



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

NSLS 210: HISTOLOGY
END OF SECOND SEMESTER FINAL EXAMINATIONS (MAIN)
NOVEMBER 2019
LECTURER: DR S. MATSHALAGA
DURATION: 3 HRS

INSTRUCTIONS

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

Section A carries 40 marks and each question in Section B carries 20 marks and section C carries 40 marks

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

Credit will be given for logical and systematic presentations, with diagrams.

SECTION A

INSTRUCTIONS

Answer all questions

Mark each statement T for True and F for False

This section carries 40marks

1. The following are tissue macrophages
 - A. Kupffer cells
 - B. APUD cells
 - C. Dendritic cells
 - D. Osteoclasts
 - E. Microglia

2. Mesothelium
 - A Is a stratified epithelium
 - B Is cuboidal to squamous
 - C Produces lubricating fluid
 - D Is found on pleura, peritoneum and pericardium
 - E Is found on conjunctival mucosa

3. The following are types of electron microscope
 - A Transmission
 - B Confocal
 - C Scanning
 - D Flourescent
 - E Bright field

4. Mitosis
 - A is a reduction division
 - B includes diplotene stage
 - C results in chiasma formation
 - D results in daughter cell variation
 - E is the same as gap 0 phase of the cell cycle

5. The following sites possess stratified squamous non keratinizing epithelium
 - A bladder
 - B oral mucosa
 - C trachea
 - D vagina
 - E oesophagus

6. Apoptosis

- A is genetically programmed cell death
- B occurs in tumours
- C occurs in normal growth and development
- D is a synonym for necrosis
- E leaves no trace of the original cell

7. The following are members of the mononuclear reticular endothelial phagocyte system (RES)

- A Kupfer cells of the liver
- B lymph node dendritic cells
- C lung alveolar macrophages
- D splenic macrophages
- E osteoclasts

8. The following are types of intermediate filaments

- A Vimentin
- B Keratin
- C Desmin
- D Glial fibrillary acid protein (GFAP)
- E Neurofilament

9. Cilia

- A are identical in structure to centrioles
- B function in cell surface transport
- C are visible only with the electron microscope
- D have a "9x3" microtubule arrangement
- E dysfunction results in Kartegener's disease (immotile cilia syndrome)

10. Transitional epithelium is found in the parts of the kidney. It is found in:

- A. urinary bladder
- B. ureter
- C. major calyx
- D. minor calyx
- E. upper part of urethra

11. Glandular epithelium produce fluid that differs in composition from blood or extracellular fluid.
The following is true about exocrine glands

- A. Merocrine: secretory granules leave by exocytosis with no loss of cellular material
- B. Holocrine: the whole cell is shed with the secretory granules e.g sebaceous glands
- C. Apocrine: the apical part of the cell is shed with the secretory granule
- D. Release their secretions via the duct onto the surface epithelium
- E. The secretory portion is called the acinar unit

12. The following stains use argentaffic reactions

- A. von Kossa
- B. Gordon and Sweet
- C. Fontana- Masson
- D. Jones' staining
- E. Grocott's

13. Metaplasia

- A. Is an irreversible change of epithelium
- B. Is a reversible change in epithelium
- C. Is synonymous with dysplasia
- D. May be induced by smoking
- E. If unresolved and long standing, may result in squamous cell carcinoma of the bronchi

14. Prostate gland

- A. Is located at the base of the bladder
- B. Is an endocrine gland
- C. Periurethral zone usually results in adenocarcinoma
- D. Peripheral zone results in physiological benign hyperplasia
- E. PSA is used as a screening test

15. The vagina

- A. Name is derived from the Latin meaning sheath of a sword/ scabbard
- B. Is made up of 4 layers
- C. is lined by stratified squamous keratinized epithelium
- D. glands in the wall produce secretion during sexual stimulation
- E. malignant tumour of its epithelium commonly results in a sarcoma

16. Continuous blood capillaries

- A. Are sinusoidally dilated
- B. Are 7.5- 10 micrometres in diameter
- C. Are found in the glomerulous tuft
- D. Are found in red bone marrow
- E. Are fenestrated

17. The Fallopian tube

- A. Is composed of 4 layers
- B. Mucosa is thrown into folds or plicae
- C. Epithelium is simple columnar and ciliated
- D. Adventitia/ serosa contains both myelinated and unmyelinated nerves
- E. Salpingitis may be due to ascending infection (STD)

18. Fixation of tissue for slide preparation

- A. Prevents autolysis
- B. Prevents putrefaction
- C. Time between organism euthanasia and fixation is unimportant
- D. Type of fixative is unimportant
- E. Formalin 10% is an irritant that must be handled in a fume cupboard

19. The thymus

- A. Functions in T cell negative selection
- B. Functions in T cell positive selection
- C. Possesses a cortex and a medulla
- D. Hassal's corpuscles are found in the cortex
- E. Thymoma and myasthenia gravis are important associations

20. Erythrocytes

- A. Are 7.5-10 nanometres in diameter
- B. Cytoplasm has numerous RER organelles
- C. Is able to undergo mitosis
- D. Nucleus is euchromatic
- E. Defective spectrin proteins anchoring plasma membrane results in sickle cell anaemia

SECTION B- SHORT ANSWERS

INSTRUCTIONS

Answer all questions. Diagrams are required.

This section carries 20 marks

1. The air blood barrier is composed of two epithelial layers with a sandwiched scanty connective tissue containing continuous type capillaries with tight junctions
 - a. Name the other three types of capillaries (3)
 - b. Write brief histology notes on endothelium (7)
 - c. This is a histological barrier- what is being stopped from moving here and what conditions may result from failure of the barrier? (3)

2. The small bowel is lined by an epithelial layer modified for absorption
 - a. Define epithelium (1)
 - b. Describe using short histology notes, the epithelium of small bowel (enterocytes) (6)

SECTION C- LONG ESSAYS

INSTRUCTIONS

Answer any two (2) questions

This section carries 40 marks

1. Describe the histology of penis (20).
2. The adrenal gland is the prototype of endocrine organs. Discuss by describing its histology(20).
3. The cervix undergoes cyclical changes during the menstrual cycle. Describe the histology of basal, parabasal, intermediate, and superficial cells of ectocervix, and glands of endocervix as the basis of the screening Papanicolou test.