CANDIDATE NUMBER----------

"Investing in Africa's future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

NSLS106 : ANATOMY AND PHYSIOLOGY

END OF FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS

November 2019

LECTURER: MRS CHITUKU S

DURATION: 3 HRS

INSTRUCTIONS

Answer **ALL** questions in Section A (20)

Answer all questions in Section B (20)

Answer three questions from section C All questions carry equal marks (20) each.

Section A: Answer all questions in this section by circling the right answer

1. The following are the components of the GIT system except
A. Mouth
B. Tongue
C. Pharynx
D. Rectum
E. Thymus gland

2. Polarity is property of all normal epithelial tissues.
   A. True
   B. False

3. The role of microvilli is to----------
   A. move substances along the tissue surface
   B. Strengthen the tissue
   C. Protect the tissue
   D. Increase surface area
   E. Serve as tissue boundary

4. Epithelial tissues are innervated and usually vascularized
   A. True
   B. False

5. You observe a tissue that has cells of varying heights. At first glance, it appears that the tissue has multiple cell layers, but upon closer investigation you see that all of the cells attach to the same basement membrane. What classification would you give to this epithelial tissue?

A. simple cuboidal epithelium
B. transitional epithelium
C. pseudostratified columnar epithelium
D. stratified squamous epithelium
E. stratified columnar epithelium

6. You observe a multicellular gland with branched ducts and saclike secretory areas. What type of gland would this most likely be?

A. a holocrine gland

B. a simple exocrine gland

C. a compound tubuloalveolar exocrine gland

D. a compound tubuloalveolar exocrine gland

E. a compound alveolar exocrine gland

7. A sebaceous (oil) glamd of the skin must completely rupture to release its secretory products. Thus this type of gland is considered to be a ----------

A. alveolar exocrine gland

B. apocrine gland

C. holocrine gland

D. merocrine gland

8. . ---------- are important and common unicellular exocrine glands.

A., Alveolar exocrine glands

B. Tubular exocrine glands

C. Apocrine glands

D. Holocrine glands

E. Goblet cells

9. Which of the following is true of mucin

A. It is a water-soluble salt secreted by goblet cells

B. It is an enzyme secreted by mucous cells.

C It is a hormone found in mucus.

D. It is a complex glycoprotein found in mucus

10. Which of the following is NOT a type of connective tissue?

A. Bone tissue

B. blood

C. cartilage

D. transitional

11. Which of the following statements about collagen is true?

A. Collagen is a fibrous protein that provides tensile strength to certain connective tissues.

B. Collagen is a protein designed to help tissues retain fluids for tissue cushioning.

C. Collagen is a substance that forms delicate networks around blood vessels.

D. Collagen is a gel-like substance that is found in the extracellular matrix of certain connective tissues

E. Collagen is a fibrous elastic material that allows certain connective tissues to resume their original length and shape upon being stretched.

12. Which of the following statements about macrophages is true?

A. Macrophages are the same as mast cells.

B. macrophages are cells that cannot wander through the body, they must remain fixed in a given tissue.

C. macrophages release antibodies during inflammation.

D. Macrophages are phagocytic cells

13. The best classification of adipose tissue is ----------

A. a loose connective tissue

B. an osseous connective tissue

C. a dense connectivetissue

D. fibrous connective tissue

14. All connective tissues arise from a common embryonic tissue called mesenchyme.

A. True

B. False

15. neurons are cells that are involved in ----------

A. forming tissues

B. structural support

C. responding to stimuli

D. insulating the body

16. You observe a muscle that has intercalated discs, and contracts under involuntary conditions. What type of muscle must this be?

A. uterine muscle

B. cardiac muscle

C. smooth muscle

D. skeletal muscle

17. Which one is odd about the central nervous system……

A. Made up of brain and spinal cord
B. Acts as body's control center, coordinates body's activities
C. Impulses travel through the neurons in your body to reach the brain
D. All of the above
E. None of the above

18. Which statement is odd concerning Somatic Nervous System

A. Relay information between skin, skeletal muscles and central nervous system

B. You consciously control this pathway by deciding whether or not to move muscles (except reflexes)

C. Reflexes: Automatic response to stimulus

D. They are body building blocks

E. Can be divided into small units

19. Which one of the statements below describes the Autonomic Nervous System
A. Relay information from central nervous system to organs
B. Involuntary: You do not consciously control these
C. A and B
D. All of the above
E. None of the above

20. Which statement is true concerning the Sympathetic Nervous System
A. controls in times of stress, such as the flight or fight response
B. It is the brain part of the Nervous system
C. It is absent in children
D. It disappears with age
E. It is described as the proximal convoluted tubules of the nephron

21. Concerning the Parasympathetic Nervous System which statement is true
A. controls body in times of rest
B. was discovered in the endocrine system
C. it is part of the skeletal system
D. it is visible to the naked eye
E. can also referred to digestive system

22. Which statement is not true concerning the brain stem

A. Made up of the medulla oblongata, pons and midbrain.
B. Medulla oblongata controls involuntary activities such as heart rate and breathing
C. Pons and midbrain act as pathways connecting various part of the brain with each other.
D. Sometimes called the reptilian brain, because it resembles the entire brain of a reptile.
E. It is part of the urinary system

23. The following are the organs of the Respiratory system except the
A. Nose
B. Pharynx
C. Trachea
D. Bronchi
E. colon

24. male reproductive system organs include the following except:
A. Penis
B. Scrotum
C. Uterus
D. Prostate
E. Testis

25. The following statements describe the testes
A. Paired oval glands measuring 2 in. By 1in.
B. Surrounded by dense white capsule
C. Septa form 200 - 300 compartments called lobules
D. Each is filled with 2 or 3 seminiferous tubules where sperm are formed
E. exchange of gases as we breathe

26. Which of the statements describe spermatogenesis
A. Each of four spermatids develop into a sperm
B. Second meiosis division give four spermatids,each with 23 single stranded chromosomes
C. First meiosis division give two secondary spermatocytes, each with 23 chromosomes that become double stranded.
D. None of the above
E. All of the above

27. Best description of erection in man is when there is
A. Sexual stimulation
B. Parasympathetic nervous system reflex
C. Dilation of the arterioles supplying the penis
D. All of the above
E. None of the above

28. Following are the components of the gastrointestinal tract except
A. mouth
B. stomach
C. pyloric sphincter
D. duodenum
E. sternum

29. Salivary glands release
A. Serous and mucous fluid
B. Amylase – breaks down carbohydrates
C. Lipase – lipid digestion
D. All of the above
E. None of the above

30. The functions of the pinna are as follows except
A. Surrounds entrance to external acoustic meatus
B. Protects opening of canal
C. Provides directional sensitivity
D. All of the above
E. None of the above

31. Tympanic membrane is best described as
A. a thin, semitransparent sheet
B. That separates external ear from middle ear
C. A and B
D. None of the above
E. All of the above

32. Which statement is not true concerning the ear canal
A. Is an external passage way
B. Ends at tympanic membrane (eardrum)
C. Lined with many small, outwardly projecting hairs
D. Hairs trap debris and provide increased tactile sensitivity through their root hair plexus
E. It is the outer fleshy cartilage

Using ruler and pencil draw lines matching the following epithelia with the function(s). (8 marks)

Epithelium	Function
33. stratified squamous 34. simple squamous 35. simple cuboidal 36. transitional 37. osteoblasts 38. hematopoietic stem cells 39. fibroblasts 40. white blood cells	A. protection from wear and tear B. secretion and absorption C. filtration and diffusion D. stretching E. blood cell formation F. formation of cartilage G. for immunity H. cells of connective tissues in animals

Section B 20 Marks

Cell structure	**Location**	**Function**
1.	External boundary of cell	Confines cell contents, regulates entry exit of materials
Lysosome	2.	3.
4.	Scattered throughout the cell	Controls releases of energy from foods, forms ATP
5.	Projections of the plasma membrane	Increase the membranes surface area
Golgi apparatus	6.	7.

8.	Two rod-shaped bodies near the nucleus	"Spin" the mitotic spindle
Smooth ER	9.	10.
Rough ER	11.	12.
13.	Attached to membranes or scattered in the cytoplasm	Synthesizes proteins
14	15	Act collectively to move substances across the cell surface in one direction
16	Internal structure of centriole, part of the cytoskeleton	17
Peroxisomes	18	Contractile protein (actin), moves cell or cell parts, core of microvilli
Intermediate filaments	Part of cytoskeleton	19
Inclusions	Scattered in the cytoplasm	20.

Section C: (60 marks) Answer any three questions from this section

Question 1

With the aid of labelled diagrams of a nephron describe the urine formation. (20)

Question 2

Describe the following:

a) The structure of the stomach

b) Secretions of the stomach

Question 3

a) Draw the diagram of a neurone and describe its functions. 12

b) Give a detailed description of how electrical and chemical synapses function. (8)

Question 4.

a. Describe the erythrocyte characteristics that contribute to their respiratory function. (5)
b. Write notes on following cells basophils, eosinophils, neutrophils. (15)

END OF PAPER