



PAN AFRICA CHRISTIAN UNIVERSITY

DEGREE IN INFORMATION & COMMUNICATION TECHNOLOGY

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BIT103

CAMPUS: ROYSAMBU

COURSE TITLE: OPERATING SYSTEMS

EXAM DATE: TUESDAY 4TH DECEMBER 2018

TIME: 0900HRS-1200HRS

INSTRUCTIONS

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

SECTION A [40 MARKS]: (Answer ALL questions in this section)

Question 1:

- (a) Discuss what you understand by the term operating system [2Marks]
- (b) Outline **FIVE types** of computer operating systems [6 Marks]
- (c) Explain **Four** conditions necessary for a deadlock to occur. [8 Marks]
- (d) Explain the term '**process**' as used in operating systems [2 Marks]
- (e) Briefly describe **Five** functions of a computer operating system [5 Marks]
- (f) Highlight a detailed step by step program execution. [4 Marks]
- (g) Explain the following I/O techniques: - [8 Marks]
 - i. Buffering
 - ii. Caching
 - iii. Spooling
 - iv. Blocking
- (h) Define the following terms as used in operating systems: [5 Marks]
 - i. Thread
 - ii. Kernel
 - iii. Internal fragmentation
 - iv. Shell
 - v. Process scheduling

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

Question 2 (15 Marks)

- (a) Discuss **four** resources managed by computer operation systems [8 Marks]
- (b) With the aid of a diagram, describe a five state process model [6 Marks]
- (c) Explain the term Multi-Programing. [1 Marks]

Question 3 (15 Marks)

- (a) Outline **Three** details that a computer maintains in relation to a file [6Marks].
- (b) Describe the following scheduling policies stating one advantage in each case: -
 - i. FIFO
 - ii. Shortest Job First (SJF) [6 Marks]
- (c) Explain the following operating system FILE systems [3 Marks]
 - i. NTFS
 - ii. FAT
 - iii. SWAP

Question 4 (15 Marks)

- a) Distinguish between multiprogramming and multiprocessing [4 Marks]
- b) Enumerate **TWO** reasons for process termination. [8 Marks].
- c) State any **THREE** conditions necessary for a deadlock to occur. [3 Marks]

Question 5 (15 Marks)

- (a) Using a diagram, explain a circular wait. [10 Marks]
 - (b) Explain the meaning of each of the following file extensions.
 - i. .zip
 - ii. .hlp
 - iii. .EXE
 - iv. .txt
 - v. .pdf
- [5 Marks]

Question 6 (15 Marks)

- a) Discuss the following terminology in operating systems: [6 Marks]
 - i. Thread
 - ii. Batch Processing.
 - iii. Process scheduling
- b) Process Control Block PCB involves several activities, Discuss any FOUR such activities besides Program identification. [8 Marks].
- c) Explain the term DEADLOCK. [1 Mark]

Question 7 (15 Marks)

- a) Discuss THREE benefits of Threads. [6 Marks].
- b) Define the term 'Job' as used in operating systems [1 Marks].
- c) By use of a block diagram, illustrate and discuss the abstract view of computer components. [8 Marks]