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TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DPT 16S

AMD 2103 : MEDICAL PHYSIOLOGY 1

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **THREE** Section(s). Attempt All questions in section A and B and any two questions in section C.

Circle the correct answer in section A.

SECTION A (40MKS)

1. Which of the following is not a phase in mitosis?

A. S
B. G1
C. M
D. G2

2. Which of the following in not part of homeostasis?
   A. Sensor
   B. Integrator
   C. Effector
   D. Maximiser
3. Which of the following least describes a negative feedback mechanism?
   A. Defending the set point.
   B. Changes the set point after an effect
   c. Reverse the deviation.
   d. Produces change in opposite direction.

4. Which of the following is not part of the neuron?
a. Dendrite
b. Cell body
c. Myelitis
d. Axon

5. Which cell types are adapted for Excretion, secretion and absorption?
a. Squamous, columnar
b. Cuboidal, stratified
c. columnar, cuboidal
d. squamous, cuboidal

6. Which of the following best describes endocrine glands
a. Have ducts.
b. Secrete hormones into capillaries within the body.
c. Are not discrete organs
d. Are all holocrine in nature

7. Which of the following is untrue about Long Bones?
A.Much longer than they are wide
B. All bones of the limbs except for the patella (kneecap), and the bones of the wrist and ankle.
C.Consists of a shaft plus 2 expanded ends.
D. Phallanges are short bones
8. Which of the following best describes Osteoblasts?
A. Bone-destroying cells.
B. Synthesize and secrete elastic fibers and other organic components of bone matrix.
C. Initiate the process of calcification.
D. Found in both the periosteum and the endosteum

9. Which of the following gives a true account of Mesenchymal cells?
A. form embryonic connective tissue.
B. give rise to all adult connective tissues.
C. in adults produce new connective tissue cells in response to injury.
D. all of the above.

10. A tissue with a large number of collagen fibres organized parallel to each other would most likely be found in the following……...
A. a muscle.
B. a tendon.
C. adipose tissue.
D. cartilage.

11. Extremely delicate fibers that make up the framework for organs such as the liver, spleen, and lymph nodes are

A. elastic fibers
B. reticular fibers.
C. cilia.
D. collagen fibers.

12. In which of these locations are dense irregular elastic connective tissue found?

A. ligaments
B. large arteries
C. adipose tissue
D. dermis of the skin

13. Which of these is not true of adipose tissue?

A. There are three types of adipose tissue
B. It is the site of energy storage.
C. It is a type of connective tissue.
D. It acts as a protective cushion.

14. Which of these types of tissue has the smallest amount of extracellular matrix?

A. bone
B. cartilage
C. loose connective tissue
D. epithelia

15. Given these characteristics:

1. cells located in lacunae
2. proteoglycans in ground substance
3. no collagen fibers present
4. perichondrium on surface
5. heals rapidly after injury

Which of these characteristics apply to cartilage?

A. 1,2,3
B. 1,2,4
C. 2,4,5
D. 1,2,4,5

16 .A tissue in which cells are located in lacunae surrounded by a hard matrix of hydroxyapatite is called?

A. hyaline cartilage.
B. bone.
C. nervous tissue.
D. dense regular collagenous connective tissue.

17. Which of these characteristics apply to smooth muscle?

A. striated, involuntary
B. striated, voluntary
C. unstriated, involuntary
D. unstriated, voluntary

18. Which of these statements about nervous tissue is not true?

a. Neurons are nourished and protected by other neurons
b. Neurons have cytoplasmic extensions called axons.
c. Electric signals (action potentials) are conducted along axons.
d. Bipolar neurons have two axons.

19. The linings of the digestive, respiratory, excretory, and reproductive passages are composed of

A. serous membranes.
B. synovial membranes.
C. mucous membranes.
D. endothelium.

20. Chemical mediators of inflammation have the following characteristics ?

A. cause blood vessels to constrict.
B. decrease the permeability of blood vessels.
C. initiate processes that lead to edema.
D. help prevent clotting.

21. Which of these types of cells are most likely to change?

A. neurons
B. liver
C. skin
D. pancreas

A. 22. What is the "basic unit of life" ?

a. the atom
b. the cell
c. water
d. the chemical level of organization

23. Which of the following is true concerning the homeostatic imbalance?

a. is considered the cause of most diseases
b. must be restored by negative feedback mechanisms
c. is when the internal conditions of the body become more stable
d. only occur when positive feedback mechanisms are overwhelmed

24 Extending the hand to accept something placed in it requires:

A. Pronation and rotation
B. Flexion and abduction
C. Flexion and supination
d.Adduction and pronation

25.. What kind of protein is the Na -K pump ?

A. a peripheral protein.
B. an integral protein.
C. a G protein.
D. a phospholipid.

26. Which of the following is NOT a characteristic of life:
    a. growth
    b. responsiveness
    c. reproduction
    d. organ systems

27. What do Chondroblasts produce?
    a) basement membranes
    b) bone matrix
    c) cartilage matrix
    d) mesothelium

28. This hormone stimulates the breakdown of bone and the increase in blood calcium levels:
    a) growth hormone
    b) oestrogen
    c) parathyroid hormone
    d) calcitonin

29. The proteins of muscle contraction are:
A. Actin and myosin
B. Actin and myoglobin
C. Myoglobin and collagen
D. Myosin and myoglobin

30. The cell membrane of a muscle fiber is known as the:
A. Myofibril
B.Sarcomere
C. Sarcolemma
D. Endomysium

31. The origin of a muscle is generally located:
A. At its insertion
B. Proximal to the insertion
C. Distal to the insertion
D. Lateral to the insertion

32. The sum of all chemical reactions in the body is termed:
    a. homeostasis
    b. physiology
    c. dynamic feedback
    d. metabolism

33) The stiffness of muscle tissue in rigor mortis partially results from:
a) excessive acetycholine activity on muscle
b) excessive calcium release in muscle
c) excessive lactic acid build up
d) excessive contraction of the fibers

34) A single motor neuron may innervate as few as 3-5 fibers in muscles of the following :
a) upper arms
b) legs
c) eye
d) heart

35) When an action potential reaches the presynaptic terminal of the motor neuron:
a) calcium is released inside of the muscle fiber
b) acetylcholine is released into the synaptic cleft
c) acetylcholinesterease is released into the synaptic cleft
d) physical contact between the motor neuron and the muscle fiber occurs

36) Lack of acetylcholinesterase in the synaptic cleft would result in:
a) decrease acetylcholine production by the motor neuron
b) relaxation of the muscle fiber
c) excessive, continuous stimulation of the muscle fiber
d) inability of the motor neuron to stimulate the muscle fiber

37) Curare, a toxin, blocks the acetylcholine receptors on muscle tissue. This would result in:
a) increased stimulation of the muscle fiber
b) inability of the muscle to respond to motor nerve stimulus
c) contraction of the muscle fiber
d) excessive contractions and convulsions

38. Which of the following is NOT a major function of muscle tissue?

A. Produce body heat

B. body movements

C. controlling volume of hollow organs

D. storage of neurotransmitters

39. What is the smallest unit of contraction in muscle fibers?

A. sarcomere

B. sarcolemma

C. sarcoplasm

D. sarcofilament

40. What is an action potential?

A. a migrating region where the electrochemical potential of a membrane undergoes reversal

B. a flow of electrons from one cell to another

C. an electrically charged molecule such as sodium or potassium ions

D. a region where the electrochemical gradient of a membrane causes acetylcholine production

SECTION B (40MKS)

41. Explain the following concepts with relation to muscle(4mks)
   i. Antagonistic
   ii. Synergistic
42. List the major roles of the skin in the human body.(4mks)
43. Explain how multicellular glands are classified according to their mechanism of secretion (4 mks)
44. Describe the filtration process (4mks)
45. Describe Diffusion as a means of transport across membranes (4mks)
46. What is the role of Lysosomes in the cell? (4mks)
47. What is Osmosis? (4mks)
48. Differentiate between Endocytosis and Exocytosis (4mks)
49. Describe the two types of muscle Contractions. (4mks)
50. Differentiate between Exocrine and Endocrine glands (4mks)

SECTION C (40 MKS)

51. With proper illustration describe the process of muscle contraction (20mks)

52. With proper illustration describe the phases of the Action Potential (20mks)
53. Illustrate the meiosis cell division (20mks)