(6 pages)

Reg. No. : ....

Code No. : 20242 E   **Sub. Code : SMCA 61/ AMCA 61**

B.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Sixth Semester

Computer Application – Core

OPERATING SYSTEMS

(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. An _____ is a program that acts as an intermediary between the user of a computer and the computer hardware.

    (a) Assembler   (b) Compiler

    (c) Interpreter   (d) Operating System

2. Microprocessor systems also known as _____.

    (a) Parallel systems

    (b) Highly coupled system

    (c) Both (a) and (b)

    (d) None

3. A _____ can be thought of as a program in execution.

    (a) Process   (b) File

    (c) Disk structure   (d) None

4. _____ indicates the address of the next instruction to be executed.

    (a) Process state   (b) Program counter

    (c) CPU Registers   (d) None

5. A _____ semaphore is semaphore with an integer value that can range only between 0 and 1.

    (a) Decimal   (b) Hexadecimal

    (c) Octal   (d) Binary

6. A state is _____, if the system can allocate resources to each process in some order and still avoid a deadlock.

    (a) Safe   (b) Unsafe

    (c) Both (a) and (b) (d) None

7. The _____ is a small piece of code that indicates how to locate the appropriate memory – resident library routines.

    (a) Scrab   (b) Stub

    (c) Both (a) and (b) (d) None

8. To enable a process to be larger than the amount of Memory allocated to it, we can use _____.

    (a) Overlays   (b) Absolute code

    (c) Loader   (d) None

9. The extension of executable file is _____.

    (a) .exe   (b) .com

    (c) .bin   (d) All the above

10. The _____ knows about files and their logical blocks as well as physical blocks.

    (a) Basic File System

    (b) File Organization Module

    (c) Both (a) and (b)

    (d) None

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Why do we use multiprogrammed systems?

    Or

    (b) Give a brief note on Desktop systems.

12. (a) What are the different states available in a process?

    Or

    (b) Write down any four scheduling criteria.

13. (a) What is Bounded Buffer problem?

    Or

    (b) What are the four conditions must hold simultaneously in a system when a deadlock can arise?

14. (a) Why do we need the concept swapping in memory?

    Or

    (b) Give a brief note on Segmentation with Paging.

15. (a) What are the different types of file attributes available?

Or

(b) What is Swap-Space management?

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Define distributed systems with neat diagram explain the different types of distributed systems.

Or

(b) Discuss in detail about clustered and Real Time Systems.

17. (a) Elaborate the concept Interprocess Communication in detail.

Or

(b) With an example, explain First come – First served, shortest job first and priority scheduling in detail.

18. (a) What is Critical Section? Describe Critical Section problem in detail.

Or

(b) Define deadlock. How to avoid deadlock?

19. (a) With neat diagram, explain contiguous memory allocation.

Or

(b) With an example, describe FIFO, Optimal and LRU page replacement algorithms.

20. (a) What do you mean by Directories Structure? How to implement Directory?

Or

(b) Explain FCFS, SSTF and SCAN Disk Scheduling algorithms with an example.

————————