Reg. No. : ....

Code No.: 10506 E   **Sub. Code: CMCS 61**

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Computer Science – Core

OPERATING SYSTEM

(For those who joined in July 2021–2022)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ——————— is a program that acts as an intermediary between the user of a computer and computer hardware.

   (a) Application   (b) Operating system

   (c) Desktop   (d) Window

2. Operating system provides an ——————— within which other programs can do useful work.

   (a) Environment   (b) Power

   (c) Resource   (d) System

3. ——————— algorithm can reason short processes to wait for long processes.

   (a) Round Robin Scheduling

   (b) First Come First Served

   (c) Priority Scheduling

   (d) Shortest Job First Scheduling

4. Which state of a process defined as "the process has finished execution"?

   (a) Running   (b) New

   (c) Ready   (d) Terminated

5. Which one of the following is the deadlock avoidance algorithm?

   (a) Banker's algorithm

   (b) Round-robin algorithm

   (c) Elevators algorithm

   (d) Karn's algorithm

6. Process synchronization can be done

   (a) Hardware level

   (b) Software level

   (c) Both (a) and (b)

   (d) User level

7. _____ is the separation of user logical memory from physical memory.

   (a) Main Memory

   (b) Learn Only Memory

   (c) Random Access Memory

   (d) Virtual Memory

8. _____ is the solution to external fragmentation.

   (a) Swapping (b) Protection

   (c) Compaction (d) Sharing

9. _____ organises and provides info about files.

   (a) File structure

   (b) Directory

   (c) File System

   (d) File allocation table

10. To give an efficient and convenient access to the disk, the OS imposes a _____

    (a) File system

    (b) Directory

    (c) File structure

    (d) File allocation table

PART B — (5 × 5 = 25 marks)

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

11. (a) Specify the main purpose of an operating system.

    Or

    (b) Recall system calls.

12. (a) Describe the state of a process.

    Or

    (b) Discuss briefly about Process Control Blocks.

13. (a) Give a solution to the critical section problem.

    Or

    (b) Outline the different necessary conditions for a deadlock.

14. (a) Describe the swapping method in memory management.

    Or

    (b) Compare first fit, best fit and worst bit storage strategies.

15. (a) Narrate the operations performed in a file.

Or

(b) Elucidate in detail about directory implementation.

PART C — (5 × 8 = 40 marks)

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

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

Or

(b) Give a detailed note on operating system design and implementation.

17. (a) Demonstrate IPC with an example.

Or

(b) Demonstrate the following with an example:
(i) SJF–Scheduling
(ii) Round Robin Scheduling

18. (a) Demonstrate the banker's algorithm for deadlock avoidance with an example.

Or

(b) Write a detailed note on semaphores.

Page 5   **Code No. : 10506 E**

19. (a) Discuss the different schemas for defining the logical structure of directory.

Or

(b) Explain the following:
(i) Frames
(ii) Thrashing

20. (a) Analyze RAID structure in detail.

Or

(b) Analyze about file sharing and protection.

—————

Page 6   **Code No. : 10506 E**

Nesamony Memorial Christian College, Marthandam