



**TECHNICAL UNIVERSITY OF MOMBASA**  
**FACULTY OF APPLIED AND HEALTH SCIENCES**

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**DEPARTMENT OF MEDICAL SCIENCES**

**UNIVERSITY EXAMINATION FOR:**

**BMLS**

**AML 4309: HISTOPATHOLOGY.**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:**

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of Choose Nochoose Sect/Quest. AttemptChoose instruction.

**Circle the correct answer in section A.**

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**Section A**

1. Which of the following best defines histopathology?
  - a. The study of tissues
  - b. The study of cells
  - c. The study of neoplasms
  - d. The study of diseases
  - e. The study of tissues affected by diseases
2. The following factors will affect fixation except
  - a. pH
  - b. Osmolarity
  - c. Size of the specimen
  - d. Colour of the specimen
  - e. Temperature

3. The special stain for the demonstration of iron is
  - a. Elastin
  - b. PAS
  - c. Sudan black B
  - d. Prussian blue
  - e. Indian ink
4. The bulging of muscles of a body builder results from
  - a. Hyperplasia of muscle fibers
  - b. Atrophy of muscle fibers
  - c. Metaplasia
  - d. Hypertrophy of muscle fibers
  - e. Dysplasia
5. Which of the following is not a cause of vertical scratches on ribbons during microtomy?
  - a. Knife edge dirty
  - b. Nicks in knife edge
  - c. Too little knife tilt
  - d. Sutures
  - e. Mercuric chloride crystals
6. Invasiveness is a feature of
  - a. Benign tumours
  - b. Dysplasia
  - c. Neoplasms
  - d. Malignant tumours
  - e. Metaplasia
7. What is the name given to carcinomas that grow in a glandular pattern?
  - a. Sarcoma
  - b. adenocarcinoma
  - c. Chondroma
  - d. Fibroma
  - e. Haematoma
8. The extent to which tumour cells resemble normal cells morphological is
  - a. Invasion
  - b. Metastasis
  - c. Anaplasia
  - d. Differentiation
  - e. Dysplasia
9. Decalcification of tissue and bone is done by the following methods except
  - a. Mineral acids
  - b. Microincineration
  - c. Ion exchange resins
  - d. Chelating agents
  - e. Electrolysis

10. Which of the following is not a clearing agent
- Toluene
  - Cedar wood oil
  - Methane
  - Carbon tetrachloride
  - Aniline oil
11. Which of the following staining procedure is correctly matched
- Sudan black stain – glycogen
  - PAS – acid fast bacilli
  - Modified Giemsa – *Helicobacter pylori*
  - Elastin stain – fat
  - Manson trichrome – fungi
12. The following are benign tumours except
- Fibroma
  - Osteoma
  - Chondroma
  - Lipoma
  - Seminoma
13. The following is true of necrosis except
- It is a programmed cell death
  - Caseous necrosis results from tuberculous infection
  - Cytoplasmic changes include eosinophilia
  - There is cell digestion by lytic enzymes
  - Karyolysis occurs
14. The following are correctly matched except
- Transitional epithelium – lines the bladder
  - Simple squamous epithelium – lines the capillaries
  - Ciliated epithelium – lines the respiratory tract
  - Transitional epithelium – lines the uterine cervix
  - Stratified squamous epithelium – lines the skin
15. Which of the following is not a dehydrating agent
- Ethanol
  - Xythanol
  - Dioxane
  - Xylene
  - Acetone
16. In pregnancy, the uterus undergoes the following
- Atrophy and hypoplasia
  - Metaplasia and atrophy
  - Hyperplasia and hypertrophy
  - Anaplasia and atrophy
  - Dysplasia and metaplasia

17. What is the name given to the process by which cells are destroyed through lysing by enzymatic action?
- Karyohexis
  - Karyolysis
  - Pyknosis
  - Autolysis
  - Putrefaction
18. The following are simple fixatives except
- Zenker's fluid
  - Mercuric chloride
  - Potassium dichromate
  - Osmium tetroxide
  - Acetone
19. The following are criteria of a good fixative except
- It must have a good effect on staining
  - It must fortify the tissue against the harsh solutions used for processing
  - It must activate enzymes
  - It must cause sudden death to tissue cells
  - It must preserve cell in a life like manner
20. Which of the following is not a component of Heidenhain's Susa fixative
- Mercuric chloride
  - Chromic acid
  - Formaldehyde
  - Trichloroacetic acid
  - Distilled water
21. Which of the following is not a fixative pigment?
- Barret's pigment
  - Formaline pigment
  - Mercuric chloride pigment
  - Chrome deposits
  - Pink disease artifact
22. Which of the following is not an example of an acid used for decalcification
- Nitric acid
  - Hydrochloric acid
  - Formic acid
  - Sulphuric acid
  - Trichloroacetic acid
23. Which of the following is not a method used for determining the end point of decalcification
- X-ray method
  - Feeling and bending
  - Cutting with a knife
  - Probing with pins
  - Chemical test

24. Which of the following factors is not required during tissue impregnation to increase penetration rate by paraffin wax?
- Agitation
  - Volume
  - Heat
  - Viscosity
  - Vacuum
25. Viruses known to be carcinogenic in humans include all the following except
- Human Papilloma virus
  - Epstein Barr virus
  - Herpes Simplex virus
  - Hepatitis B virus
  - Hepatitis A virus
26. The standard size of a histological section is
- 20 – 25 microns
  - 10 – 20 microns
  - 3 – 5 microns
  - 5 – 10 microns
  - Upto 30 microns
27. Which of the following is taken up by nucleus during staining of histological section in H/E staining procedure?
- Eosin stain
  - Both haematoxylin and eosin
  - Haematoxylin stain
  - More of eosin stain and less of haematoxylin
  - None of the two stains
28. Apoptosis has a key role in all of the following except
- Cell death due to hypoxia
  - Developmental involution in the embryo
  - Cell death in tumours
  - Cell death in viral infection
  - Involution of thymus
29. The following can cause cell injury except
- Hypoxia
  - Genetic defects
  - Anaphylaxis
  - Mitochondria
  - Bacteria
30. Which of the following is not true of dehydration?
- Specimen is immersed in a series of ethanol solutions of increasing concentration
  - It is done after tissue fixation
  - It is done before cleansing
  - Specimen is immersed in a series of ethanol solutions of decreasing concentration

e. Ethanol is miscible with water.

**Section B**

31. (A) Briefly discuss tissue repair, regeneration and healing of a wound **(10 marks)**

(B) Describe the specimen collection, handling and preparation for routine histopathology diagnosis  
**(10 marks)**

32 (A) Discuss the advantages and disadvantages of water soluble waxes **(10 marks)**

(B) Describe the operations and components of a cryostat microtome **(10 marks)**