2012

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A
(Objective Type Questions)

Answer all questions : 2×10 = 20

1. Choose the correct answer of the following :

(a) The main program is loaded into memory and is executed. This type of loading is called :

(i) Dynamic loading

(ii) Static loading

CX - 5/5

(Turn over)
(iii) Overlays
(iv) Dynamic linking

(b) Virtual memory is:
(i) An extremely large secondary memory
(ii) An extremely large main memory
(iii) An illusion of large main memory
(iv) A type of memory used in super computers

(c) The first-fit, best-fit and worst-fit can be used for:
(i) Linked allocation of memory
(ii) Indexed allocation of memory
(iii) Contiguous allocation of memory
(iv) All of these

(d) In which one of the following page replacement policies, Belady's anomaly may occur?
(i) Optimal
(ii) LRU

CX – 5/5 (2) Contd.
(iii) MRU
(iv) FIFO

(e) Thrashing:
(i) Decreases the degree of multi-programming
(ii) Reduces page I/O
(iii) Improves the system performance
(iv) Implies excessive page I/O

(f) Fixed Partitions:
(i) Are very efficient in memory utilization
(ii) Are very inefficient in memory utilization
(iii) Are very common in current OS
(iv) Are most used on large mainframe OS

(g) The example of non-preemptive scheduling is:
(i) Round Robin
(ii) First-come-First-Serve
(iii) Last-In-First-Out
(iv) Shortest-Job-First
(h) A process is:
  (i) Program in main memory
  (ii) Program in secondary storage
  (iii) Program in cache memory
  (iv) Program in execution

(i) The fit policy of a memory manager to place a process in the largest-block of unallocated memory is:
  (i) Worst Fit
  (ii) First Fit
  (iii) Best Fit
  (iv) Bad Fit

(j) A process may create a new process by executing _________ system call.
  (i) Fork
  (ii) Create
  (iii) New
  (iv) Init

(CX - 5/5)  (4)  Contd.
Group – B
(Long-answer Type Questions)

Answer any four questions: \(15 \times 4 = 60\)

2. Compare the following scheduling algorithms:
   (a) FCFS
   (b) SJF
   (c) RR
   (d) Multi-level queues


4. (a) Briefly describe the four major resource managers in a typical operating system.
   (b) Differentiate between interrupts and exceptions.
   (c) When do page fault occurs? Describe the actions taken by the operating system when a page fault occurs.

CX – 5/5  (5)  (Turn over)
5. (a) Explain the various types of operating system.
    (b) Define process. Diagrammatically, explain the life cycle of a process.
    (c) Discuss the various types of interfaces in the operating system.

6. (a) What is the difference between Physical Address and Virtual Address?
    (b) What is meant by device independent I/O software?
    (c) Explain Short-term, Medium-term and Long-term scheduling.

7. (a) With the help of a diagram, explain the hardware used for segmentation. How are protection and sharing inherently supported by segmentation scheme?
    (b) What is context switch? Why is it considered to be an overhead?
    (c) Differentiate between Network Operating System and Distributed Operating System.

CX – 5/5  (6)  Contd.
8. What is Deadlock? What are the necessary conditions for deadlock?

9. What is Paging? What is demand paging? What is page fault? When does page fault occurs?