



PAN AFRICA CHRISTIAN UNIVERSITY
SCHOOL OF LEADERSHIP, BUSINESS AND TECHNOLOGY
END OF SEMESTER EXAMINATION FOR DIPLOMA IN
INFORMATION & COMMUNICATION TECHNOLOGY
MAY-AUGUST 2019

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY
COURSE CODE: DICT0132
CAMPUS: ROYSAMBU
COURSE TITLE: PRINCIPLES OPERATING SYSTEMS
EXAM DATE: FRIDAY, 9TH AUGUST 2019
TIME: 14.00HRS -16:00 HRS

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Three questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculator permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A: (Answer ALL questions in this section)

QUESTION 1:

- I. Identify and explain the four components of a computer system? (4 Marks)

- II. Define the following terms.
 - i. Process (1 Marks)
 - ii. Thread (1 Marks)
 - iii. Give one similarity and one difference between a process and a thread (2 Marks)

- III.** List and explain the **two** main types of memory fragmentation (4 Marks)

- IV. Differentiate between preemptive scheduling and non-preemptive scheduling? (4 Marks)

- V. Explain the main purpose of the operating system. (4 Marks)
- VI. Discuss the four conditions required for deadlock to occur. (4 Marks)
- VII.** State any **TWO** advantages of FAT32 over FAT16 filing system (2 Marks)
- VIII. Describe the four generations of computing and how operating systems developed as a result. (4 Marks)

SECTION B: (Answer any FOUR (4) questions in this section)

QUESTION 2:

- I. Define the terms deadlock and safe state. Show that a system that is always in a safe state can never become deadlocked. (6 Marks)
- II. Discuss any FOUR reasons for process creation. (4 Marks)

QUESTION 3:

- I. Discuss any FOUR objectives of the process scheduling function. (4 Marks)

- II. Context switches among processes are expensive. Before a process can be switched its process control block (PCB) must be saved by the operating system. Discuss the information contained in the PCB. (6 Marks)

QUESTION 4:

- I.** Discuss two benefits of having Virtual Machine technology in a System Administrators computer. (4 Marks)

- II.** As a process executes, it changes state. With the aid of a diagram, describe the Five-state process model (6 Marks)

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QUESTION 5:

Discuss in detail any FIVE information security threats and their associated countermeasures. (10 Marks)