FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Medical Laboratory Science
Sixth End Semester Examination – December 2025 – 2020/2021 batch

MLS 3242 Medical Laboratory Instrumentation – Theory (SEQ)

Date: 01st December 2025 Time: 9.00 a.m. – 10.00 a. m. Duration: 1 hour

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Answer all the questions

01.

1.1 Laboratory Information System (LIS) enables the key deliverables of automated medical laboratory equipment in great extent.

1.1.1 List five (5) key functions of LIS in clinical laboratory operations. (10 marks)

1.1.2 How does the Hospital Information System (HIS) integrate with the LIS to improve patient care and laboratory workflow? (20 marks)

1.1.3 State three (3) roles of a medical laboratory technologist in maintaining data accuracy and security within the LIS. (10 marks)

1.1.4 Discuss the key benefits of LIS for clinicians. (15 marks)

1.1.5 Briefly describe three (3) challenges when implementing LIS. (15 marks)

1.2 Automation gives immense advantages to the clinical laboratory setup.

1.2.1 List four (4) main benefits of using automated tissue processors in histopathology laboratories. (10 marks)

1.2.2 How does barcoding and specimen tracking in histopathology automation enhance sample management and patient safety? (20 marks)

02.

2.1 Following manufacturer guidelines and good laboratory practice is crucial for good equipment management.

2.1.1 Discuss the difference between preventive maintenance and corrective maintenance in the management of laboratory instruments. (20 marks)

2.1.2 Why is it important to follow Standard Operating Procedures (SOPs) during preventive maintenance of laboratory equipment? (15 marks)

2.1.3 List five (5) key steps to be followed during corrective maintenance of a malfunctioning laboratory instrument. (15 marks)

2.2 Integration of artificial intelligence (AI) has made a substantial development in automation of Microbiology investigations.

2.2.1 What are the main principles used in automated analyzers to detect microorganisms in blood. (20 marks)

2.2.2 Briefly explain the principle of automated Antibiotic Sensitivity Testing. (15 marks)

2.2.3 Briefly describe the importance of the autoclave in laboratory safety management. (15 marks)

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