**INTERNAL ASSIGNMENT**

Course Code:23OMC104 Last Date of Submission:05-12-2023

Course Title: Advanced Operating System Maximum Marks: 30

Assignment No.:1

Note: 1. The assignment will have two parts, A and B. Part A is of 10 MCQ type Questions of 1 mark each. 2. Part B is of 20 Marks having 8 Descriptive Questions. Attempt any 5 out of it.

Part A

| Q.No | Question |
|---|---|
| 1 | Which component of an RTOS task typically contains information about the task's state, priority, and execution context? |
| | a) Task Routine<br>b) Task Stack<br>c)Task Control Block (TCB)<br>d)Scheduler |
| 2 | Which scheduling algorithm assigns priorities based on a task's deadline. |
| | a) Rate-Monotonic Scheduling<br>b) Round-Robin Scheduling.<br>c) Earliest-Deadline-First Scheduling.<br>d) First-Come-First-Serve Scheduling |
| 3 | What is the advantage of direct access in file operations? |
| | a) Suitable for files with fixed sizes<br>b) Fast access to specific records in a large file<br>c) Easy to implement and maintain<br>d) Suitable for text files and log files |
| 4 | What is the purpose of the directory structure in a file system? |
| | a) It allows users to create new files.<br>b) It manages and organizes files on secondary storage devices.<br>c) It is used to access files using a sequential method.<br>d) It assigns unique identifiers to files. |
| 5 | What is the advantage of partitioning a storage device in an operating system? |
| | a) It allows all files to be stored in a single partition for better performance.<br>b) It simplifies file organization and management.<br>c) It optimizes storage space for different types of files and prevents data loss in case of a failure.<br>d) It helps in reducing the number of users accessing the device. |
| 6 | What is a characteristic of an Acyclic Graph Directory structure? |
| | a) It allows for cycles and loops in the directory structure.<br>b) It does not support symbolic links or hard links.<br>c) It represents files and directories as nodes and allows multiple parent links.<br>d) It requires multiple copies of the same file in different locations. |
| 7 | What is the term used for an accident where the disk head comes into contact with the disk surface, causing damage to the magnetic surface? |
| | a) Disk bandwidth<br>b) Head crash<br>c) Seek time<br>d) Rotational latency |

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| 8 | What is the primary goal of disk scheduling algorithms in an operating system? |
| | A) Maximizing access time<br>B) Minimizing disk bandwidth<br>C) Reducing the number of sectors transferred<br>D) Reducing access time and increasing disk bandwidth |
| 9 | Which disk scheduling algorithm minimizes the average seek time by servicing the request closest to the current position of the disk arm? |
| | A) First-Come, First-Served (FCFS)<br>B) Shortest Seek Time First (SSTF)<br>C) SCAN<br>D) C-LOOK |
| 10 | In the LOOK algorithm, when does the disk head reverse its direction? |
| | a) After servicing the last request on the disk<br>b) After reaching the extreme end of the disk<br>c) After completing a full scan of the disk<br>d) After servicing the last request in each direction |

Part B

| Q.No | Question |
|---|---|
| 1 | Explain with a diagram the working of the operating system as a resource manager |
| 2 | List and explain the file attributes. |
| 3 | Explain the first come first serve disk scheduling algorithm with an example. |
| 4 | Explain the purpose of access matrix in a protection model |
| 5 | Explain safety-critical systems in the context of real-time computing with examples. |
| 6 | Explain the characteristics of Real time operating systems(RTOS). |
| 7 | Explain task management in RTOS. |
| 8 | Explain the rate monotonic scheduling with an example. |