

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0120: OPERATING SYSTEMS

STREAMS: DIP. COMP SCI Y1S2

TIME: 2 HOURS

DAY/DATE: THURSDAY 8/08/2019

2.30 P.M - 4.30 P.M.

INSTRUCTIONS:

- Answer all in question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A: ANSWER ALL QUESTION IN THIS SECTION

QUESTION ONE (30 MARKS)

- Define an Operating System [2 Marks]
- Draw a schematic of an operating System, showing its relation to hardware and users [4 Marks]
- List FOUR Operations an Operating System does for memory management [4 Marks]
- What is difference between kernel and OS? [2 Marks]
- List TWO advantages &disadvantages of Time-sharing OS [4 Marks]
- Write a simple program in C programming language [4 Marks]
- What is a process Scheduler [2 Marks]
- What is Thread? [2 Marks]
- Define a Device Driver, how is it useful to the operations of an Operating System [3 Marks]
- List Three File Access Mechanisms [3 Marks]

SECTION B (ANSWER ANY TWO QUESTIONS ONLY)

QUESTION TWO (20 MARKS)

- LIST and Describe The THREE Primary components of LINUX Operating System [6 Marks]

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- b. List and Explain THREE system threats to Operating Systems [6 Marks]
- c. Provide FOUR situations/scenarios where, an OS decides an entire programme does not need to be fully loaded to main memory [8 Marks]

QUESTION THREE (20 MARKS):

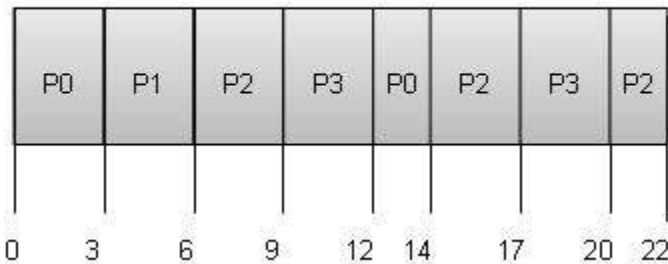
- a. List and Explain the THREE File Types used by MS-DOS and UNIX OS [6 Marks]
- b. List FOUR ATTRIBUTES of A PROCESS and THREAD [8 Marks]
- c. Draw a diagram that shows the Many-To-Many threading model where 6 user level threads are multiplexing with 6 kernel level threads [6 Marks]

QUESTION FOUR (20 MARKS):

(a) The following are a list of jobs to be scheduled, using Round Robin scheduling, calculate the Wait time of each process and average wait time [10 Marks]

NB:

Quantum = 3



- a. Compare and Contrast the Long-Term Scheduler, Short-Term Scheduler & Medium-Term Scheduler [10 marks]

QUESTION FIVE (20 MARKS):

- a. Describe the Process Life Cycle of a Program [10 Marks]
- b. Explain the following core Functions of an Operating System [10 Marks]
 - i. Processor Management
 - ii. Device Management
 - iii. File Management
 - iv. Security
 - v. Control over system performance