Faculty of Health Sciences

Biology Placement Test Sample- MBPT-H

Basic Info & Sample Questions for Students

Basic Info

Overview

The MBPT-H is a timed, computerized multiple choice test given to MU prospective students attempting to register in all majors of the Faculty of Health Sciences with Baccalaureate basis of admission.

Structure

The standard MBPT-H is composed of one section that tests the student's knowledge in biology of human body immune system, nervous system, endocrinology, genetics, urinary system, and fertility, including their cell structure and functions.

- Length: 30 min
- Questions: 25 multiple choice questions
- Evaluation: 4 points for each question

Sample Questions for Students

1. HIV selectively destroys which type of immune cell?
   a. suppressor T cells
   b. helper T cells
   c. cytotoxic T cells
   d. memory cells

2. The neurotransmitters released by a presynaptic cell can be either excitatory or inhibitory on the postsynaptic neuron depending on:
   a. the amount of transmitter released
   b. the specific transmitter released
   c. the size of the postsynaptic cell
   d. the kind of ion channel integral to the transmitter receptor in the postsynaptic cell membrane

3. The cell bodies of motor neurons are located:
   a. in the gray matter of the spinal cord
   b. in the brain
   c. outside the spinal cord
   d. in the muscles

4. The corpus luteum produces
   a. estrogen
   b. progesterone
   c. luteinizing hormone
   d. A and B are correct

5. Which hormone(s) inhibit the release of LH and FSH?
   a. estrogen
   b. progesterone
   c. GnRH
   d. A and B are correct

6. The maintenance of the body's constant internal environment is termed:
   a. synthesis
   b. hydrolysis
   c. replication
   d. homeostasis

7. The number of adenine bases in a DNA molecule equals the number of thymine bases because:
   a. DNA contains equal numbers of all four bases
   b. thymine always follows adenine on each DNA strand
   c. DNA is made of alternating adenine and thymine bases
   d. adenine on one strand bonds to thymine on the other strand

8. What type of neuron transmits an impulse to the central nervous system?
   a. Motor
   b. Sensory
   c. Efferent
   d. Interneuron

9. Depolarization of an axon results from the movement of:
   a. sodium ions
   b. hydrogen ions
   c. potassium ions
   d. bicarbonate ions

10. Which hormone triggers the release of the egg from the developing follicle?
    a. Estrogen

b. Progesterone
c. Luteinizing hormone (LH)
d. Follicle stimulating hormone (FSH)

11. Increased secretion of FSH (follicle-stimulating hormone) will result in increased production of:
a. sperm
b. progesterone
c. seminal fluid
d. human chorionic gonadotropin (HCG)

12. Rapid production of lymphocytes in the lymph nodes would indicate the presence of:
a. an infection
b. hypotension
c. hypertension
d. capillary fluid exchange

13. Which of the following is the correct sequence to describe what happens to a bacterium after a type of white blood cell called a macrophage encounters it?
1-Vesicle fuses with a lysosome
2-Bacterium is taken into the macrophage
3-Digestion of the bacterium occurs
4-Vesicle is formed around the bacterium

a. 1, 3, 2, 4
b. 1, 4, 2, 3
c. 2, 3, 4, 1
d. 2, 4, 1, 3

14. Classical albinism results from a recessive allele. Which of the following is the expected offspring from a normally pigmented male with an albino father and an albino wife?
a. 75% normal; 25% albino
b. 75% albino; 25% normal
c. 50% normal; 50% albino
d. all normal

15. Codominance occurs when:
a. both of the alleles in a heterozygote are expressed phenotypically in an individual
b. expression of 2 different alleles alternates from one generation to the next
c. a heterozygote expresses an intermediate phenotype
d. offspring exhibit several different phenotypic expressions of a single trait

16. Cells whose chief function is to destroy virally infected cells are:
a. phagocytic cells
b. lysozymes
c. macrophages

d. natural killer cells

17. Interferon:
    a. kills bacteria
    b. helps cells resist viral infection
    c. causes fever
    d. all of the above

18. If an injury left an adult without a functional thymus, what effect would this have on the immune response?
    a. Loss of T cells would result in a loss of cell-mediated immunity
    b. Loss of B cells would result in a loss of humoral immunity
    c. Loss of T helper cells would result in a loss of both the humoral and cell- mediated immune responses leading to death
    d. None of these is an accurate description of what would happen

19. Life-long immunity to a disease after a vaccination is due to the presence of:
    a. helper T cells
    b. killer T cells
    c. memory B cells
    d. red blood cells

20. Why do some allergies produce cold-like symptoms and other cause nausea or hives?
    a. Different allergens stimulate the release of different chemicals, other than
    b. histamine
    c. Since mast cells are found in tissues rather than in blood, the symptoms will match where the antigen runs into the mast cell/antibody complex
    d. Only respiratory allergies involve the release of histamine from mast cells
    e. none of the above

21. Which of the following statements best describes DNA replication?
    a. tRNA, by complementary base pairing with mRNA, produces proteins
    b. RNA nucleotides, by complementary base pairing with DNA, produce DNA
    c. DNA nucleotides, by complementary base pairing with DNA, produce DNA
    d. RNA nucleotides, by complementary base pairing with DNA, produce tRNA

22. Lysosomes can be expected to be present in large numbers in cells which
    a. have cilia
    b. produce centrioles
    c. are actively dividing
    d. carry out phagocytosis

23. The central nervous system includes the
    a. brain and spinal cord
    b. somatic nervous system
    c. cranial and spinal nerves

d. parasympathetic nervous system

24. Which of the following is a characteristic of a resting potential?
    a. secretion of calcium ions
    b. neurotransmitters move into the axon
    c. depolarization of the post-synaptic membrane
    d. a net negative charge on the inside of the axon

25. Depolarization of a nerve cell is caused by
    a. the sodium potassium pump
    b. sodium ions entering the cell
    c. the opening of the potassium gates
    d. a return of membrane potential to -60mV