

FACULTY OF INFORMATICS**B.E. 3/4 (IT) I – Semester (Supplementary) Examination, July 2014****Subject : Operating Systems****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

- 1 Mention advantages of multiprocessor system over a single processor system. 2
- 2 Distinguish system calls and system programs. 2
- 3 List the memory hierarchy. 2
- 4 What are the two models of inter-process communication? Give the strengthness and weakness of the two approaches. 3
- 5 List out the important differences between paging and segmentation. 3
- 6 What is process control block? 2
- 7 How is reliability by redundancy obtained in disks? 2
- 8 Define : seek time, latency time and transfer time. 3
- 9 What is a working set model? 3
- 10 List out different types of security attacks. 3

PART – B (50 Marks)

- 11 a) Describe the differences among short term, medium term and long term scheduling. 5
- b) What are the methods for a handling deadlocks? Explain, briefly. 5
- 12 Consider the following set of processes, with the length of the CPU burst given in milliseconds. 10

<u>Process</u>	<u>Burst time</u>	<u>Priority</u>
P ₁	10	3
P ₂	1	1
P ₃	2	3
P ₄	1	4
P ₅	5	2

The process are assumed to have arrived in the order P₁, P₂, P₃, P₄, P₅ all at time 0.

- i) Draw four Gantt charts that illustrate the execution of these process using the following scheduling algorithms : FCFS, SJF, non preemptive priority (a smaller priority number implies a higher priority) and RR (quantum = 1).
- ii) What is the turn around and waiting time of each process for each of the scheduling algorithm?
- 13 a) Explain the readers-writer problem of synchronization and explain the semaphoresolution for it. 6
- b) What are the implications of assigning a new timestamp to a transaction that is rolled back? How does the system process transactions? 4
- 14 Discuss the various disk scheduling strategies. 10
- 15 a) Explain various allocation methods. 5
- b) What do you mean by access rights in protection? Explain. 5
- 16 a) Explain how cryptography is used as a security tool. 6
- b) Specify goals and principles of protection. 4
- 17 Write short notes :
 - a) File system
 - b) RAID structure

(5 + 5)
