

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**CHUKA & ISEMBE**

**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: MONDAY 29/03/2021**

**11.30 A.M. – 1.30 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)**

a. Define the Following Terms:

- i. Socket (2 marks)
- ii. Paging (2 marks)
- iii. Operating System (2 marks)

b. Write a simple program in C to output the statement “Hello,World!” (4 marks)

c. Explain The **THREE** Primary components of LINUX Operating System (6 marks)

d. List and Explain the **THREE** File Types used by MS-DOS and UNIX OS (6 marks)

e. Briefly describe the Process Life Cycle of A Program (5 marks)

f. Processor Management is a core Functions of an Operating System. List **THREE** operations that an OS performs in processor management (3 marks)

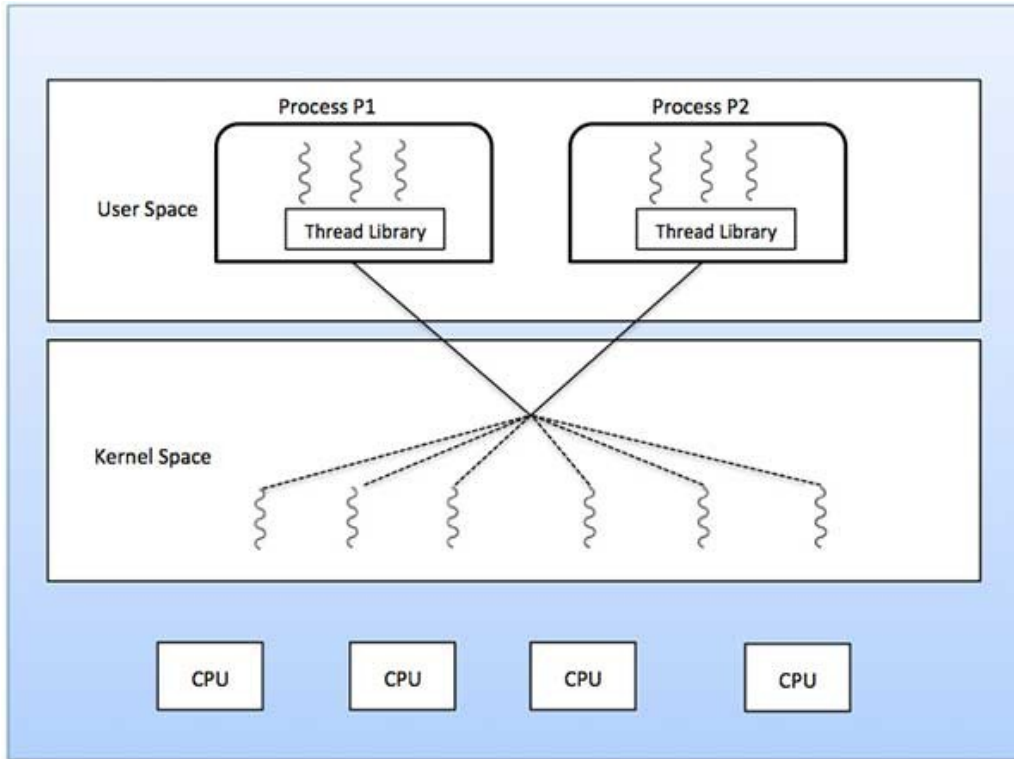
**SECTION B (ANSWER ANY TWO QUESTIONS ONLY!!)**

**QUESTION TWO (20 MARKS)**

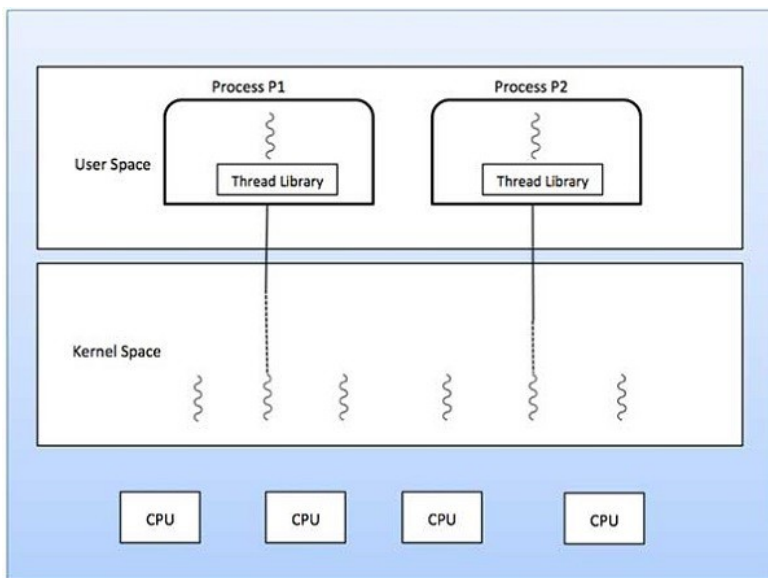
a. List THREE reasons Why Ubuntu is considered to be safe and not affected by viruses compared to Window OS (6 marks)

b. Identify & EXPLAIN the Following Multi-threading models:

i. (4 marks)



ii. (4 marks)



b. Briefly Outline the Process State (6 marks)

**QUESTION THREE (20 MARKS)**

a. Explain the Functions of the Following Features in Linux OS (6 marks)

- i. Portable
- ii. Open Source
- iii. Multi-User
- iv. Hierarchical File System
- v. Shell
- vi. Security

b. What is the Banker's algorithm? And how does it solve deadlocks? (4 marks)

c. An OS decides an entire programme does not need to be fully loaded to main memory, briefly explain FIVE scenarios that could cause this (10 marks)

**QUESTION FOUR (20 MARKS)**

a. Explain the History of Operating Systems by Generations (10 marks)

b. Explain the FIVE main Functions of a KERNEL (10 marks)

**QUESTION FIVE (20 MARKS)**

a. An OS has the following 4 jobs

**Job Arrival Time Burst Time**

1	0	7
2	1	4
3	3	9
4	4	5

The schedule of the SRT is as follows:

**COSC 0120**



Using SRT:

- i. Calculate the average turnaround time (2 marks)
  - ii. Calculate the average turnaround Time of Each Job (8 marks)
  - iii. State one advantage and disadvantage of SRT over other scheduling algorithms (4 marks)
- b. List & Explain THREE ATTRIBUTES of A PROCESS and THREAD (6 marks)

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