



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

HML 314: HISTOPATHOLOGY

DATE: Thursday, 22nd July 2021

TIME: 11.00 a.m. - 1.00 p.m.

INSTRUCTIONS:

SECTION A: Answer all questions: (4 marks each)

1. Outline the criteria of selecting a suitable mounting medium (4marks)
2. State the advantages and disadvantages of xylene as a clearing agent (4marks)
3. Outline the physical theory of tissue staining (4marks)
4. State the requirements for a successful decalcification prior to tissue processing (4marks)
5. Outline the procedure of constituting Harris's hematoxylin (4marks)

SECTION B: Answer only ONE question (20marks each)

6. a). Describe embedding under the following sub-headings:
 - i) Definition (1mark)
 - ii) Purpose (2marks)
 - iii) Principle (3marks)
 - iv) Procedure (4marks)

b). Discuss quality control systems in a histopathology laboratory (10 marks)
7. Describe the systemic approach of preparing a gastric biopsy for microscopic examination of the bacteria *Helicobacter pylori* (20 marks)

SECTION C: Choose the correct answer among the choices (½ marks each question)

1. Chatters in tissue sections occur as a result of?
 - A. Dirty embedding media
 - B. Inadequate impregnation
 - C. Great angle of knife tilt
 - D. Imperfect knife edge
2. Which of the following is not a transition solvent in tissue processing?
 - A. Bioloid
 - B. Toluene
 - C. Isopropyl alcohol
 - D. Chloroform
3. The advantage of water soluble waxes is?
 - A. No need to clear or dehydrate tissues
 - B. Sections are easy to float
 - C. Penetrate fatty tissues easily
 - D. Tissue blocks are kept in very warm environment
4. The mordant used during demonstration of muscle striations by Heidenhain's trichrome stain method is?
 - A. 4% hydrochloric acid
 - B. 5% ferric ammonium sulphate
 - C. 30% ferric chloride
 - D. Phosphotungstic acid
5. A water bath for floating sections should be:
 - A. Painted white inside
 - B. Regulated slightly above the melting point of wax
 - C. Regulated slightly below the melting point of wax
 - D. On through out
6. Glass microtome knives are used to cut sections from:-
 - A. Celloidin blocks
 - B. Gelatin blocks
 - C. Paraffin wax blocks
 - D. Synthetic resin blocks

7. Haemosiderin pigments are best demonstrated by?
- A. Hematoxylin and Eosin
 - B. Perl's Prussian blue
 - C. Ziehl- Nielsen
 - D. Gram's stain
8. Poor infiltration of tissues by paraffin wax is due to?
- A. Imperfect dehydration
 - B. Improper fixation
 - C. Imperfect knife edge
 - D. Faulty microtome
9. Thermostatically controlled water bath for floating section ribbons should be maintained at?
- A. 56°C
 - B. 45°C
 - C. 60°C
 - D. 55°C
10. Natural resinous mountants include?
- A. Canada balsam
 - B. Euparal
 - C. Coverbond
 - D. Glycerine jelly
11. Which of the following natural dyes is obtained from a bed bug?
- A. Cochineal
 - B. Orcein
 - C. Saffron
 - D. Litmus
12. In the preparation of hematoxylin stain, all the following can be used to change hematoxylin to haematin except?
- A. Calcium chloride
 - B. Sodium iodate
 - C. Potassium nitrate
 - D. Hydrogen peroxide

13. Mercuric chloride pigment can be avoided by not fixing tissues in?
- A. Bonin's fluid
 - B. Carnoy's fluid
 - C. Flemming's fluid
 - D. Zenker's fluid
14. Apparatus used to trim soft tissues prior to processing include the following except;
- A. Ruler
 - B. Balance
 - C. Scalpel blades
 - D. Microtome knives
15. Disadvantage of using chloroform as a clearing agent is?
- A. It hardens the tissues
 - B. It does not make tissue transparent
 - C. It is easily displaced by wax
 - D. Clear tissue in several weeks
16. The following are regressive staining except?
- A. Hematoxylin and Eosin
 - B. Papanicolaou
 - C. Perl's Prussian blue
 - D. Ziehl-Nelsen
17. The following are endogenous pigments except?
- A. Calcium
 - B. Carbon
 - C. Silica
 - D. Hemosiderin
18. Process of offering internal support to tissue with molten paraffin is called?
- A. Impregnation
 - B. Dehydration
 - C. Embedding
 - D. Clearing
19. Sections float off the slide during staining due to:-
- A. Improper dehydration
 - B. Non application of section adhesive
 - C. Poor section cutting
 - D. Over staining

20. A good decalcifying procedure should ensure that?

- A. The tissue is fixed properly
- B. Dehydration is complete
- C. It has no effect on staining
- D. The acid used is slightly concentrated