061306T4CSC

COMPUTER SCIENCE LEVEL 6

ICT/OS/CS/CR/02/6/A

UNDERSTAND OPERATING SYSTEMS

NOV/DEC 2023

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

TIME: 3 Hours

INSTRUCTIONS TO CANDIDATE

1. *The paper consists of **two** sections: **A** and **B***
2. *Answer **ALL** questions in Section **A** and any **Three** from section **B***
3. *Marks for each question are indicated in the brackets*
4. *A separate answer booklet will be provided*
5. *Do not write on the question paper*

Candidates should answer the questions in English

This paper consists of THREE (3) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

SECTION A: (40 MARKS)

(Answer ALL the questions in this section)

1. Explain how the performance monitor tool helps in resource allocation. (2 Marks)
2. List FOUR examples of operating systems software. (4 Marks)
3. State FOUR factors to consider when selecting an operating system to install in a computer. (4 Marks)
4. Explain THREE operating system structures. (3 Marks)
5. Juma created a file and stored it in a family computer. Outline TWO measures he could put in place to ensure that his file is secure. (2 Marks)
6. Outline FOUR functions of operating systems on memory management. (4 Marks)
7. Virtual memory is an essential component of any computer system. State TWO advantages of Virtual memory (2 Marks)
8. Describe THREE factors that affect the performance of storage disks in a computer system. (6 Marks)
9. Outline TWO functions of a computer clock system. (2 Marks)
10. Highlight FOUR differences between hard disk and solid-state drive (SSD) as used in computers. (4 Marks)
11. Describe the procedure of closing a running process using a task manager. (3 Marks)
12. Differentiate between device driver and device controller as used in device input-output management. (4 Marks)

SECTION B: (60 Marks)

(Answer any THREE questions in this section)

13. Process scheduling is an essential component of an operating system that determines the order and allocation of resources to execute processes.
    (a) During an operating system lesson, a lecturer discussed several criteria for selecting process scheduling algorithms. Explain the FIVE criteria for selecting process scheduling algorithm. (10 Marks)
    (b) Describe FIVE process scheduling algorithms (10 Marks)

14. Computer files are an integral part of organizing and storing data. A file is a named collection of related information that is stored on a storage device, such as a hard disk, solid-state drive (SSD), or network storage.
    (a) Noah created a file on his computer. Describe FIVE operations that can be done on the created file. (10 Marks)
    (b) Explain FIVE file attributes. (10 Marks)

15. Process management is a fundamental component of an operating system that oversees the execution and control of processes.
    (a) Using a diagram, describe FIVE process states in process management. (10 Marks)
    (b) Explain FIVE functions of an operating system with regard to process management. (10 Marks)

16. Memory management is a vital aspect of operating systems that involves managing and organizing the computer's memory resources.
    (a) Describe FIVE memory management techniques. (10 Marks)
    (b) Explain FIVE types of operating systems. (10 Marks)

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