

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (IT) (Sem.-2)
OPERATING SYSTEMS
Subject Code : UGCA-1923
M.Code : 77655
Date of Examination : 15-12-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

SECTION-A

1. Write briefly :

- Differentiate between micro kernel and monolithic kernel.
- What is importance of Process Synchronization?
- A file system with 300 GByte uses a file descriptor with 8 direct block address, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 Bytes and the size of each disk block address is 8 Bytes. What will be the maximum possible file size in this file system?
- Where do Paging help in management of memory?
- How will you determine the minimum number of page frames that must be allocated to a running process in a virtual memory environment?
- What are the applications of Real Time Operating Systems?
- How Multilevel Queue can be used for resource allocation?
- What are the different functions of operating system?
- Do file protection policy need changes with version of same operating system? Illustrate.
- Write down benefits of Multiprocessor Operating System.

SECTION-B

2. What is benefit of dividing a disk into tracks and sectors? Consider a disk pack with 16 surfaces, 128 tracks per surface and 256 sectors per track. 512 bytes of data are stored in a bit serial manner in a sector. What will be the capacity of the disk pack and the number of bits required to specify a particular sector in the disk?
3. How distributed operating systems are architecturally different from other operating systems? Discuss their architecture.
4. What is the need of various controllers for I/O Devices? What are the software that enable their integration with OS and how?
5. '*Page Replacement helps OS for better memory management*'. Justify. What are the various page replacement algorithms?
6. Compare working of Round Robin and Shortest Job First algorithms and highlight their performance issues. How Preemptive scheduling differs from Non-preemptive scheduling?
7. **Write briefly about :**
 - a. Threading in OS
 - b. FCSC
 - c. Remote File Systems
 - d. Scheduling in Distributed OS.

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.