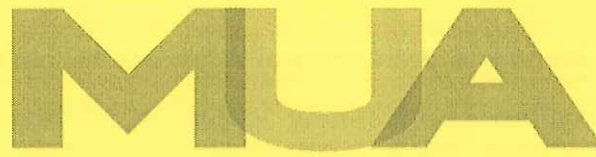


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DIPLOMA UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DIPLOMA IN BUSINESS INFORMATION MANAGEMENT/

DIPLOMA IN INFORMATION COMMUNICATION AND TECHNOLOGY

DIT 102 :    **BASICS OF OPERATING SYSTEMS**

DATE:        *9<sup>TH</sup> AUGUST 2018*

**DURATION:    2 HOURS**

**MAXIMUM MARKS: 70**

**INSTRUCTIONS:**

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 MARKS** each.
7. Write all your answers in the Examination answer booklet provided.

**QUESTION ONE**

- a) Mr. Kamau recently bought a laptop, he have been trying to install software application but his new laptop is not even showing any graphical user interface (GUI) on the monitor....

You have been called to assist Mr Kamau on installing his new software applications,

- i. What would you tell Mr. Kamau his laptop is missing? **(2Marks)**
- ii. explain your answer in (i) above **(3 Marks)**

- b) You have installed several applications on your computer; one of these applications is a game which is a memory intensive application, whenever you try to run the game and any other application, both applications stop and the computer hang or freeze until you restart the computer again.

- i. What do you call this situation that your computer get into whenever you try to run the two programs at the same time? **(2 Marks)**
- ii. Explain this situation and how you can be able to overcome it **(3 Marks)**

- c) Several processes running in a CPU need to communicate with other processes, there is a need for a well-structured communication system, without the use of interrupts. Therefore processes as well as threads tend to communicate with one another without the need to result to shared data. This is called inter-process communication.

- i) State the two elements of inter-process communication **(2 Marks)**
- ii) Explain the two elements stated above of inter-process communication **(4Marks).**

- d) The assignment of physical processors to processes allow them to accomplish work.

The only problem is determining when processor should be assigned and to which process. This process is known as processor or process scheduling or sometime CPU scheduling. Explain four goals of processor/ process scheduling **(8 Marks)**

- e) Kibaba, an ICT officer recommended that his organization should purchase an operating system with a command based interface. Explain three advantages of this interface that could have influenced the recommendation (6 marks)

### QUESTION TWO

- a) Define what you understand by the term Operating system (2 Marks)
- b) Define the term cache memory? (2 marks)
- c) Using an aid of well labeled diagram; what are the various components of a computer system? (6 marks)

### QUESTION THREE

- a) What are the differences between Batch processing system and Real Time Processing System? (4 marks)
- b) What are the major functions of operating systems? (6 marks)

### QUESTION FOUR

- a) Explain the process scheduler? (2marks)
- b) Define virtual memory? (2 marks)
- c) Discuss the various criteria or characteristics that help in designing a good scheduling algorithm (6 marks)

### QUESTION FIVE

- a) What is a deadlock? (2 marks)
- b) What are the different types of operating systems? (4 marks)

- c) What are the states of a process? **(4 marks)**

**QUESTION SIX**

- a) What is the difference between Job and Process? **(2 marks)**
- b) What is process synchronization **(2 marks)**
- c) What are the primary differences between Network Operating System and Distributed Operating System? **(6 marks)**