



"Investing in Africa's Future"

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES
DEPARTMENT OF HEALTH SCIENCES**

**BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS
DEGREE**

SLS210: HISTOLOGY

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2018

LECTURER: E. GOVORE

DURATION: 3 HOURS

INSTRUCTIONS

Answer **ALL** questions from **Section A** and **Section B** and **ANY THREE** questions from section C.

Section A carries **20** marks and each question in **Section B** carries **20** marks and section C carries 10 marks.

The mark allocation for each question is indicated at the end of the question.

Credit will be given for logical, systematic and neat presentations.

Total marks: 100

SECTION A

INSTRUCTIONS

Answer all questions

Mark each statement T for True and F for False

This section carries 25marks

1. Resolution is the smallest distance between two particles when the two particles can be seen as separate objects. The following affect resolution of a light microscope object
 - a. T. F condenser
 - b. T. F Objective lens
 - c. T. F Ocular
 - d. T. F Filter
 - e. T. F light source
2. The following tissues can be examined as fresh tissues
 - a. T. F Celloidin embedded tissues
 - b. T. F Squash preparations
 - c. T. F low nitrocellulose embedded sections
 - d. T. F Frozen sections
 - e. T. F Resin embedded tissues
3. The following statements are true concerning the cryostat
 - a. T. F Best method for preparing unfixed tissue
 - b. T. F Basically – microtome housed in a dewer
 - c. T. F Temperature maintained at -15 °C to -30 °C
 - d. T. F Rapid freezing is necessary to avoid formation of large disruptive ice crystals
 - e. T. F Carbon dioxide is used to keep temperatures above room temperature

4. Match the following with i-v below
- Formaldehyde pigment
 - Malaria pigments
 - Endogenous pigment
 - Methanamine –silver nitrate
 - Pearls

i. Carbohydrates

ii. Melanin

iii. birefringent

iv. Schridde's method

v. Iron

a.....

b.....

c.....

d.....

e.....

.....

5. The neuron is a cell responsible for the reception and transmission of nerve impulses to and from the central nervous system. The following statements are true about neurons
- T. F The cell body is known as the perikaryon
 - T. F The perikaryon is the same as the soma
 - T. F Dendrites have axon terminals
 - T. F Axon is specialized to receive stimuli from sensory cells
 - T. F Rough ER is also called Nissl bodies
6. The following is true about Multiple myeloma
- T. F There is demyelination of the neuron
 - T. F There is over myelination of the neuron
 - T. F Is more common in females than males
 - T. F Causes inflammation and edema
 - T. F Is considered an auto immune disease
7. Neutrophils contain specific, azurophilic tertiary granules. The following is true about these granules
- Specific granules contain pharmacological agents
 - Azurophilic granules are lysozymes
 - Tertiary granules contain gelatinase and cathepsins
 - Specific granules contain glycoproteins that are inserted into the plasmalemma
 - Azurophilic granules contain bactericidal permeability-increasing protein
8. Vessel tunics are found in the following
- T. F Blood vessels
 - T. F Kidney

- c. T. F Ear
 - d. T. F Respiratory tract
 - e. T. F Bones
9. About the basement membrane
- a. T. F Is a thin sheet of extracellular material at the apical surface of all epithelia
 - b. T. F Separates epithelia from the connective tissue
 - c. T. F Synthesized primarily by epithelial cells
 - d. T. F Is part of extracellular matrix
 - e. T. F Is also found associated with other tissue as “External lamina”
10. Cilia are special characteristics of the epithelial tissue. The following statements are true of cilia
- a. T. F Found on the lateral surface
 - b. T. F Found on the basal surface
 - c. T. F Found on the apical surface
 - d. T. F Found on lamina densa
 - e. T. F Found on the lamina lucida
11. Contraction of myofibrils in skeletal muscle takes place at
- a. T. F H band
 - b. T. F M band
 - c. T. F I band
 - d. T. F Between two I bands
 - e. T. F Between two Z bands
12. Mycobacterium tuberculosis is not found in the following organs when one has active tuberculosis
- a. T. F Kidney
 - b. T. F Testicles
 - c. T. F Uterus
 - d. T. F Central nervous system
 - e. T. F lung
13. A light microscope is composed of optical parts the following optical parts are involved with magnification of the object
- a. T. F condenser
 - b. T. F Objective lens
 - c. T. F Ocular
 - d. T. F Filter
 - e. T. F light source
14. The following sequence is true in synthesis of collagen fibers
- a. T. F Occurs in rough ER

- b. T. F Three procollagen molecules align with each other to form procollagen molecule
 - c. T. F Procollagen leaves RER via transfer vesicles to golgi apparatus
 - d. T. F Procollagen is converted to tropocollagen
 - e. T. F Tropocollagen spontaneously self-assemble to form collagen

- 15. Embryonic connective tissue includes the following
 - a. Mesenchymal connective tissue
 - b. Mucous connective tissue
 - c. Wharton's jelly
 - d. Loose connective tissue
 - e. Dense connective tissue

- 16. Stratified cuboidal epithelium
 - a. T. F Composed of five layers of cuboidal cells
 - b. T. F Composed of two layers of columnar cells
 - c. T. F Lines the duct of sweat glands
 - d. T. F Those in middle are polymorphous
 - e. T. F Cells composing free surface of epithelium are flattened

- 17. Muscle fibres are arranged in regular bundles surrounded by connective tissue carrying blood vessels and nerves
 - a. T. F Epimysium – external sheath of dense CT surrounding the entire muscle
 - b. T. F Perimysium – thin septa of CT extending inward surrounding bundles of fibers within a muscle
 - c. T. F Endomysium – delicate layer of CT surrounding each muscle fiber – consists of basal lamina and reticular fibers
 - d. T. F Endomysium – external sheath of dense CT surrounding the entire muscle
 - e. T. F Epimysium – thin septa of CT extending inward surrounding bundles of fibers within a muscle

- 18. Blood vessels are composed of three tunics(layers)
 - a. T. F tunica interna
 - b. T. F tunica media
 - c. T. F tunica externa
 - d. T. F tunica intima
 - e. T. F tunica adventitia

- 19. A ribbon is formed while cutting a tissue. Formation of a the ribbon is caused by
 - a. T. F Nature of tissue
 - b. T. F Size of block
 - c. T. F Type of microtome
 - d. T. F Individual

- e. T. F heat generated between block and knife edge
20. Extracellular matrix of cartridge contains the following
- a. T. F Blood vessels
 - b. T. F Nerves
 - c. T. F Lymphatic vessels
 - d. T. F Glycosaminoglycans
 - e. T. F Elastic fibres

SECTION B

INSTRUCTIONS

Answer all questions

This section carries 20 marks

1.
 - a. What is a microtome?
 - b. Why is it important to use a microtome (10)
2. Write briefly on the different tests used for determining end point of decalcification (10)

SECTION C

INSTRUCTIONS

Answer three (3) questions

This section carries 60 marks

1. a. What are the three methods used for quality control of dyes (6)
b. Discuss briefly on the colour index of dyes (14)
2. Write briefly on histogenesis of collagen fibres (20)
3. Compare and contrast red muscle fibres against white muscle fibres (20)
4. With the aid of a table briefly state the different strata and histologic features of thick skin (20)
5. There are different types of knives used in the microtome.
 - a. Explain the means used to classify them (4)
 - b. Write briefly on 4 of these knives (10)
 - c. How are the knives sharpened (6)