



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF INFORMATION AND COMMUNICATION
TECHNOLOGY

FIRST SEMESTER EXAMINATION, 2020/2021 ACADEMIC SESSION

COURSE TITLE: OPERATING SYSTEM

COURSE CODE: ECT 323

EXAMINATION DATE: MARCH, 2021

COURSE LECTURER: ENGR. T. T. ADEYEMO

A handwritten signature in black ink, enclosed in a rectangular box.

HOD's SIGNATURE

TIME ALLOWED: 3 HRS.

INSTRUCTIONS:

1. ANSWER FIVE QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question One

- a. Define "short-term scheduler" and "long-term scheduler" and clarify the key difference(s) between them. [3 Marks]
- b. What are the Coffman conditions that can lead a system to a deadlock situation? [4 Marks]
- c. LINUX is a clone of UNIX. list five (5) basic differences between them. [5 Marks]

Question Two

- a. Mention two (2) ways a computer can detect the arrival of any type of input. [2 Marks]
- b. List at least seven (7) situations where a virtual memory is needed [7 Marks]
- c. Discuss how a scheduling algorithm can be selected for a particular system. [3 Marks]

Question Three

- a. One of the ways to manage inter-process communication is by using sockets. Write short notes on different types of socket used in inter-process communication. [4 Marks]
- b. State the differences between "user-level thread" and "kernel-level thread". [4 Marks]
- c. With the aid of a diagram, briefly distinguish between synchronous and asynchronous I/O. [4 Marks]

Question Four

- a. Distinguish between logical and physical address with at least five (5) points. [5 Marks]

- b. Explain the concept of “dual mode of operation” with a diagram. in operating system. [4 Marks]
- c. Discuss the sources of contention that can be found in a multiprocessor operating system. [3 Marks]

Question Five

- a. Discuss the different types of multi-threading models in an operating system. [3 Marks]
- b. Explain real-time operating system scheduling and mention the two varieties of scheduling algorithm. [3 Marks]
- c. Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time
P1	80
P2	20
P3	10
P4	20
P5	50

- i. Suppose a system uses FCFS scheduling. Create a Gantt chart illustrating the execution of these processes.
- ii. What is the turnaround time for process p3?
- iii. What is the average wait time for the processes? [6 Marks]

Question Six

- a. Discuss five (5) ways a system can recover from deadlock. [5 Marks]
- b. Mention some of the important activities that an operating system can perform. [5 Marks]
- c. Briefly discuss the difference between “deadlock prevention” and “deadlock avoidance.” [2 Marks]

Question Seven

- a. Mention three (3) types of addresses used in a program before and after memory allocation. [3 Marks]
- b. Using a table, differentiate between a process and a thread. [6 Marks]
- c. A process control block contains many pieces of information associated with a specific process. List at least six (6) of them [3 Marks]