

Code No. : 20105 E Sub. Code : SMCS 61/
SMSE 61/AMCS 61

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 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. Using transient code, _____ the size of the operating system during program execution.
 - (a) maintains
 - (b) changes
 - (c) increases
 - (d) decreases

6. A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.
 - (a) operating system
 - (b) resources
 - (c) system storage state
 - (d) resource allocation state

7. The operating system maintains a _____ table that keeps track of how many frames have been allocated, how many are there, and how many are available.
 - (a) memory
 - (b) mapping
 - (c) page
 - (d) frame

8. Swapping _____ be done when a process has pending I/O, or has to execute I/O operations only into operating system buffers.
 - (a) must never
 - (b) maybe
 - (c) can
 - (d) must

9. The main memory accommodates
 - (a) CPU
 - (b) User processes
 - (c) Operating system
 - (d) All of the mentioned

2. BIOS is used
 - (a) By Operating System
 - (b) By compiler
 - (c) By interpreter
 - (d) By application software
3. In operating system, each process has its own
 - (a) open files
 - (b) pending alarms, signals, and signal handlers
 - (c) address space and global variables
 - (d) all of the mentioned
4. In a timeshare operating system, when the time slot assigned to a process is completed, the process switches from the current state to?
 - (a) Suspended state
 - (b) Terminated state
 - (c) Ready state
 - (d) Blocked state
5. What are the two atomic operations permissible on semaphores?
 - (a) wait
 - (b) stop
 - (c) hold
 - (d) none of the mentioned

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10. The information about all files is kept in
 - (a) operating system
 - (b) separate directory structure
 - (c) swap space
 - (d) none of the mentioned

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What are the services of operating system? Explain.
Or
(b) Describe the concept of computer system architecture.
12. (a) Elaborate the basic concept of scheduling criteria
Or
(b) Summarize the real time CPU scheduling.
13. (a) What is semaphore? What is the use of it?
Or
(b) Point out the methods for handling deadlocks.

14. (a) Explain the allocation of frames in virtual memory management.

Or

(b) Discuss the contiguous memory allocation.

15. (a) Bring out the need of file system structures.

Or

(b) Write about the methods for file allocation.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Examine the generation of operating system.

Or

(b) Determine the design and implementation of operating system.

17. (a) Outline the concept of inter process communication.

Or

(b) Illustrate the implementation of thread scheduling.

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18. (a) Identify the classic problems of synchronization.

Or

(b) Elaborate the deadlock avoidance with simple example.

19. (a) Discuss the implementation of page replacement algorithms.

Or

(b) Explain the demand paging using in virtual memory management.

20. (a) Demonstrate the disk structure for mass storage.

Or

(b) Formulate the implementation of free space management.

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