061004T4ICT

ICT TECHNICIAN LEVEL 4

IT/OS/ICTA/CR/01/4/A

USE OF ICT DEVICES

NOV/DEC 2023

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

PRACTICAL ASSESSMENT

Time: 2 Hours

INSTRUCTIONS TO CANDIDATE

i. You are required to perform the following task on Word processing
ii. The **TASK** carries **50 Marks.**

TASK: Word Processing

(a) Using a suitable MS Word processing package, type the passage below as it appears and save it as *Word Processing.*

Processing Management

Process management entails creating and deleting processes and also providing mechanisms for processes to communicate and synchronize with each other in a computer system. A process therefore can be referred to as a job or the fundamental unit of work in an operating system. A job is simply a sequence of single programs. Interestingly the term 'program' and 'job' are used interchangeably. According to (Stallings, 2014), a thread is referred to as a unit of dispatch or a lightweight process. On the other hand, a process or a task is referred to as the unit of resource ownership

Process Control Block

For an OS to implement and control processes it requires some attributes associated with the process. These attributes are stored in a data structure called Process Control Block (PCB) also referred to as process descriptor. The collection of user program, stack, data section and the attributes form a process image.

Whenever a process is created in the computer system the PCB is created too since it holds all information about the process needed for its control.

The PCB contains: -

- ***Process state***.
- ***Stack***
- ***CPU registers***
- ***CPU scheduling information***
- ***Program counter***
- ***Memory management information***.

Process State

A process is created for a program that needs to be executed. The CPU executes instructions in sequence dictated by the changing values in the program counter register. The life of a process is bounded by its creation and termination. As a process executes, it changes state as defined by the current activity of that process.

A process may exist in one or more of the following states:

1.1 New: This is the state where a process is created. It is the transient state when the activity has just begun.
1.2 Running: This state entails execution of instructions. Activities execute until they are interrupted by another activity or user command. It is also referred to as Resumed state.
1.3 Waiting: It is a stop for an activity that is interrupted and ready to go into background mode. The process is waiting for some event to occur for example I/O completion, or user starts another application.
1.4 Ready: The process is waiting to be assigned a processor.
1.5 Terminated: The process has completed the execution. Ideally the activities in this state disappeared from the user's view.

Message Passing

Is a technique that provides a means for co-operating processes to communicate when they are not using shared memory environment. System calls are used by processes generally to send and receive messages such as: send (receiver process; message) or Receive (sender process; message).

Inter-process communication (IPC) facility provides a mechanism to allow processes to communicate and to synchronize their actions to prevent Race conditions (a condition where several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place).

To guard against this; certain mechanisms are necessary to ensure that only one process at a time can be manipulating the data.

(b) Required:

i. Spell check the document.

ii. Indent the paragraph starting with "It is a technique that..."

iii. Insert page numbering at the bottom center of each page and save the document as *Word Processing 1.*

iv. Copy all the paragraphs under 'Process Control Block' to a new document and change the page orientation to landscape.

v. Search and replace all instances of the word '*process*' with the word '*job*'.

vi. Insert a header "Process Management" and a footer with your name and registration number and save it as *Word Processing 2.*

vii. Open Word Processing 1 and copy the paragraph under Message Passing starting with "Is a technique..." to be the first paragraph. Save it as Word Processing 3.

(c) Print *Word Processing, Word Processing 1, Word Processing 2, and Word Processing 3.*