# MCA–11/MSc.IT–11

## Operating System

Master of Computer Application/Master of Science in Information Technology

(MCA–16/MCA–11/M.Sc.IT–16/M.Sc.IT–12)

Third Semester, Examination, 2017

**Time : 3 Hours**  **Max. Marks : 60**

**Note :** This paper is of **sixty (60)** marks containing **three (03)** sections A, B and C. Learners are required to attempt the questions contained in these sections according to the detailed instructions given therein.

### Section–A

### (Long Answer Type Questions)

**Note :** Section 'A' contains four (04) long answer type questions of fifteen (15) marks each. Learners are required to answer *two* (02) questions only.

1. What is a distributed operating system ? What are the advantages of the distributed operating system ?

2. What is virtual memory ? Describe its advantage with respect to user point of view and with respect to system point of view.

3. What are the facilities provided by the file system and the Input/output control system ?

4. Answer the following :

   (a) What is deadlock ? Explain the necessary condition for its occurrance.

   (b) Explain with example how resource allocation graph is used to describe the deadlock.

**P. T. O.**

## Section–B

### (Short Answer Type Questions)

**Note :** Section 'B' contains eight (08) short answer type questions of five (05) marks each. Learners are required to answer *four* (04) questions only.

1. Differentiate the various file access methods.
2. What are semaphores ? Explain any *three* use cases of semaphores.
3. What is the role of critical section in process synchronization ?
4. Explain different states of a process with the help of state transition diagram.
5. What is thread ? Explain.
6. What is spooling and what is the use of it in Batch operating system ?
7. Compare the contiguous and non-contiguous memory allocation.
8. Explain the FIFO page replacement algorithms with a suitable example.

## Section–C

### (Objective Type Questions)

**Note :** Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this section are compulsory.

1. .................. is a logical extension of multiprogramming.
   (a) Multitasking
   (b) Multiprogramming
   (c) Multi-threading
   (d) All of these

2.  Operating system can be said as a collection of :
    (a)  Hardware component
    (b)  Software routines
    (c)  I/O device
    (d)  None of these

3.  SJF and priority scheduling are :
    (a)  preemptive
    (b)  non-preemptive
    (c)  Both (a) and (b)
    (d)  None of these

4.  Producer-consumer problem can be solved using :
    (a)  Semaphores
    (b)  Event counters
    (c)  Monitors
    (d)  All of the above

5.  Mutual exclusion problem occurs between :
    (a)  Two disjoint processes that do not interact
    (b)  Process that share resources
    (c)  Process that do not share resources
    (d)  None of these

6.  What is the resuable resource ?
    (a)  that can be used by one process at a time and its not depleted by that use.
    (b)  that can be used by more than one process at a time.
    (c)  that can be shared between various threads.
    (d)  none of the mentioned.

7.  A solution of external fragmentation problem :

    (a)  Compaction

    (b)  Paging

    (c)  Both (a) and (b)

    (d)  None of these

8.  All the time a computer is switched on, its operating system has to stay in :

    (a)  Main storage

    (b)  Primary storage

    (c)  Floppy disk

    (d)  Disk derive

9.  Moving processes from main memory to disk is called :

    (a)  Caching

    (b)  Thrashing

    (c)  Swapping

    (d)  Buffering

10. The resources that cause deadlock is :

    (a)  Read only files

    (b)  Shared programs

    (c)  Printers

    (d)  All of these