

(6 pages)

Reg. No. : .....

Code No.: 10105 E      Sub. Code: SMCS 61/  
SMSE 61/  
AMCS 61

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Computer Science/Software Engineering – Core

OPERATING SYSTEM

(For those who joined in July 2017 – 2020)

Time : Three hours      Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Software may trigger an interrupt by executing a special operation called a \_\_\_\_\_  
(a) system processes  
(b) system call  
(c) system daemons  
(d) interrupt

6. A semaphore is shared integer variable  
(a) that cannot drop below zero  
(b) that cannot more than zero  
(c) that cannot drop below one  
(d) that cannot more than one
7. The offset 'd' of the logical address must be  
(a) Greater than segment limit  
(b) Between 0 and segment limit  
(c) Between 0 and the segment number  
(d) Greater than the segment number
8. In internal fragmentation, memory is internal to a partition and  
(a) is being used  
(b) is not being used  
(c) is always used  
(d) none of the mentioned
9. When two users keep a subdirectory in their own directories, the structure being referred to is  
(a) tree structure  
(b) cyclic graph directory structure  
(c) two level directory structure  
(d) acyclic graph directory

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2. \_\_\_\_\_ storage loses its contents when the power to the device is removed.  
(a) volatile      (b) non-volatile  
(c) Solid-state disks      (d) Both (a) and (b)
3. What is inter process communication?  
(a) Communication within process  
(b) Communication between two process  
(c) Communication between two threads of same process  
(d) Process to thread communication
4. When the process terminates  
(a) It is removed from all queues  
(b) It is removed from all, but the job queue  
(c) Its process control block is de-allocated  
(d) Its process control block is never de-allocated
5. Mutual exclusion can be provided by the  
(a) Mutex Locks  
(b) Binary Semaphores  
(c) Single Locks  
(d) Both (a) and (b)

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10. A \_\_\_\_\_ is effectively a pointer to another file or subdirectory.  
(a) Link      (b) Command  
(c) Node      (d) Reference

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Determine the Operating System Generation.  
Or  
(b) Describe about System Programs.
12. (a) Write short notes on creation of Process.  
Or  
(b) Discuss First-come, First-Served Scheduling in CPU.
13. (a) Determine about Peterson's Solution.  
Or  
(b) Explain the following  
(i) Dead Lock and Starvation  
(ii) Priority Inversion

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14. (a) Clarify the basic concepts of Demand Paging.

Or

(b) Difference between Logical Versus Physical Address Space.

15. (a) Summarize the File attributes.

Or

(b) How to select a disk scheduling algorithm?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Illustrate the Operating System Design and Implementation.

Or

(b) Define Operating System. What does Operating System do?

17. (a) Explain the operation on processes.

Or

(b) Elaborate the concept of Multiple-Processor Scheduling.

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18. (a) Define Semaphores. Explain its usage and implementation with an example.

Or

(b) Discuss in detail about Deadlock Avoidance.

19. (a) Illustrate the characteristics of Memory Management.

Or

(b) Explain the following

(i) LRU-Approximation Page Replacement

(ii) Optimal Page Replacement

20. (a) Describe about File System Implementation.

Or

(b) Write a detailed notes on SCAN Scheduling and C-SCAN Scheduling.

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