

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2019 – 2020 and thereafter)

B. C. A. DEGREE EXAMINATION, APRIL 2024
FOURTH SEMESTER

COURSE : **MAJOR CORE**
PAPER : **OPERATING SYSTEMS**
SUBJECT CODE : **19CS/MC/OS45**
TIME : **3 HOURS** **MAX. MARKS: 100**

SECTION A

Answer all the questions:

(20 X 1=20)

Choose the best answer:

1. _____ is an operating system.
 - a. Interface between hardware and application programs.
 - b. Collection of programs that manages hardware resources.
 - c. System service provider to the application programs.
 - d. All of the above
2. Software may trigger an interrupt by executing a special operation called a _____.
 - a. Operating system call
 - b. Process call
 - c. System call
 - d. Interrupt call
3. When a process is in a blocked state, waiting for some I/O service. When the service is completed, it goes to the _____.
 - a. Termination state
 - b. Suspended state
 - c. Running state
 - d. Ready state
4. The segment of code in which the process may change common variables, update tables, write into files is known as _____.
 - a. Programs
 - b. Monitors
 - c. Critical section
 - d. Synchronizing
5. A scheduling algorithm can use either _____ priority or _____ priority.
 - a. Static, Still
 - b. Static, Dynamic
 - c. Live, Dead
 - d. None of the above
6. A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.
 - a. Resource allocation state
 - b. System storage state
 - c. Resources
 - d. None of the above
7. The main memory accommodates _____.
 - a. CPU
 - b. Operating system
 - c. User processes
 - d. All of the above
8. If the page number is not found in the TLB, then it is known as a _____.
 - a. TLB hit
 - b. Buffer miss
 - c. TLB miss
 - d. None of the above
9. The information about all the files is kept in _____.
 - a. Swap space
 - b. Operating system
 - c. Separate directory structure
 - d. File structure
10. Using swap space significantly _____ system performance.
 - a. Increases
 - b. Decreases
 - c. Maintains
 - d. Does not affect

Fill in the blanks:

11. Operating systems have a _____ for each device controller.

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12. The operating system is broken into number of layers is called _____.
13. In Unix, _____ system call creates the new process.
14. The address of the next instruction to be executed by the current process is provided by the _____.
15. The _____ is the module that gives control of the CPU to the process selected by short-term scheduler.
16. The _____ condition imposes a total ordering of all resource types and to require that each process requests resources in an increasing order of enumeration.
17. Illegal addresses are trapped using the _____ bit.
18. The process is _____ if it spends more time paging than executing.
19. All files must have unique names in the _____ directory.
20. _____ drives can write data at a speed comparable to disk drives.

SECTION B

5 X 2 = 10

ANSWER ALL THE FOLLOWING

21. Define process.
22. List down the process state with diagram.
23. Define threads.
24. What is thrashing?
25. What is seek time?

SECTION C

8 X 5 = 40

ANSWER ANY EIGHT OF THE FOLLOWING

26. Explain in brief about storage management.
27. Write a note on operating system structure.
28. What is Interprocess communication? Explain.
29. Describe about Monitors.
30. Write the methods to handle deadlock.
31. Explain any three CPU scheduling algorithms with Gantt chart.
32. Write a note on swapping.
33. Explain about LRU and Optimal page replacement algorithm.
34. Write a note on RAID structure.
35. Compare the file access methods.

SECTION D

3 X 10 = 30

ANSWER ANY THREE OF THE FOLLOWING

36. What are system calls? Explain the types of system calls.
37. Describe briefly about Semaphores.
38. What is deadlock? How to avoid deadlock using Bankers's algorithm? Explain.
39. Distinguish between paging and segmentation.
40. Describe about file system allocation methods.
