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Total No. of Pages : 02

Total No. of Questions : 09

M.Sc.(Computer Science) (2015 & Onwards) (Sem.-1)

OPERATING SYSTEM

Subject Code : MSC-104

M.Code : 70890

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTIONS-A, B, C & D** contains **TWO** questions each carrying **TEN** marks each and students have to attempt any **ONE** question from each **SECTION**.
2. **SECTION-E** is **COMPULSORY** consisting of **TEN** questions carrying **TWENTY** marks in all.

SECTION-A

- 1) Define the concept of multiprogramming and time sharing system. Write at least three advantages of time sharing systems.
- 2) What causes a process/thread to change the state?
 - a) From running to ready
 - b) From ready to running
 - c) From running to blocked
 - d) From blocked to ready

SECTION-B

- 3) What is round robin scheduling? Explain by taking an example. Can it be useful for single user system? If yes, then explain. If no, then why not?
- 4) Explain Inter process communication and synchronization.

SECTION-C

- 5) Suppose that the head of moving head-disk with 200 tracks, numbered 0 to 199, has just finished a request at track 125. The queue of the requests is kept in FIFO order : 86, 147, 91, 177, 94, 150, 102, 175, 130.

What is the total number of head movements needed to satisfy requests for the following disk scheduling algorithms :

- a) FCFS
 - b) SSTF
 - c) Scan
- 6) What is page fault? When it occurs? How many times can a page fault occur in the case of tree address instruction? Define page fault rate also.

SECTION-D

- 7) Write short notes on :
- a) Firewalls
 - b) Denial of services
- 8) Explain how authentication is a major problem in Operating System.

SECTION-E

- 9) **Write briefly :**
- a) What is distributed operating system? Take an example to explain briefly.
 - b) Justify the statement: *“Two processes are in mutual exclusion but no progress.”*
 - c) How is dirty bit used to detect invalid page?
 - d) What are necessary conditions for deadlock detection?
 - e) What would be the effect of the system running too many I/O jobs?
 - f) Define Thrashing.
 - g) Explain RAID.
 - h) Draw block diagram of process control box.
 - i) Explain access control and authentication.
 - j) Pre-emptive vs Non preemptive scheduling.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.