



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL LABORATORY SCIENCES

AML 2301 : HISTOLOGY II

SPECIAL/ SUPPLIMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of SECTION A & B. Attempt ALL QUESTIONS .

Circle the correct answer in section A.

Section A

1. The following factors will affect fixation except
 - a. pH
 - b. Size of the specimen
 - c. Colour of the specimen
 - d. Temperature

2. The special stain for the demonstration of iron is
 - a. Elastin
 - b. Sudan black
 - c. Prussian blue

- d. Indian ink
3. All the following are causes of vertical scratches on ribbons during microtomy except
- a. Knife edge dirty
 - b. Nicks in knife edge
 - c. Too little knife tilt
 - d. Mercuric chloride crystals
4. Decalcification of calcified tissue and bone is done by the following methods except
- a. Microincineration
 - b. Ion exchange resins
 - c. Chelating agents
 - d. Electrolysis
5. Which of the following is not a clearing agent
- a. Toluene
 - b. Cedar wood oil
 - c. Methane
 - d. Carbon tetrachloride
6. Which of the following staining procedure is correctly matched
- a. Sudan black stain – glycogen
 - b. PAS – acid fast bacilli
 - c. Modified Giemsa – *Helicobacter pylori*
 - d. Elastin stain – fat
7. Which of the following is not a dehydrating agent
- a. Ethanol
 - b. Xythanol
 - c. Dioxane
 - d. Xylene
8. All the following are fixative pigments except
- a. Barret's pigment
 - b. Formaline pigment
 - c. Mercuric chloride pigment
 - d. Chrome deposits

9. 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
10. To increase the rate of penetration thereby reducing the time required to impregnate a tissue with the reagents; all the following factors are involved except
- Agitation
 - Volume
 - Heat
 - Viscosity
11. The standard size of a histological section is
- 20 – 25 microns
 - 10 – 20 microns
 - 3 – 5 microns
 - 5 – 10 microns
12. In routine H/E stain of histologic sections, the nucleus take up
- Eosin stain
 - Both haematoxylin and eosin
 - Haematoxylin stain
 - More of eosin stain and less of haematoxylin
13. True of dehydration except
- 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
14. The disappearance of the nucleus during autolysis is also known as
- Karyokinesis
 - Karyolysis
 - Pyknosis
 - Cytolysis

15. The following is a histological embedding media
 - a. Xylene
 - b. Celloidin
 - c. Cedar wood oil
 - d. Butanol

16. In tissue processing, paraffin wax is used to
 - a. Replace clearing agent
 - b. Provide external support
 - c. Soften tissues
 - d. Decontaminate tissue

17. The following are reasons for poor infiltration
 - a. Under dehydration
 - b. Under clearing
 - c. Manual processing
 - d. Post fixation

18. Naturally calcified tissues include
 - a. Bone
 - b. Calcified scar
 - c. Thyroid gland
 - d. Arteries

19. The techniques in tissue decalcification varies according to
 - a. Specimen size
 - b. Nature of specimen
 - c. Technician
 - d. Fixation

20. Double embedding is
 - a. Use of paraffin wax
 - b. Use of cellodine
 - c. Ester wax
 - d. Low viscosity nitrocellulose

21. Histological embedding mould includes
 - a. Enamel kettle
 - b. Manila paper
 - c. Leukhard
 - d. Forceps

22. The following inhibits haematoxylin
 - a. Picric acid
 - b. Formalin
 - c. Osmium tetroxide
 - d. Chromic acid

23. The following is true about artefact pigments
 - a. Mask cellular details
 - b. From formalin fixatives only
 - c. Are permanent on the tissue
 - d. Distorts cellular arrangement

24. Examples of neutral dyes include
 - a. Eosin
 - b. Giemsa stain
 - c. Leishman stain
 - d. Aniline blue

25. Which of the following is a tissue block holder during sectioning
 - a. Hone
 - b. Tissue tek
 - c. Coupling jars
 - d. Glass rods

26. DPX is miscible with
 - a. 20% ethanol
 - b. Distilled water
 - c. Dioxane
 - d. Chloroform

27. Mayers egg albumin in histology contains

- a. Gelatin
 - b. Resins
 - c. White part of an egg
 - d. Crystal of thymol
28. Microtome knife sharpening employ one of the following methods
- a. Hand sharpening
 - b. Bevel use
 - c. Computerized
 - d. Chemical use
29. Peterfi's double embedding is recommended for
- a. Eye embedding
 - b. Skin embedding
 - c. Brain embedding
 - d. Liver embedding
30. 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
31. The dye that is extracted from the stigma of *Crocus sativus* is
- a. Saffron
 - b. Carmine
 - c. Litmus
 - d. Haematoxylin
32. The following are used for ripening haematin except
- a. Potassium permanganate
 - b. Hydrogen peroxide
 - c. Sodium iodide
 - d. Calcium chloride
33. DPX is miscible with
- a. 20% ethanol
 - b. Distilled water

- c. Xylene
 - d. Chloroform
34. All of the following are advantages of using dioxane except ?
- a. Less shrinkage of tissue
 - b. It is miscible with paraffin and with water and alcohol
 - c. Tissues are at danger of hardening
 - d. It is toxic to the handler
35. Time of impregnation will depends on the following factors except?
- a. The size and type of tissue.
 - b. The clearing agent employed.
 - c. The use of vacuum embedding oven.
 - d. The time taken in fixation
36. The use of automatic tissue processor has the following advantage compared to manual method
- a. It is cheaper
 - b. Does not require expertise
 - c. It reduces processing time
 - d. It removes artifacts
37. Biconcave knife is recommended for sectioning
- a. for celloidin section
 - b. for celloidin section and frozen sections
 - c. paraffin section cutting on rocking

d. all types of microtomes

38. The following are lubricants used for honing except?

a. Soap water.

b. Liquid paraffin.

c. Castor oil.

d. Vinegar

39. 'Fishing out' in histology refers to

a. Straightening of sections with 2% alcohol

b. Drying of section

c. Picking up a section from water

d. section cutting

40. When one notices holes in the section during sectioning, the reason could be ?

a. Air bubbles in the tissue or wax

b. Presence of Calcium, Carbon,

c. Use of a blunt knife Knife

d. loose knife or a loose block during sectioning

Section B

41. Discuss the types of faults encountered during tissue sectioning and the remedies

(20 marks)

42. Briefly describe

- a. Exogenous pigments (10 marks)
 - b. Picric acid (5 marks)
 - c. Neutral stains (5 marks)
43. Discuss the principle of staining (10 marks)
- b. Compare and contrast alum haematoxylin and iron haematoxylin (10 marks)