

2014

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) Program is loaded in the same memory location in :
 - (i) Dynamic loading
 - (ii) Absolute loading
 - (iii) Relocatable loading
 - (iv) Overlays

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(Turn over)

(b) PCB stands for :

- (i) Program Control Block
- (ii) Process Creation Block
- (iii) Process Control Block
- (iv) Program Creation Block

(c) Paging is :

- (i) Static memory management technique
- (ii) Dynamic memory management technique

(iii) Virtual memory management technique

(iv) None of these

(d) Fragments occurs in :

- (i) Segmentation
- (ii) Virtual memory management technique
- (iii) Paging
- (iv) All of the above

(e) Starvation can occur in :

- (i) Priority Scheduling
- (ii) SJF Scheduling

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(2)

Contd.

(iii) Both (i) and (ii)

(iv) None of these

(f) TLB is used in :

- (i) Paging
- (ii) Virtual memory management technique
- (iii) Segmentation
- (iv) All of these

(g) Overlays are implemented through :

- (i) Main Memory
- (ii) Virtual Memory
- (iii) Secondary Memory
- (iv) External Memory

(h) Running instance of a program is known as :

- (i) Thread
 - (ii) Function
 - (iii) Process
 - (iv) None of these
- (i) Fork system call is used to :
- (i) Create a process
 - (ii) Create a thread

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(3)

(Turn over)

(b) PCB stands for :

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(2)

Contd.

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(3)

(Turn over)

(iii) Kill a process

(iv) Kill a thread

(i) Aging is the solution of :

(i) Process Conflict

(ii) Deadlocks

(iii) Process Synchronisation

(iv) Starvation

Group - B

(Long-answer Type Questions)

Answer any four questions of the following :

15x4 = 60

2. Define Operating System. Discuss the functionalities of an operating system. Discuss different types of operating systems.

3. (a) Which are the process scheduling mechanisms? Explain the types of process scheduling mechanisms and their importance. Explain how process scheduling mechanism affects degree of multi-programming.

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(4)

Contd.

(b) Compare and contrast :

(i) Pre-emptive and non-pre-emptive scheduling

(ii) CPU-bound and I/O-bound jobs

4. What is inter-process communication? Explain different methods of inter-process communication. What is synchronisation in inter-process communication and what is its relevance?

5. (a) Explain why deadlock avoidance is better than deadlock prevention. Which are the methods of recovery from deadlock?

(b) Describe process control block.

6. (a) With a diagram explain demand paging. Explain at least three page replacement policies.

(b) What do you mean by internal and external fragmentation? What are the solutions of this problem?

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(5)

(Turn over)

7. With a diagram explain the disk structure. What are the different disk scheduling algorithms ? Explain the merits and demerits of disk scheduling algorithms.

8. Write short notes on the following :

- (i) Distributed Operating System
- (ii) Starvation
- (iii) TLB
- (iv) Placement Algorithms
- (v) Context Switching

