061005T41CT

ICT TECHNICIAN LEVEL 5

IT/OS/ICT/CR/6/5

MANAGE OPERATING SYSTEM

Nov. /Dec. 2022

THE KENYA NATIONAL EXAMINATIONS COUNCIL

WRITTEN ASSESSMENT

Time: 3 hours

INSTRUCTIONS TO CANDIDATE

Maximum marks for each question are indicated in brackets ( ).

*This paper consists of **THREE** sections: A, B and C.*

Answer questions as per instructions in each section.

You are provided with a separate answer booklet.

Answer all questions in English.

This paper consists of EIGHT (8) 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: (20 MARKS)

1. Which of the following operating system reads and reacts in actual time? (1 mark)

    A. Quick Response System

    B. Real Time System

    C. Time Sharing System

    D. Batch Processing System

2. What is the purpose of an operating system? (1 mark)

    A. To make the most efficient use of computer hardware

    B. To allow people to use the computer

    C. To keep system programmer employed

    D. To make computer easier to use

3. _____ section is dynamically allocated memory to a process during run time. (1 mark)

    A. Stack

    B. Text

    C. Data

    D. Heap

4. The Banker's algorithm is used to? (1 mark)

    A. to rectify deadlock

    B. to detect deadlock

    C. to prevent deadlock

    D. to solve a deadlock

5. Which command is used to display the contents of the text file of DOS? (1 mark)

    A. Copy con

    B. Copy

    C. Type

    D. Dir

6. The most recent version of MAC OS is based on the _____operating system   (1 mark)

    A. Windows

    B. Linux

    C. Unix

    D. CMOS

7. Which one of the following is not a multitasking operating system?   (1 mark)

    A. DOS

    B. Windows

    C. Unix

    D. Linux

8. The___ is the drive containing the files to be copied   (1 mark)

    A. Source drive

    B. Destination drive

    C. USB drive

    D. USB memory maker drive

9. Which type of command requires additional files to perform specific operations?   (1 mark)

    A. Internal commands

    B. External commands

    C. Valuable commands

    D. Primary commands

10. Which mode loads minimal set of drivers when starting Windows?   (1 mark)

    A. Safe Mode

    B. Normal Mode

    C. VGA Mode

    D. Network Support Mode

11. Which category of software is most appropriate for controlling the design and layout of complex document like newsletters and brochure? (1 mark)

    A. Word processing

    B. Computer aided design

    C. Web page authoring

    D. Desktop publishing

12. When is Sleep option chosen? (1 mark)

    A. When he computer is tired after working for the whole day

    B. When you are leaving for a very short time and want to resume you work shortly

    C. When computer hangs frequently. Let it sleep for some time

    D. When you finish working and going to bed

13. Which of the following is not an operating system? (1 mark)

    A. DOS

    B. Linux

    C. Windows

    D. Oracle

14. Which program runs first after computer is booted and loading GUI? (1 mark)

    A. Desktop Manager

    B. File Manager

    C. Windows Explorer

    D. Authentication

15. A file is named, for the convenience of its human users, and is referred to by its? (1 mark)

    A. Name

    B. Type

    C. Identifier

    D. Size

16. Linux is a _____ operating system (1 mark)

    A. Open source

    B. Microsoft

    C. Windows

    D. Mac

17. Memory hierarchy comprises of Disk, RAM Memory, and Caches, select the increasing order of their access time by CPU for an instruction or data. (1 mark)

    A. Disk, RAM, Caches

    B. RAM, Disk, Caches

    C. Caches, RAM, Disk

    D. RAM, Caches, Disk

18. Which of the following is not application software? (1 mark)

    A. Windows NT

    B. Page Maker

    C. WinWord XP

    D. Photoshop

19. What is used to reset system time and date if it is wrong? (1 mark)

    A. Write

    B. Calendar

    C. Write file

    D. Control panel

20. What is Microsoft Windows? (1 mark)

    A. Operating system

    B. Graphic program

    C. Word Processing

    D. Database program

SECTION B: (40 MARKS)
Attempt all questions in this section.

21. Batch operating system does not interact with the computer directly.Outline four advantages

   of this type of operating systems.   (4 marks)

22. Briefly outline **four** goals of I/O system software.   (4 marks)

23. Define & explain Assembler, Loader and Compiler.   (6 marks)

24. Explain **four** operating system services.   (8 marks)

25. With the aid of a diagram describe the Spooling process.   (4 marks)

26. Differentiate between Multitasking and Multiprogramming.   (4 marks)

27. Differentiate a process from a program.   (4 marks)

28. Briefly outline **three** memory placement techniques   (3 marks)

29. State any **three** CPU Scheduling criteria   (3 marks)

SECTION C: (40 MARKS)

Attempt any TWO questions in this section.

30.

    i) Describe the components of the Process Control Block.   (8 marks)

    ii) Differentiate the three types of schedulers.   (6 marks)

    iii) Explain what is context switching.   (2 marks)

    iv) Consider the following set of four processes. Their arrival time and time required to complete the execution are given in the following table . Calculate the average waiting time and average turnaround time.   (4 marks)

Process	Arrival Time (T0)	Time required for completion (ΔT)(CPU Burst Time)
P0	0	10
P1	1	6
P2	3	2
P3	5	4

31.

    i) Differentiate between the process and the thread.   (4 marks)

    ii) Access is permitted or denied depending upon several factors in file management, one of which is the type of access requested. Outline any **four** operations on files that can be controlled.   (4 Marks)

    iii) Differentiate user level thread and kernel level thread.   (6 marks)

    iv) Explain the three Multithreaded Model.   (6 marks)

31.

    i) Explain Scheduling Queues.   (4 marks)

    ii) Explain in brief race condition.   (4 marks)

    iii) Define the term critical section.   (4 marks)

    iv) What are the **four** requirements for critical section problem?   (8 marks)

32.

    a) Name and explain any six File Attributes. (6 marks)

    b) With a use of a well labelled diagram ,describe contiguous file allocation technique

        (6 marks)

    c) Explain concept of I/O Hardware. (4 marks)

    d) Define and Explain Direct Memory Access. (4 marks)