



Code No: 812AG

R13**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****MCA II Semester Examinations, August - 2017****OPERATING SYSTEMS****Time: 3 Hours****Max. Marks: 60****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 8 marks and may have a, b, c as sub questions.

PART - A**5 × 4 Marks = 20**

- 1.a) What is a system call? How it is executed? [4]
- b) What is thread scheduling? Give an example of thread scheduling? [4]
- c) What is thrashing? Why it occurs? [4]
- d) Discuss about directory structure? [4]
- e) How to detect whether a deadlock occurred or not? [4]

PART - B**5 × 8 Marks = 40**

- 2.a) Briefly explain typical functions of an Operating-System Kernel.
- b) What are the different types of operating systems? Explain them in detail. [4+4]

OR

- 3.a) Discuss about the Operating System components.
- b) Explain about distributed systems. [4+4]

4. Assume the following jobs are to be executed with one processor:

Job	Burst Time	Arrival
1	10	3
2	10	4
3	2	1
4	11	2
5	5	0

Give Gantt-Chart illustrating the execution of these jobs using RR (quantum =2) and Shortest Remaining Time First (Preemptive). Compare their performance in terms of average turn-around time, and average waiting time? [8]

OR

5. Explain about readers writers problem. Give a solution to the above problem using semaphores. [8]



6. Five pages, A, B, C, D, and E are referred by a process in the following order- A; B; C; B; E; A; D; A; B; E; A; B; C; D; E. If the page replacement algorithm is
- a) FIFO, calculate the number of page faults with empty frames of size 3? Compare its performance with optimal page replacement?
- b) LRU, calculate the number of page faults with empty frames of size 4 ? 3 compare its performance with optimal page replacement? [4+4]

OR

- 7.a) With a neat diagram explain the actions that take place when a page fault occurs?
- b) Give an overview of continuous memory allocation strategies. [4+4]

8. Discuss about free space management. [8]

OR

9. Explain the three allocation methods in file system implementation Illustrate with proper diagram. [8]

- 10.a) Explain Banker's algorithm for deadlock avoidance.
- b) What are the goals of protection? [8]

OR

- 11.a) What is unsafe state? Differentiate between unsafe state and deadlock state.
- b) Explain about capability based systems. [4+4]

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