

Code No. : 20242 E Sub. Code : SMCA 61

B.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Sixth Semester

Computer Application — Core

OPERATING SYSTEMS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. _____ increases CPU utilization by organizing jobs so that the CPU always has one to execute.
(a) Multiprocessing (b) Multiprogramming
(c) Batching (d) Time sharing
7. _____ is a memory management scheme that permits the physical address space of a process to be non-contiguous.
(a) Segmentation (b) Fragmentation
(c) Sequencing (d) Paging
8. Which register is used to indicate the size of the table?
(a) PTLR (b) PTBR
(c) PMLTR (d) PMBTR
9. A file is a named collection of related information that is recorded on _____.
(a) secondary storage (b) buffer
(c) internal storage (d) all the above
10. _____ refers to the high page-fault rate or high paging activity.
(a) Prepaging (b) Fragmentation
(c) Thrashing (d) Locality model

2. _____ define the ways to solve user's computing problems.
(a) Operating system
(b) Application programs
(c) Hardware
(d) I/O devices
3. The _____ scheduler must select a new process for CPU frequently
(a) Short-term (b) Long-term
(c) CPU scheduler (d) Stack
4. Switching the CPU from one process to another is known as _____.
(a) Save state (b) Change state
(c) Restore state (d) Context switch
5. A _____ is a semaphore with an integer value that can range only between 0 and 1.
(a) counting semaphore (b) binary semaphore
(c) bit semaphore (d) mutex
6. ADT stands for _____.
(a) Abstract Data Type
(b) Absolute Data Type
(c) Acyclic Data Type
(d) Advanced Data Type

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PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the advantages of clustered systems.
Or
(b) What is OS? Write the functions of operating system.
12. (a) What is the meaning of IPC? Explain.
Or
(b) Write and explain the CPU scheduling STFC algorithm.
13. (a) Discuss about critical regions.
Or
(b) What is semaphore? Write the uses of semaphores.
14. (a) Write about page replacement.
Or
(b) Write about contiguous memory allocation.
15. (a) Explain any one of the file access method.
Or
(b) Write about RAID.

PART C — (5 × 8 = 40 marks)

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

16. (a) Explain about mainframe systems and desktop systems.

Or

- (b) Write in detail about :

- (i) Time sharing system
- (ii) Multiprocessor system.

17. (a) Explain about real time scheduling.

Or

- (b) Write the algorithm of deadlock avoidance. Discuss it.

18. (a) Explain how to implement semaphore.

Or

- (b) What do you mean by critical section problem? Explain.

19. (a) Discuss about paging with segmentation.

Or

- (b) Write about demand paging of virtual memory.

20. (a) Explain in details about directory structures.

Or

- (b) Explain the following file operation :

- (i) creating a file
- (ii) writing a file
- (iii) reading a file
- (iv) repositioning within a file
- (v) deleting a file
- (vi) truncating a file.