



"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 60 marks

SECTION A
INSTRUCTIONS

Answer all questions

Mark each statement T for True and F for False

This section carries 25marks

1. 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
2. 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
3. The following are components of the basement membrane
 - a. T.F Basal lamina
 - b. T.F Lamina Lucida
 - c. T.F Lamina densa
 - d. T.F Reticular lamina
 - e. T.F Has many blood vessels
4. Embryonic connective tissue includes the following
 - a. Mesechymal connective tissue
 - b. Mucous connective tissue
 - c. Wharton's jelly
 - d. Loose connective tissue
 - e. Dense connective tissue
5. Section cutting depends on
 - 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 Horning
6. Perichondrium is present in the following
 - a. T. F Hyaline cartridge
 - b. T. F Bone

- c. T. F Fibrocartilage
 - d. T. F Elastic cartilage
 - e. T. F Articular cartilage
7. 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
8. Muscle fibres are arranged in regular bundles surrounded by connective tissue carrying blood vessels and nerves. The following is true about the connective tissue
- 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 Perimysium – 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
9. The following affects the cutting rate of a section
- 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 Ribbon
10. 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
11. 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
12. Match the following
- a. Mounting media

- b. Periodic acid Schiff
- c. Fuelgen reaction
- d. Methanamine –silver nitrate
- e. Pearls

i. Carbohydrates ii. Fungi iii. DPX iv. DNA V. Iron

a..... b..... c..... d..... e.....

13. The following statements are true concerning mounting media

- a. T. F Coloured and opaque
- b. T. F Should cause stain to diffuse or fade
- c. T. F Should be dry to a non sticky consistency and harden relatively quickly
- d. T. F Should shrink back from the edge of coverglass
- e. T. F Able to completely permeate and fill tissue interstices

14. Meta – chromasia is a term used in histology staining, the term means

- a. T. F when a dye stains a tissue component a different colour to dye solution
- b. T. F Toluidine blue is a basic blue dye that stain mast cell granules pink
- c. T. F Toluidine blue is a basic blue dye that stain nuclei blue
- d. T. F Washing out of excess stain until colour is retained in tissue components to be studied
- e. T. F Partial or complete removal of stain from tissue sections

15. Match the following

- a. Fomaldehyde pigment
- b. Malaria pigments
- c. Endogenous pigment
- d. Methanamine –silver nitrate
- e. Pearls

i. Carbohydrates method ii. Melanin iii. birefringent iv. Schridde's
V. Iron

a..... b..... c..... d..... e.....

16. The following methods are used to remove endogenous pigments

- a. T. F Alcian blue – chlorantine fast red
- b. T. F Schridde's method

- c. T. F Pearse
 - d. T. F Verocay's method
 - e. T. F Barrett's alcoholic picric acid method
17. The following statements are true about Scurvy
- a. T. F Patients are unable to form stable helices of collagen fiber
 - b. T. F Results from Vitamin K deficiency
 - c. T. F Tropocollagen are incapable of aggregating into fibrils
 - d. T. F Results from Vitamin B deficiency
 - e. T. F Symptoms include bleeding gums and loose teeth
18. Glandular epithelium produce fluid that differs in composition from blood or extracellular fluid. The following is true about exocrine glands
- a. T. F Merocrine: secretory granules leave by exocytosis with no loss of cellular material
 - b. T. F Holocrine: the whole cell is shed with the secretory granules e.g sebaceous glands
 - c. T. F Apocrine: the apical part of the cell is shed with the secretory granule
 - d. T. F Release their secretions via the duct onto the surface epithelium
 - e. T. F The secretory portion is called that acinar unit
19. Connective tissue is composed of transient cells. The following cells are form the transient cells
- a. T. F Fibroblasts
 - b. T. F Adipose cells
 - c. T. F Pericytes
 - d. T. F Mast cells
 - e. T. F Plasma cells
20. Brown adipose tissue
- a. T. F Is the same as yellow adipose tissue
 - b. T. F Has unilocular cells
 - c. T. F Individual adipocytes are surrounded by a basal lamina
 - d. T. F Is found in embryos
 - e. T. F Is avascular

SECTION B

INSTRUCTIONS

Answer all questions

This section carries 20 marks

1. A microtome is an instrument for making thin sections for microscopic study to reduce the tissue thickness so that light or electrons can penetrate to give a clear image of the tissue and cellular components and to provides uniform thickness of sections, Briefly explain the basis of microtome classification (10)

2. Write short notes on:
- a. Photomicrography (3)
 - b. Microphotography (3)
 - c. Radioautography (4)

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 the histogenesis and growth of hyaline cartilage (20)
3. There are different types of capillaries found in the body. Briefly discuss the different types of capillaries (20)
4. Hematoxylin is a stain used in haematology.
 - a. It is both a regressive and progressive stain. Explain what is a regressive and progressive stain (5)
 - b. Write briefly on the principle of the Hematoxylin stain giving examples where appropriate (15)
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)