**THIKA TECHNICAL TRAINING INSTITUTE**

**ICT DEPARTMENT**

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

**Qualification Code : 061306T4CSC**

**Level :** **COMPUTER SCIENCE LEVEL 6.**

**Unit of Competency : UNDERSTAND OPERATING SYSTEM.**

**UNIT CODE :****ICT/OS/CS/CR/02/6/H**

**CANDIDATES WRITTEN ASSESSMENT TOOL**

**MARCH 2024 SERIES**

**DCSLV6 H**

**INSTRUCTIONS TO CANDIDATE**

1. You have **TWO HOURS** to attempt all the questions.
2. Marks for each question are indicated in brackets ().
3. This paper consists of **TWO** sections: **A and B.** Attempt all questions in section A and any **THREE** in section B.
4. Do not write on the question paper.
5. You are required to write your responses in separate booklet provided.
6. Mobile phones or any written materials are **NOT** allowed in the examination room.

**Name of the Candidate: ……………………………………………………………………**

**Registration Code of the Candidate………………………………………………….…….**

**Date: ………………………………………………………………………….…………......**

**Signature: …………………………………………….………………………………..........**

**This paper consists of 3 printed pages**

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

**SECTION A (40 marks)**

***Answer all the questions in this section.***

1. Define the term*process scheduling* as used in operating system. (2 marks)
2. Outline **four** benefits of virtual memory in computers. (4 marks)
3. Explain each of the following terms as used in operating system.
4. Compaction (2 marks)
5. Overlaying. (2 marks)
6. Differentiate between *segmentation* and *paging* as used in memory management. (4 marks)
7. Differentiate between *priority* and *round robin* scheduling algorithms. (4 marks)
8. Sifa was required to identify the advantages of the pre-emptive job scheduling techniques. Explain **two** advantages that she could have identified. (4 marks)
9. Differentiate between a *frame* and a *page* as used in memory management (4 marks)
10. Lucky was to outline activities performed by operating system in memory management. Identify four such activities (4 marks)
11. Tom would like to design a memory system that uses best fit placement algorithm. Explain **two** limitations of this algorithm that would affect the performance of the memory. (4 marks)
12. Identify three types of schedulers as used in process management (3 marks)
13. State three processing scheduling queues (3 marks)

**SECTION B (60 marks)**

***Answer any three questions in this section.***

1. a. Define the term *virtual memory* as used in operating system (2 marks)
2. Mary, an ICT student, during understand process management class was to present to the class different scheduling algorithms. Describe **five** scheduling algorithms that she could have presented (10 marks)
3. Explain **four** types of operating systems (8 marks)
4. a. Carol, during an interview was to explaindynamic partitioning algorithms. Explain four such partitions that she could have explained (8 marks)

b. Describe three advantages of paging memory as used in memory management. (6 marks)

c. Explain **three** differences between *contiguous* and *non-contiguous* memory allocation techniques.

1. a. Leah, a trainer in Bora Technical Institute was to teach on different types of file operations that could be applied to a file. Discuss **five** file operations that he could have taught (10 marks)
2. Explain **three** memory allocation techniques (6 marks)
3. Using a well labelled diagram, explain the *swapping technique* as used in memory management. (4 marks)
4. a. With the aid of sketches, explain **two**types of memory fragmentation. (6 marks)

b. Operating systems services are built using various structures. Explain **four** structures of operating system (8 marks)

c. The students of Sifa Institute were to discuss functions of the operating system during their understand operating system class. Discuss **three**functions that they could have discussed (6 marks)