



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2023/2024

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR THE CERTIFICATE IN  
INFORMATION TECHNOLOGY

### CIT 1210: OPERATING SYSTEMS

DATE: APRIL 2024

TIME: 1<sup>1</sup>/<sub>2</sub> HOURS

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#### INSTRUCTIONS:

1. Answer Question ONE, and any other TWO
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#### QUESTION ONE (30 MARKS)

- a) Differentiate between batch and distributed operating systems (4 marks)
- b) Elucidate the two types of real time operating systems (4 marks)
- c) describe the layered architecture of OS (3 marks)
- d) State three reasons for implementing threads at the user level (3 Marks)
- e) Explain two multithreading models in regard to process management in operating systems (4 marks)
- f) Differentiate between round robin and multilevel queues scheduling algorithms (4 marks)
- g) Describe two ways to avoid deadlocks in operating systems (4 marks)
- h) List down four CPU scheduling algorithms you know (4 marks)

#### QUESTION TWO (15 MARKS)

- a) Explain the procedure of installing operating system (8 marks)
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- b) Disk operating system commands are divided in two major categories. Explain each of these categories, giving an example in each case. (4 marks)
- c) List and explain three functions of the operating system (3 marks)

**QUESTION THREE (15 MARKS)**

- a) Explain four conditions that are necessary for deadlock to occur in operating systems (8 marks)
- b) Explain two components of disk access time in an operating system (4 marks)
- c) Input/output device controllers are associated with computer peripheral devices. List three functions of these controllers. (3 marks)

**QUESTION FOUR (15 MARKS)**

- a) Discuss four memory allocation techniques in regard to memory management in OS (8 marks)
- b) There are three approaches available to communicate with the CPU and Device. Explain (6 marks)
- c) Define what is a process in operating systems (1 mark)

