STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2015 – 16 and thereafter)

SUBJECT CODE: 15CS/MC/OS44

B. C. A. DEGREE EXAMINATION, APRIL 2018
FOURTH SEMESTER

COURSE : MAJOR CORE
PAPER : OPERATING SYSTEMS
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION A

Answer all the questions: **20 X 1=20 MARKS**
Choose the best answer:

1. In operating system, each process has its own _____.
   a) address space and global variables b) open files
   c) pending alarms, signals and signal handlers d) all of the mentioned
2. The address of the next instruction to be executed by the current process is provided by the _____.
   a) CPU registers b) Program counter c) Process stack d) Pipe
3. What is a short-term scheduler?
   a) It selects which process has to be brought into the ready queue
   b) It selects which process has to be executed next and allocates CPU
   c) It selects which process to remove from memory by swapping
   d) None of the mentioned
4. The context of a process in the PCB of a process does not contain :
   a) the value of the CPU registers b) the process state
   c) memory-management information d) context switch time
5. 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) operating system d) resources
6. Which one of the following is the deadlock avoidance algorithm?
   a) banker's algorithm b) round-robin algorithm
   c) elevator algorithm d) karn's algorithm
7. Logical memory is broken into blocks of the same size called _____.
   a) frames b) pages c) backing store d) none of the mentioned
8. The size of a page is typically _____.
   a) varied b) power of 2 c) power of 4 d) none of the mentioned
9. Which one of the following is not a secondary storage?
   a) Magnetic disk b) Magnetic tape c) RAM d) Hard disk
10. RAID level 1 refers to _____.
    a) disk arrays with striping b) disk mirroring
    c) both disk arrays with striping and disk mirroring d) none of the mentioned

Fill in the Blanks:

11. The systems which allows only one process execution at a time, are called _____.
12. To access the services of operating system, the interface is provided by the _____.

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13. Scheduling is done so as to _____ CPU utilization.
14. The link between two processes P and Q to send and receive messages is called_____.
15. The operations that can be invoked on a condition variable are _____.
16. The wait operation of the semaphore basically works on the basic _____ system call.
17. The _____ swaps processes in and out of the memory.
18. The segment base contains the starting _____of the segment in memory.
19. The technique of duplicating every disk is known as _____.
20. RAID stands for _____.

SECTION B

ANSWER All QUESTIONS: 5 X 2=10 MARKS

21. Define Operating System. List the objectives of an operating system.
22. Write various states of a process.
23. What are the necessary conditions for the occurrence of deadlock?
24. Distinguish between Logical and Physical address space.
25. What is disk scheduling?

SECTION C

ANSWER ANY EIGHT QUESTIONS: 8 X 5=40 MARKS

26. Write short notes about System calls.
27. With neat diagram explain Operating system structure.
28. Define a Thread. Give the benefits of multithreading.
29. What are the advantages of inter-process communication?
30. Define Monitor. Explain how it overcomes the drawback of semaphores.
31. Write about deadlock conditions and bankers algorithm in detail.
32. Write about contiguous memory allocation.
33. Write short notes about Thrashing.
34. Explain the various methods for free-space management.
35. Explain File management System.

SECTION D

ANSWER ANY THREE QUESTIONS: 3 X 10=30 MARKS

36. With a neat sketch, describe the services that an operating system provides to users, processes and other systems.
37. Distinguish between preemptive and non-preemptive scheduling. Explain each type with an example.
38. What is a deadlock? How deadlocks are detected?
39. What is a Virtual Memory? Discuss the benefits of virtual memory technique.
40. Explain about RAID Structure.

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