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Al Azhar University of Gaza
Faculty of Medicine
General Physiology Mid Term Exam
Time allowed: One hour
Date: 06/05/2012

Name -----Student No. -----

Answer the following questions

I. All the followings are true except (10 marks)

1. Microtubules

- a. constitute part of cytoskeleton.
- b. composed of tubulin protein molecules.
- c. responsible for support and muscle contraction.
- d. present in cilia and flagella.

2. Examples of positive feedback include

- a. regulation of blood CO₂.
- b. blood clotting.
- c. childbirth.
- d. generation of nerve signals.

3. The most common cells to exhibit amoeboid locomotion in the human body are

- a. neutrophils
- b. red blood cells
- c. fibroblasts
- d. macrophages

4. Nervous system

- a. has integrative portion that include brain and spinal cord.
- b. its autonomic portion controls function of skeletal muscles.
- c. has sensory input portion that detect state of surroundings..
- d. has motor output portion that transmit appropriate signals to muscles.

5. Ciliary movement

- a. differs from sperm movement in being quasi-sinusoidal waves
- b. occurs in respiratory airways and fallopian tube
- c. caused by a motor protein called dynein
- d. continues only with availability of ATP and appropriate concentration of Mg²⁺ and Ca²⁺.

6. Steps involved in the regulation of arterial blood pressure include

- a. stimulation or inhibition of baroreceptors.
- b. transmission of signals to vasomotor area in the medulla oblongata.
- c. increase or decrease parasympathetic activity.
- d. increase or decrease of vasoconstrictor tone of blood vessels.

7. Extracellular fluid differs from intracellular fluid in that

- a. it has a lesser volume.
- b. it has a lower tonicity.
- c. its anions are mainly inorganic.
- d. it has a higher sodium:potassium ratio.

8. Na^+/K^+ pump

- a. prevents cell lysis by continuous Na^+ influx.
- b. like facilitated diffusion it depends on carrier protein.
- c. unlike facilitated diffusion it requires energy that derived directly from ATP .
- d. participates in genesis of resting membrane potential.

9. Cell membrane

- a. is permeable to fat-soluble substances.
- b. consists of a layer of protein sandwiched between two layers of lipid.
- c. normally contains enzymes
- d. has cholesterol molecules that help in determining the degree of its permeability

10. Lysosomes

- a. are membrane-bound organelles in the cytoplasm of most cells.
- b. contain lysozymes.
- c. originated from Golgi apparatus.
- d. responsible for tissue regression.

II. Define the followings:

(8 marks)

1. Chemotaxis

2. Gain of a control system

3. Facilitated diffusion

III. True or false and correct the false

(12 marks)

1. Phospholipids and cholesterol of the cell membrane are synthesized by the smooth endoplasmic reticulum ().
2. Motor proteins of muscles are actin filaments whereas in cilia are dynein ().
3. Na^+/K^+ pump plays a minor role in generating resting membrane potential ()
4. Ribosomes are formed by rough endoplasmic reticulum ().
5. Acetylcholine acts through voltage gated channels ().
6. Osmotic pressure is determined by particle mass/unit volume of fluid ().
7. Peroxisomes arise from Golgi apparatus ().
8. Facilitated diffusion differs from simple diffusion in being requires energy ().

VI. Explain the mechanism of

(10 marks)

1. Co-transport of glucose along with Na^+

2. Regulation of extracellular carbon dioxide (CO_2)