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UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION TECHNOLOGY AND CERTIFICATE IN INFORMATION TECHNOLOGY

CIT 1210/ CIT 2210: OPERATING SYSTEMS

DATE: DECEMBER 2024 **TIME: 1½ HOURS**

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

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 milt-threading 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)

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 (l Mark)