

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
(For Candidates admitted during the academic year 2008-09)

SUBJECT CODE: CS/MC/OS54

B.C.A. DEGREE EXAMINATION – NOVEMBER 2010
FIFTH SEMESTER

REG. NO. _____

COURSE : MAJOR CORE
PAPER : OPERATING SYSTEM – I
TIME : 20 MINUTES

MAX. MARKS: 20

SECTION – A

ANSWER ON THE QUESTION PAPER ITSELF:

Answer all questions:

(20X1=20)

I. Choose the correct answer

1. The objective of multiprogramming is
(a) Maximum CPU utilization (b) Maximum throughput
(c) Maximum efficiency (d) none
2. The interval from the time of submission of a process to the time of completion is called
(a) Turnaround time (b) waiting time (c) response time (d) none
3. Physical memory is broken into fixed sized blocks namely
(a) Pages (b) frames (c) segments (d) blocks
4. Virtual memory is implemented by
(a) Demand paging (b) demand segmentation (c) both (d) none
5. Critical section is a segment of code in which processes
(a) Change common variable (b) update a table (c) write a file (d) all
6. Data structure used to implement Bankers algorithm is
(a) Stack (b) List (c) Max (d) None
7. _____ file is a sequence of bytes organized into blocks understandable by the system.
(a) Text file (b) Source file (c) Object file (d) executable file
8. Word processor format is _____
(a) .exe (b) .doc (c) .bat (d) .zip
9. _____ bus connects slow devices and the ports.
(a) PCI bus (b) expansion bus (c) data bus (d) none
10. The vector number for breakpoint intercept is
(a) int 1 (b) int 8 (c) int 2 (d) int 3

II. Fill up the blanks:

11. The number of processes completed per unit time is called_____
12. The solution to the problem of external fragmentation is _____
13. _____ is a synchronization tool to overcome critical section problem.
14. _____ and _____ files are two forms of binary executable files.
15. _____ slows down the CPU completion of loads data transfer to DMA and improves the total system performance.

III. Write True or False:

16. The technique of gradually increasing the priority of processes that waits in the system for a long time is called Aging
17. Best fit allocates the first hole that is big enough.
18. A semaphore can be accessed only through P and V operators.
19. An absolute path name begins at the root and follows a path down to the specified file.
20. The Channel overloads I/O work to the main CPU.

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PAPER : OPERATING SYSTEM – I
TIME : 2 HOURS & 40 MINUTES

MAX. MARKS: 80

SECTION - B

Answer any 8 questions:

(8X5=40)

1. Describe the UNIX system architecture with necessary diagram.
2. With a neat diagram explain Process Scheduling queues.
3. Explain the hardware implementation of the page table with diagram.
4. Illustrate the process of handling the page fault.
5. Describe with necessary codes the Readers-Writers problem.
6. Illustrate deadlock in terms of system resource allocation graph.
7. What is a file? Explain its attributes.
8. Explain the structure of layered file system.
9. Discuss the interrupt mechanism in details.
10. Explain the lifecycle of I/O request.

SECTION - C

Answer any 4 questions:

(4X10=40)

11. Explain the following Scheduling algorithms:
(a) Multilevel queue scheduling (b) Multilevel feedback queue scheduling.
12. Discuss the LRU approximation page replacement algorithm.
13. “Banker’s algorithm is one of the effective algorithm for deadlock avoidance” –
Explain
14. Elucidate the following directory structure:
(a) Single level directory (b) Two level directory
15. Explain the kernel I/O structure.
16. Discuss the semaphores in detail.
