

(6 pages)

Reg. No. :

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

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Sixth Semester

Computer Science/Software Engineering – Core

OPERATING SYSTEM

(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. General-purpose computers run most of their programs from rewritable memory, called _____
- (a) main memory (b) secondary memory
(c) cache memory (d) none of these

6. A monitor is module that encapsulates
- (a) shared data structures
(b) procedures that operates on shared data structures
(c) synchronization between concurrent procedure invocation
(d) all of the above

7. A solution to the problem of external fragmentation is _____
- (a) Compaction
(b) Large memory space
(c) Smaller memory space
(d) Medium memory space

8. Logical memory is broken into blocks of the same size called _____
- (a) Frames (b) Pages
(c) Backing stores (d) Page table

9. Contiguous allocation of a file is defined by
- (a) disk address of the first block and length
(b) length and size of the block
(c) size of the block
(d) total size of the file

2. The system must be able to load a program into memory and to run that program
- (a) User interface
(b) File-system manipulation
(c) Program execution
(d) I/O operations
3. A process is
- (a) program in high level language kept on a disk
(b) contents of main memory
(c) a program in execution
(d) a job in secondary memory
4. _____ processes contain logic for rendering web pages.
- (a) Renderer (b) Plug-in
(c) Browser (d) Sand box
5. Process synchronization can be done on
- (a) Hardware level
(b) Software level
(c) Both (a) and (b)
(d) None of the mentioned

Page 2 Code No. : 20105 E

10. The time taken to move the disk arm to the desired cylinder is called the
- (a) positioning time (b) random access time
(c) seek time (d) latency time

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on system boot.
- Or
- (b) Determine the multiprocessor system and its advantages.
12. (a) Write about process control block with neat diagram.
- Or
- (b) Explain the following :
- (i) Priority-based scheduling
(ii) Rate-monotonic scheduling.
13. (a) How to implement a monitor using semaphores?
- Or,
- (b) Discuss the methods for handling deadlock.

Page 3 Code No. : 20105 E

Page 4 Code No. : 20105 E
[P.T.O.]

14. (a) Write short notes on fragmentation.

Or

(b) Justify about virtual memory.

15. (a) Describe the disk structure.

Or

(b) Clarify about tree structured directories.

PART C — (5 × 8 = 40 marks)

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

16. (a) Analyze the computer system organization.

Or

(b) Illustrate the various operating system operations.

17. (a) Demonstrate the interprocess communication.

Or

(b) Explain in detail about any three CPU scheduling algorithm.

18. (a) Determine the classic problem of synchronization.

Or

(b) Discuss in detail about the deadlock detection and recovery.

Page 5 Code No. : 20105 E

19. (a) Define trashing. Write the causes of trashing.

Or

(b) Explain the following :

(i) Basic concepts of page replacement

(ii) FIFO page replacement.

20. (a) Describe about file concept.

Or

(b) Elucidate the allocation methods in file implementation.

Page 6 Code No. : 20105 E