



*“Investing in Africa’s future”*  
**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES**

**SLS 200: HISTOLOGY**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL/MAY 2019**

**LECTURER: MRS E. GOVORE**

**DURATION: 3 HRS**

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**INSTRUCTIONS**

Answer **ALL** questions from Section A, section B and any **THREE** questions from section C

**Section A carries 20 marks, Section B carries 20 marks and Section C carries 60 marks.**

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

**Total marks: 100**

## **SECTION A**

### **INSTRUCTIONS**

**Answer all questions**

**Mark or circle each statement T for True and F for False**

**This section carries 20marks**

1. The following statements are true about microscope resolution
  - a. T. F The smallest distance between two particles when the two particles can be seen as separate objects
  - b. T. F Resolving power of light microscope is  $0.2\ \mu\text{m}$
  - c. T. F Quality and clarity of an image depends on the resolving power
  - d. T. F Depends only on the objective lens
  - e. T. F Ocular lens does not improve resolution
2. The following is true about the electron microscope
  - a. T. F Stains are water soluble
  - b. T. F Interior is air filled
  - c. T. F Focusing screen is the retina
  - d. T. F Lenses are made of glass
  - e. T. F Embedding is done with resin
3. The nucleolus is made up of
  - a. T. F Fibrillar center
  - b. T. F Nuclear pore complex
  - c. T. F Dense fibrillar component
  - d. T. F Cortical granular component
  - e. T. F Nuclear envelope with a double membrane
4. The following statements are true concerning Collagen fibers synthesis
  - a. T. F Occurs in smooth ER

- b.** T. F Three procollagen molecules align with each other to form procollagen molecule
  - c.** T. F Procollagen leaves golgi via transfer vesicles to smooth ER
  - d.** T. F Procollagen is converted to tropocollagen by action of proteolytic enzymes procollagen peptidases
  - e.** T. F Tropocollagen spontaneously self-assemble to form collagen
  
- 5.** Ground substance is composed of
  - a.** T. F Glycosaminoglycans
  - b.** T. F Extracellular matrix
  - c.** T. F Fibres
  - d.** T. F proteoglycans
  - e.** T. F glycoproteins
  
- 6.** Characteristics of epithelial tissues include
  - a.** T. F Cellularity
  - b.** T. F Does not covers body surfaces or lines hollow organs
  - c.** T. F Polarity
  - d.** T. F Rests on a basement membrane
  - e.** T. F Is vascular -have blood vessels
  
- 7.** The following is true concerning EXOCRINE glands
  - a.** T. F Release their secretions via the duct onto the surface epithelium
  - b.** T. F Release their secretions into the blood stream
  - c.** T. F The secretory portion is called that acinar unit
  - d.** T. F Simple gland have duct that is branching
  - e.** T. F Compound gland have duct that is non branching
  
- 8.** cellular components of connective tissue include fixed cells and these are:
  - a.** T. F Fibroblasts
  - b.** T. F Lymphocytes
  - c.** T. F Adipose cells
  - d.** T. F Neutrophils
  - e.** T. F Pericytes
  
- 9.** Elastic -cartilage is found in the following places of the body
  - a.** T. F Pinna
  - b.** T. F Nose
  - c.** T. F Intervertebral discs
  - d.** T. F Pubic symphysis
  - e.** T. F Epiglottis
  
- 10.** The following statements are true concerning bone cell types:

- a. T. F Osteocytes are found in cavities within matrix
- b. T. F Osteocytes s synthesize the organic components of the matrix
- c. T. F osteoclasts are multinucleated giant cells involved in resorption and remodelling of bone tissue
- d. T. F osteoblasts synthesize the organic components of the matrix
- e. T. F Osteoblasts are found in cavities within matrix

**11.** The following muscle tissue/s is/are striated

- a. T. F Skeletal muscle
- b. T. F Smooth muscle
- c. T. F Cardiac muscle
- d. T. F Skeletal and cardiac muscles
- e. T. F Smooth and cardiac muscles

**12.** Most neurons consist of

- a. T. F Perikaryon
- b. T. F cell body
- c. T. F Dendrite
- d. T. F Axon
- e. T. F Soma

**13.** The following statements are not true about the vasa vasorum

- a. T. F Is a network of small blood vessels that supply the walls of large blood vessels
- b. T. F Branch profusely in adventitia and outer part of media
- c. T. F Provide metabolites to the media and adventitia
- d. T. F More frequent in arteries than veins
- e. T. F Is a network of small lymph vessels that supply the walls of large lymph vessels

**14.** The following is true concerning lymphatic vessels

- a. T. F Begin as open ended lymph capillaries in tissue spaces between cells
- b. T. F Is a circulating fluid
- c. T. F Interstitial fluid drains into lymphatic capillaries, forming lymph
- d. T. F Lymph capillaries merge to form lymphatic vessels
- e. T. F Lymphatic vessels carry lymph into lymph nodes only

**15.** The conducting portion of respiratory system consists of

- a. T. F Larynx
- b. T. F Trachea

- c. T. F Bronchi
  - d. T. F Bronchioles
  - e. T. F terminal bronchioles
- 16.** Sertoli cells are found within the male reproductive system. The following is/are the function of sertoli cells
- a. T. F Secrete testosterone
  - b. T. F Provide mechanical and nutritive support for the spermatogenic cells.
  - c. T. F Secrete inhibin
  - d. T. F Secrete FSH
  - e. T. F Phagocytosis of cytoplasm shed by developing spermatogenic cells
- 17.** The following is true about the cell types of small intestine
- a. T. F Goblet cells produce acid glycoprotein which lubricates the intestinal lining
  - b. T. F Paneth cells secrete enzyme lysozyme
  - c. T. F Enteroendocrine secrete various peptide hormones
  - d. T. F Goblet cells have chemoreceptors for sampling the levels of certain nutrients
  - e. T. F Enterocyte cells are absorptive cells
- 18.** Renal Corpuscles' visceral layer consists of cells called podocytes which are for
- a. T. F Renal growth
  - b. T. F Renal filtration
  - c. T. F Renal repair
  - d. T. F Renal secretion
  - e. T. F Renal reabsorption
- 19.** Classification of microtome is based on:
- a. T. F Whether automated or manual
  - b. T. F Movement between specimen and knife
  - c. T. F Whether embedding is required or not
  - d. T. F Tissue preparation required or not
  - e. T. F Input and output thickness
- 20.** The most important form of bonding in histological staining is
- a. T. F Ionic bonds
  - b. T. F Hydrogen bonds
  - c. T. F Van der Waals forces
  - d. T. F Covalent bonds
  - e. T. F Hydrophobic interactions

## **SECTION B**

### **INSTRUCTIONS**

**Answer all questions**

**This section carries 20 marks**

1. Connective tissue is classified into embryonic and connective tissue proper
  - a. Write briefly on embryonic connective tissue (5)
  - b. Write briefly on connective tissue proper (5)
2. Cartilage
  - a. 10

Type	State how chondrocytes are arranged	Perichondrium state whether present or not or any exceptions
Hyaline		
Elastic		
Fibrocartilage		

## **SECTION C**

### **INSTRUCTIONS**

**Answer three (3) questions**

**This section carries 60 marks**

1. There are two forms of osteogenesis : intermembranous and endochondral ossification
  - a. Briefly discuss intermembranous ossification (5)
  - b. Briefly discuss endochondral ossification (5)
  - c. State any three forms of bone joints and briefly explain on each (10)

2. Briefly write on the following types of neurons

- a. Unipolar neuron
- b. Bipolar neuron
- c. Multipolar neuron
- d. Afferent neuron
- e. Efferent neuron
- f. Sensory neuron
- g. Motor neuron
- h. Inter neuron (20)

3. Blood is a tissue and it contains plasma proteins. Using the diagram below fill in the source and functions of these stated plasma proteins (10)

Plasma protein	Source	Function
Fibrinogen		
Albumin		
Alpha and beta globulins		
Gamma globulins		
Complement proteins		

4. a. Bone marrow is a lymphoid organ. Briefly write on

- i. Different types of marrow (3)
- ii. Stroma (2)
- iii. Haematopoietic cords (2)
- iv. Function of bone marrow (3)

b. Skin colour is determined by epidermal pigmentation. Two pigments are found in the epidermis

- i. State the two pigments (2)
- ii. Outline their synthesis (8)

5. a. What is surface decalcification (2)

b. Different manufacturers have different names for same compound, e.g. Trypan blue also Chrorazol blue, Eosin Y also acid red 87, bromoacid J, bromo acid TS. Colour index (CI) have been developed. Write briefly on colour index (8)

c. Write briefly on the following

- i. Vital staining (2)
- ii. Progressive staining (2)
- iii. Regressive staining (2)

- iv. Mordant (2)
- v. Trapping agents (2)