(6 pages)

4554/SCS8C52/ SCS9C52 **NOVEMBER 2013**

OPERATING SYSTEMS

(For those who joined in July 2008 and after)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Virtual memory is

   (a) an extremely large main memory

   (b) an extremely large secondary memory

   (c) an illusion of an extremely large memory

   (d) a type of memory used in super computers

2. Page fault occurs when

   (a) the page is corrupted by application software

   (b) the page is in main memory

   (c) the page is not in main memory

   (d) one tries to divide a number by zero

3. The only state transition that is initiated by the user process itself is

   (a) block (b) dispatch

   (c) wave up (d) thread

4. The size of the virtual memory depends on the size of the

   (a) data bus (b) main memory

   (c) address bus (d) secondary memory

5. Fence Register is used for

   (a) CPU protection (b) memory protection

   (c) file protection (d) all of the above

6. Which of the following is a service not supported by the operating system?

   (a) Protection (b) Accounting

   (c) Compilation (d) I/O operation

7. Which of the following are single–user operating systems?

(a) MS-DOS (b) UNIX

(c) XENIX (d) OS/2

8. In a paged memory, the page hit ratio is 0.35. The time required to access a page in secondary memory is equal to 100 ns. The time required to access a page in primary memory is 10 ns. The average time required to access a page is

(a) 3.0 ns (b) 68.0 ns

(c) 68.5 ns (d) 78.5 ns

9. Distributed systems should

(a) meet prescribed time constraints

(b) aim better resource sharing

(c) do interprocess communication

(d) aim low system overhead

10. In which of the following scheduling policies does context switching never take place?

(a) Round-Robin (b) Shortest job first

(c) Pre-emptive (d) Fist-cum-first-served

SECTION B — ($5 \times 7 = 35$ marks)

Answer ALL questions.

11. (a) Discuss briefly about the Architecture of operating system.

Or

(b) Explain the Life cycle of a process.

12. (a) Explain Mutual Exclusion with semaphores.

Or

(b) Discuss briefly about Monitors.

13. (a) Explain briefly about Deadlock prevention.

Or

(b) Distinguish preemptive and Non-preemptive.

14. (a) Write short notes on Memory Management Strategies.

Or

(b) Short notes on page Replacement.

15. (a) Discuss briefly about Rotational optimization.

Or

(b) Write short notes on File Allocation.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail about Interrupts.

17. Explain the following Algorithms,

(a) Dekker's Algorithm

(b) Peterson's Algorithm.

18. Discuss in detail about Dijkstra's Banker's Algorithm.

19. Explain the concept of Demand paging.

20. Explain following disk scheduling strategies,

(a) SCAN Disk scheduling

(b) C-SCAN Disk scheduling.

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