TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DMLS

AML 2301: HISTOLOGY II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

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.

Section A

1. The following is a clearing reagents

   a. Ethyl alcohol

   b. Carbowax

   c. Cedar wood oil

   d. Dioxane

2. Resinous mountants include the following

a. Canada Balsam

b. Xam

c. Apathy's media

d. Farrant's media

3. A Museum laboratory provides the following services

a. Culture specimens

b. Collection of rare disease cases

c. Collects specimens of historical importance

d. Rear laboratory animals

4. Dehydration is

a. Removal of water from a tissue using xylene

b. Removal of alcohol from a tissue using xylene

c. Removal of water using ascending grades of alcohol

d. Tissue processing

5. Post- chroming applies to

a. Fixation of smears

b. Fixation of gross specimen

c. Treatment of tissues with potassium dichromate

d. Primary fixation

6. The following microtomes can section celloidin embedded tissues mainly

a. Base sledge

b. Ultra microtome

c. Sliding microtome

d. Rocker microtome

7. Reticulin fibres can be demonstrated by

    a. Verhoeff's iron heamatoxyline

    b. Gordon and sweet's method

    c. Orcein stain

    d. Fouchet's test

8. Artifact pigments are

    a. Endogenous pigments

    b. Fixation pigments

    c. Mask cellular details

    d. Autogenous pigments

9. Acid formaldehyde haematin is commonly found

    a. Cartilage

    b. Blood forming organs

    c. Nails

    d. Earlobe

10. P.P.B reaction demonstrates the following

    a. Formalin pigments

    b. Haemosiderin

    c. Ferric salts

    d. Melanin

11. Alcoholic picric acid solution is used as a solvent for the following pigments

    a. Malaria pigments

    b. Hemoglobin pigments

    c. Formalin pigments

    d. Bile pigments

12.The main purpose of decalcification is

a. To unmask calcium from tissues, cellular structures hence rendering them visible
b. To protect the microtome knife from damage
c. To make tissue a little bit hard
d. To make tissue torn and ragged

13. Elastic fibres are commonly found in

a. Circulatory system
b. Skin
c. Intestines
d. Tendons

14. After removal of tissue from the body, tissues should be put at what temperature if fixation is not immediate?

a. Room temperature
b. 22 ºc
c. 4 ºc
d. 37 ºc

15. Formaldehyde as a simple fixative is used at what concentration

a. 40%
b. 37%
c. 10%
d. 100%

16. The following is an example of a cytoplasmic cytological compound fixative

a. Flemmings fluid
b. Clarke's fluid
c. Helly's fluid
d. Zenker acetic

17.The human cell is divided in to 2 inclusions

a. Nuclear inclusion
b. Cytoplasmic inclusion
c. Protoplasm
d. Cell wall

18.The acid formed after use of a formaldehyde containing fixative can be neutralized by:

e. Magnesium carbonate
f. Calcium acetate
g. Decalcification
h. Impregnation

19. The following is an examples of vapour fixatives

a. Acetic acid
b. Glutaraldehyde
c. Ethyl ether
d. Carbon dioxide
e. Picric acid

20. The volume of the fixative used should be

a. 20 times the size of the tissue
b. Over flowing
c. 10-15 times the size of the tissue
d. Half of the container used

21. The dye that is extracted from the stigma of Crocus sativus is

a) Saffron
b) Carmine
c) Litmus
d) Haematoxylin

22. Haematoxyline is converted to haematein by using

a. Acetic acid
b. Sunlight and air
c. Mercuric oxide
d. Lugol's iodine

23. The following are counterstains used for haematoxyline

a. Neutral red
b. Biebrich scarlet
c. picric acid
d. Methylene blue

24.Xylene is used in histology as a

a.Decalcifying fluid

b.Fixative

c.Dehydrant

d.Clearing agent

25. The following can be used as surface decalcifying agents

a. Mollifex

b. 1% acid alcohol

c. Carnoy's fluid

d. 5% nitric acid

26 . Examples of naturally calcified tissues are

a. Bone marrow

b. Pinna of ear

c. Calcified scar

d. Calcified artery

27. 10% formal saline contains

a. Formaline

b. Sodium phosphate

c. 100% formal saline

d. Sodium hypochlorite

28. The best microtome knife for cryostat microtome is

a. Biconcave

b. Tool edge

c. Planoconcave

d. Plane wedge

29. The feeding mechanism of a microtome consists of

a. Plastic box

b. Advance stroke

c. Micrometer screw

d. Ratchet wheel mounted together

30. Abrasive that are used during microtome knife sharpening include

a. Arkansas stone

b. Belgium stone

c. Strope

d. Lead oxide

31. The following are section adhesives

a. Mayer’s egg albumin

b. Starch paste

c. Apathy’s media

d. Farrants media

32.The most important procedure in preparation of tissue for microscopic examination is

a. Proper preservation

b. Proper identification of organ

c. Choice of clearing agent

d. Staining technique

33. Post mordanting applies to

a. Autopsies

b. Re staining

c. Primary fixation

d. Secondary fixation

34. The main function when ‘bringing section to water’ during staining is

a. Remove paraffin wax

b. Remove fixative

c. Remove alcohol

d. The dehydrate tissue

35. The basic classification of microscopes used for examination of biological material depends on.

a. Manufacturer

b. Source of light

c. The lenses

d. The model of the microscope

36. Dehydration is defined as

a. Removal of water from a tissue using xylene

b. Removal of alcohol from a tissue, using xylene

c. Removal of water using ascending grades of alcohol

d. Tissue processing

37. Vacuum embedding is especially recommended for

a. Heart

b. Embryo

c. Lung

d. Spleen

38. Physical theory of Biological staining depends on

a. Adsorption

b. Density

c. Ionization

d. Osmosis

39. Peterfi’s double embedding is recommended for

a. Eye embedding

b. Skin embedding

c. Brain embedding

d. Liver embedding

40. When two hydrogen atoms are displaced by oxygen from a benzene ring, the following is formed

a. Nitrobenzene

b. Azo-coupling

c. Auratia

d. Quinone

SECTION B

41. A. List the basic requirements for general staining in a histology laboratory **(10marks)**

B. Discuss the factors that govern the physical theory of staining **(10 marks)**

42. A. List the criteria of a good mounting media **(10 marks)**

B. List atleast five (5) faults and in each mention the causes in section cutting

(10 marks)

43. Discuss Haematoxylin and eosin staining procedure and mention the expected results

(20 marks)