B) metabolic acidosis
C) metabolic alkalosis
D) respiratory alkalosis

17) A patient is breathing slowly and blood pH analysis indicates an abnormally high value. What is the likely diagnosis?
A) respiratory acidosis
B) metabolic acidosis
C) metabolic alkalosis
D) respiratory alkalosis

18) One of the major physiological factors that triggers thirst is:
A) a dry mouth from high temperatures.
B) becoming overly agitated.
C) drinking caffeinated beverages.
D) a rise in plasma osmolarity.