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FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Medical Laboratory Science
Fifth End Semester Examination – June 2026
MLS 3143 Histotechnology – SEQ

Date: 04th June 2026

Time: 09.45 a.m.- 11.15 a.m.

Duration: 1 hour 30 minutes

Index Number:

Instructions: Answer 3 out of 4 questions. Answer each question in a separate booklet.

1. A mastectomy specimen was transferred into 10% neutral buffered formalin after completing all the surgeries scheduled for the day and it was sent to the histopathology laboratory for processing two days later.
 - 1.1 Classify the fixatives used in histopathology giving two examples for each. (20 marks)
 - 1.2 Explain the reasons for transferring the breast tissue specimen into the formalin container. (40 marks)
 - 1.3 Discuss the consequences observed during microtomy and following H&E staining due to the deviation from protocol for specimen transport. (40 marks)

2.
 - 2.1 The following errors were observed during examination of H&E-stained histopathology slides on different days of the week.

Slide A – Poor staining with hematoxylin
Slide B – Excessive staining with hematoxylin
Slide C – Poor staining with eosin
Slide D – A purple precipitate on the section

 - 2.1.1. State **five** causes for each staining inadequacies mentioned (30 marks) for slide A, B, and C.
 - 2.1.2. Briefly describe the possible reason for the precipitate in the slide D and explain how it can be prevented during H&E staining. (20 marks)
 - 2.2 Write short notes on the following.
 - 2.2.1. Prevention of mistakes and artifacts during tissue embedding (25 marks)
 - 2.2.2. Maintenance of semi-automated tissue processor (25 marks)

3. Demonstration of carbohydrates in tissues is an integral part of special staining techniques.
 - 3.1 State the principle of following special staining techniques used to demonstrate carbohydrates in tissues:
 - 3.1.1. PAS technique (10 marks)
 - 3.1.2. Alcian Blue technique (30 marks)
 - 3.2 List **five** PAS reactive cells or tissue components. (10 marks)
 - 3.3 Briefly explain the importance of using diastase/ amylase with PAS technique. (20 marks)
 - 3.4 Briefly explain the importance of combined Alcian blue and PAS technique. (30 marks)

4.

- 4.1** Define Immunohistochemistry. (10 marks)
- 4.2** Briefly describe how you would prepare the glass slides in-house for IHC staining. (10 marks)
- 4.3** What is the purpose of antigen retrieval during IHC procedure? (10 marks)
- 4.4** Briefly explain the two main methods of antigen retrieval. (20 marks)
- 4.5** Briefly describe the three types of controls used in IHC staining. (50 marks)