

UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES
THIRD YEAR SECOND SEMESTER EXAMINATION – APRIL 2020



MLSCH 3235 – CLINICAL HISTOTECHNOLOGY

PAPER II

DATE: 04.08.2020

TIME: 2½ Hours

ANSWER ALL EIGHT QUESTIONS

1. A biopsy specimen sent in formal saline is received in the laboratory for histology.
 - 1.1 Outline the pre-processing steps in sample handling. (30 marks)
 - 1.2 Name one precaution each that needs to be taken to optimize fixation of the following specimen:
 - A. Lymph nodes (5 marks)
 - B. Uterus (5 marks)
 - C. Colon (10 marks)
 - D. Endoscopic biopsies (5 marks)
 - 1.3 Enumerate the aims of fixation. (15 marks)
 - 1.4 Outline the advantages and drawbacks of formal saline used as a fixative. (30 marks)

2.
 - 2.1 Mention the criteria for a good decalcifying agent. (20 marks)
 - 2.2 State the methods available to detect the completion of decalcification. (25 marks)
 - 2.3 Briefly explain the following methods of decalcification with examples. (55 marks)
 - A. Acid method
 - B. EDTA Chelating agents

3.
 - 3.1 Briefly describe the daily maintenance of a tissue processor in routine histopathology practice. (35 marks)
 - 3.2 Describe the importance of the following steps in tissue processing.
 - A. Dehydration (10 marks)
 - B. Clearing (10 marks)
 - C. Impregnation of wax (10 marks)
 - 3.3 Explain the term 'clearing agents' and state the criteria for choosing a suitable clearing agent. (35 marks)



4.
 - 4.1 Name four (04) main types of microtomes used in a histopathology laboratory. (10 marks)
 - 4.2 Describe the basic features of two (02) microtomes mentioned in (4.1). (50 marks)
 - 4.3 Name two (02) advantages of using each of the microtomes mentioned in (4.2) (30 marks)
 - 4.4 Mention the use of following items in microtomy.
 - A. Tissue floater water bath (5 marks)
 - B. Ethyl Alcohol (5 marks)

5. Given below are errors that can be seen in the preparation of paraffin wax sections for routine staining procedures.
Identify two (02) probable causes for each error mentioned below and give the steps to be taken to overcome them.
 - 5.1 Thick and Thin sections (20 marks)
 - 5.2 Nuclei are over stained in sections (20 marks)
 - 5.3 Expansion and disintegration of sections in the water bath (20 marks)
 - 5.4 Sections curl or roll up into a coil (20 marks)
 - 5.5 Ribbons split vertically or scratch lines appear (20 marks)

6.
 - 6.1 Outline the role of chromophores and auxochromes in dye structure. (20 marks)
 - 6.2 Briefly explain the mechanism of action of basic and acidic dyes in tissue staining with examples. (30 marks)
 - 6.3 Distinguish between
 - A. Argentaffin and Argyrophil silver impregnation (25 marks)
 - B. Natural ripening and chemical ripening (25 marks)

7.
 - 7.1 Briefly describe the term immunohistochemistry. (25 marks)
 - 7.2 Name two (02) antigen retrieval techniques. (10 marks)
 - 7.3 Enumerate the factors that influence the antigen retrieval in one of the methods mentioned in (7.2). (25 marks)
 - 7.4 Briefly discuss the advantages of the indirect method over the direct method in immunohistochemistry. (40 marks)

8.
 - 8.1 Write a note on spontaneous exfoliation. (35 marks)
 - 8.2 Name five (05) organisms that can be identified in cervical smear. (20 marks)
 - 8.3 Outline the features that can be observed in cervical smear during the secretory phase. (20 marks)
 - 8.4 Mention five (05) advantages of Fine needle aspiration cytology (25 marks)