[G4/A-25]

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SARDAR PATEL UNIVERSITY
MASTER OF COMPUTER APPLICATIONS
SEMESTER – III
COURSE PS03CMCA01 (Operating System Principles)
Tuesday November 20th 2018

Time: 2:00 pm to 5:00 pm **Max. Marks: 70**

Q-1 Choose the most appropriate option for each question: [8]

1. Which of the following is not a goal of the operating system?
   - A) Increase ease of use
   - B) Increase average waiting time
   - C) Increase resource utilization
   - D) Increase performance
2. Which is the slowest form of storage from among those given below?
   - A) Registers
   - B) Magnetic disk
   - C) Magnetic tape
   - D) Optical disk
3. Which among these is not a type of protection provided by operating systems?
   - A) I/O protection
   - B) CPU protection
   - C) Memory protection
   - D) None of these
4. Which of the following is not stored in a PCB (Process Control Block)?
   - A) Number of processes
   - B) Program counter
   - C) CPU registers
   - D) Memory management information
5. The short-term scheduler or CPU scheduler selects processes from among those that are -
   - A) Loaded in memory
   - B) Ready to execute
   - C) In waiting state
   - D) Newly created
6. Which of the following is not a time at which address binding may occur?
   - A) Compile time
   - B) Load time
   - C) Execution time
   - D) None of these
7. Which of the following is not a part of the segmentation hardware?
   - A) Segment table
   - B) Segment limit
   - C) Segment type
   - D) Segment base
8. Which of the following is not associated with mass storage?
   - A) Semaphore
   - B) NAS (Network Attached Storage)
   - C) SAN (Storage Area Network)
   - D) RAID

Q-2 Answer the following questions (Any Seven): [14]

1. Which are the two views of an operating system?
2. Define a process. Differentiate between a program and a process.
3. Define command interpreter and system calls.
4. What is a context switch? In which situation does it take place?
5. Draw a labeled figure showing the many-to-many model of multithreading.
6. Which are the two types of fragmentation that may occur in the process of memory management?
7. Define the first-fit and best-fit strategies.
8. What is virtual memory? What is its main advantage?
9. List common attributes of files.

Q-3

A. Write a short note on different views and definitions of operating systems. [6]

B. Write a short note on protection and security in operating systems. [6]

OR

B. Write a short note on multithreading. [6]

Q-4

A. Explain with the help of a figure the different process states and how a process moves among them. [6]

B. What are the criteria for CPU scheduling? Explain SJF algorithm for CPU scheduling. [6]

OR

B. Write a short note on deadlocks. [6]

Q-5

A. Write a short note on segmentation. [6]

B. Explain file systems, mounting and unmounting and directory structures. [6]

OR

B. Explain page replacement with suitable examples. [6]

Q-6

A. Write a short note on paging. [6]

B. Explain any two disk scheduling algorithms. [6]

OR

B. Describe any two classic problems of synchromization. [6]

— X —

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