



Reg. No. :

Name :

**Seventh Semester B.Tech. Degree Examination, November 2013
(2008 Scheme)**

08-704 : Elective III (c) : MODERN OPERATING SYSTEMS (E)

Time : 3 Hours

Max. Marks : 100

PART – A



Answer **all** questions.

1. What is the role of process control block ? Explain the functions of the attributes in PCB.
 2. Which are the different types of schedulers ?
 3. Differentiate between a binary semaphore and a counting semaphore.
 4. What is a resource allocation graph ?
 5. What is meant by thrashing ?
 6. How would you determine the optimum page size ?
 7. In a fixed partition scheme, what are the advantages of using unequal size partitions ?
 8. What is swap space ?
 9. What are the benefits and limitations of contiguous allocation scheme ?
 10. What are RAID disks ?
- (10x4=40 Marks)**



PART – B

Answer **one** question from **each** Module.

MODULE – I

11. a) What is a thread ? Define user level thread and kernel level thread. How is a user level thread mapped to a kernel level thread ? 8
- b) Consider the following processes :

Process	Arrival time	Burst time
P ₁	0.0 ms	6 ms
P ₂	0.5 ms	4 ms
P ₃	1.0 ms	2 ms
P ₄	1.2 ms	1 ms

Find average turn around time and average waiting time with respect to
 1) FCFS 2) SJF 3) Round robin with time quantum 1 ms. Also draw Gantt chart for each algorithm. 12

12. a) Show how the bounded buffer problem can be solved using semaphores. 10
- b) Compare and contrast the following policies of resource allocation.
- 1) all resource requests together
 - 2) allocation using resource ranking
 - 3) allocation using Banker's algorithm.

On the basis of i) resource idling and ii) overhead of the resource allocation algorithm. 10



MODULE – II

13. a) Describe the different free space management techniques. 8
- b) Free memory holes of sizes 15 K, 10 K, 5K, 25 K, 30 K, 40 K are available. The processes of size 12 K, 2K, 25 K, 20 K are to be allocated. How are processes allocated ? using 1) first fit 2) best fit 3) worst fir. Calculate internal as well as external fragmentation. 12
14. a) What is a translational look aside buffer ? Why is a TLB used by a virtual memory scheme ? 12
- b) What is meant by working set ? What is its significance ? 8

MODULE – III

15. a) Explain the functions to be performed by a typical I/O interface. 8
- b) The requests for tracks are in the order 55, 58, 39, 18, 90, 160, 150, 38, 184. The current position is at track 100. Calculate the distance moved by the disk arm to service all requests for
- i) SSTF ii) FCFS iii) C-SCAN. 12
16. a) Discuss in detail the various schemes for defining the logical structure of a directory. 10
- b) Compare the indexed allocation scheme for files with the linked list allocation scheme. 10
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