

FACULTY OF ENGINEERING**B.E. 3/4 (CSE) I – Semester (New) (Main) Examination, Nov. / Dec. 2012****Subject : Operating Systems****Time : 3 hours****Max. Marks : 75****Note:** Answer all questions from Part–A and answer any **FIVE** questions from Part–B.**PART – A (25 Marks)**

1. What is a system call? Give any two examples. (3)
2. What is i-node? Give its structure. (3)
3. List the necessary conditions for a deadlock to occur. (2)
4. What is a thread? How is it different from a process? (2)
5. What is beladay's anomaly? (2)
6. What is the difference between : (3)
 - a) Protection and security
 - b) Paging and segmentation
7. Define the following terms : (3)
 - a) Throughput
 - b) Turn around time
8. What is a critical section? (2)
9. What is a semaphore? What is its application? (3)
10. What is multiprogramming? How is it different from time sharing? (2)

PART – B (50 Marks)

- 11.a) What is difference between policy and mechanism? (3)
 - b) What is a process? Discuss the concept of process state with the help of a diagram. (4)
 - c) Discuss the concept of round robin CPU scheduling algorithm with the help of an example. (3)
12. Calculate the average waiting time and average turn around time for the following data using the policy : (10)
 - a) Pre-emptive SJF
 - b) Non-preemptive
 - c) FCFS

Process	Bust time	Arrival time
P ₁	25	0
P ₂	30	2
P ₃	10	4
P ₄	5	6

- 13.a) Discuss the concept of dining philosophers problem. (3)
 - b) What is a semaphore? Where is it used? (4)
 - c) What is atomic action? (3)
- 14.a) Discuss the concept of the following access methods. (7)
 - i) Direct Access
 - ii) Sequential Access
- b) List any five common file types in Unix. (3)
15. Discuss the concept of the following disk scheduling algorithms with the help of an example : (10)
 - i) SSTF
 - ii) SCAN
 - iii) C-Scan
 - iv) Look
- 16.a) Discuss the process scheduling strategy adapted by Linux operating system. (5)
 - b) List and explain the various components of Linux. (5)
17. Discuss the concept and algorithm of the following : (3)
 - a) Resource-allocation graph algorithm
 - b) Banker's algorithm