

**Dr. Babasaheb Ambedkar Open University, Ahmedabad**  
**Term-End Examination : January-2026**

Course Name : MCA  
Subject Name : Operating Systems  
Subject Code : MCA/MCAOL-104

Date : 19-02-2026  
Time : 11:30AM TO 01:45PM  
Max Marks : 70

**Section A**

**Q.-1. Respond to any three of the following questions in brief. ( 30 )**

- (1) Explain fixed partitions with an example and a basic algorithm.
- (2) Describe segmentation and compare paging and segmentation in detail.
- (3) Explain Page replacement algorithms in detail.
- (4) Describe different file access methods.
- (5) Describe important file and directory management commands in Linux.

**Section B**

**Q.-2. Write short notes on any four of the following topics. ( 20 )**

- (1) Describe four conditions that lock resources simultaneously and creates deadlock in the system.
- (2) Write a short note on deadlock detection.
- (3) Explain the advantages and disadvantages of segmentation
- (4) Explain mv and rm commands in Linux.
- (5) Explain echo command with all its options in Linux.
- (6) Explain the use of cut and paste commands in Linux.

**Section C**

**Q.-3. Multiple Choice Questions. ( 10 )**

**(1) Which strategy avoids deadlock by careful resource allocation?**

- |               |              |
|---------------|--------------|
| A) Prevention | B) Detection |
| C) Avoidance  | D) Recovery  |

**(2) Segment table stores \_\_\_\_\_**

- |                   |                 |
|-------------------|-----------------|
| A) Page number    | B) Frame number |
| C) Base and limit | D) Page size    |

**(3) Locality of reference means \_\_\_\_\_**

- |                           |                                 |
|---------------------------|---------------------------------|
| A) Random access          | B) Repeated access to few pages |
| C) Only sequential access | D) Disk access                  |

**(4) Which structure supports hierarchical file organization?**

- |              |                 |
|--------------|-----------------|
| A) Flat file | B) Single level |
| C) Two level | D) Tree         |

**(5) Which component acts as an interface between user and kernel?**

- |           |             |
|-----------|-------------|
| A) Kernel | B) Shell    |
| C) BIOS   | D) Compiler |

**(6) Which is a popular Linux distribution?**

- |            |           |
|------------|-----------|
| A) DOS     | B) Ubuntu |
| C) Windows | D) Mac OS |

**(7) The 'uniq' command removes \_\_\_\_\_ lines**

- |              |           |
|--------------|-----------|
| A) Duplicate | B) Blank  |
| C) Sorted    | D) Random |

**(8) Which command is used to compare two files?**

- |        |         |
|--------|---------|
| A) cat | B) diff |
| C) cmp | D) sort |

**(9) Semaphores are used for \_\_\_\_**

- A) Memory allocation
- B) Process synchronization
- C) File access
- D) File deletion

**(10) The 'if' statement in shell is used for \_\_\_\_**

- A) Looping
- B) Decision making
- C) File handling
- D) Process creation

### **Section D**

**Q.-4. Indicate whether the following statements are True or False.**

**( 10 )**

- (1) The fork() system call creates a new process in UNIX.
- (2) Fixed partitioning divides memory into variable-size partitions.
- (3) Linux supports only single-user operation.
- (4) The command line interface allows text-based interaction with Linux.
- (5) An absolute path always starts from the root directory.
- (6) The tee command displays output only on the screen.
- (7) Pipes are used to send output of one command as input to another.
- (8) Message queues allow asynchronous communication between processes.
- (9) Mutex ensures mutual exclusion among concurrent processes.
- (10) The for loop is used to repeat a set of commands.

\*\*\*\*\*