

Roll No.

MCA–11/MSc.IT–11/MIT(CS)–104

Operating System/Introduction to Operating System

Master of Computer Application/
Master of Science in Information Technology/
Master of Science (Cyber Security)
(MCA/MSc.IT-11/12/16/17/MSCCS-18)

Third Semester, Examination, 2018

Time : 3 Hours

Max. Marks : 80

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. 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 nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Answer the following :

- (a) Define Operating System. 4
- (b) List the various services provided by an operating system. Explain them in detail. 6
- (c) What is a real time system and what are the different types of real time system ? 5
- (d) What is a distributed operating system ? 4

(B-59) P. T. O.

2. Give brief discussion about OS (operating system) generation. Explain the concept of Virtual machine with neat sketch. 19
3. Explain file management system. Write briefly about file attributes, operations, types and structure. 19
4. Answer the following :
 - (a) Consensus algorithm 5
 - (b) Explain the difference between architectural and fundamental models. 5
 - (c) List the main forms of transparency. Explain the difference between access transparency and location transparency. Give examples of both. 9

Section-B

(Short Answer Type Questions)

Note : Section 'B' contains seven (07) short answer type questions of eight (8) marks each. Learners are required to answer *four* (04) questions only.

1. Write briefly about the various CPU scheduling algorithms.
2. Define Thrashing. Give an example. How do you limit the effects of thrashing ?
3. Explain about the 32 bit architecture and 64 bit architecture in detail.
4. Discuss multiprocessor synchronization.
5. What is the purpose of Process Control Block ?
6. Describe term monitor. Explain solution to dining philosopher's problem using monitor.
7. How are static and dynamic linking handled to memory management ?

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. Messages sent by a process :
 - (a) have to be of a fixed size
 - (b) have to be a variable size
 - (c) can be fixed or variable sized
 - (d) None of the mentioned
2. Inter process communication :
 - (a) allows processes to communicate and synchronize their actions when using the same address space.
 - (b) allows processes to communicate and synchronize their actions without using the same address space.
 - (c) allows the process to only synchronize their actions without communication.
 - (d) None of the mentioned
3. The child process can :
 - (a) be a duplicate of the parent process
 - (b) never be a duplicate of the parent process
 - (c) cannot have another program loaded into it
 - (d) never have another program loaded into it

4. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called :
 - (a) job queue
 - (b) ready queue
 - (c) execution queue
 - (d) process queue
5. Time quantum is defined in :
 - (a) shortest job scheduling algorithm
 - (b) round robin scheduling algorithm
 - (c) priority scheduling algorithm
 - (d) multilevel queue scheduling algorithm
6. The strategy of making processes that are logically runnable to be temporarily suspended is called :
 - (a) Non-pre-emptive scheduling
 - (b) Pre-emptive scheduling algorithm
 - (c) Shortest job first
 - (d) First come first served
7. Scheduling is :
 - (a) allowing a job to use the processor
 - (b) making proper use of processor
 - (c) All of the mentioned
 - (d) None of the mentioned
8. The base register is also known as the :
 - (a) basic register

- (b) regular register
 - (c) relocation register
 - (d) delocation register
9. The size of a process is limited to the size of :
- (a) physical memory
 - (b) external storage
 - (c) secondary storage
 - (d) None of the mentioned
10. To avoid the race condition, the number of processes that may be simultaneously inside their critical section is :
- (a) 8
 - (b) 1
 - (c) 16
 - (d) 0