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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, Master of Computer Applications (MCA)

Semester End Examination; June - 2017

Operating Systems

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.*
ii) Assume suitable data, if any.

UNIT - I

1 a. With neat diagram, explain the abstract view of a computer system. 10

b. Briefly explain about storage management. 10

2 a. Explain different types of system calls. 10

b. Briefly explain different types of computer system architecture. 10

UNIT - II

3 a. With neat diagram, explain process state. 6

b. Briefly explain different scheduling algorithms by considering the following example : 14

Note: Time Quantum = 10 ms for RR

Process	Burst Time	Priority
P_1	24	2
P_2	3	1
P_3	3	3

4 a. Briefly explain Multi-Threading Models. 10

b. Write a note on : 10

i) Multi-level Queue Scheduling ii) Multi-level Feedback-Queue Scheduling.

UNIT - III

5 a. Explain the critical-section problem and its solution. 10

b. With a structure of Reader and Writer process, explain the Readers-Writers problem. 10

6 a. Explain how to prevent deadlock? 8

b. Write and explain the Safety algorithm and Resource-Request algorithm. 12

UNIT - IV

7 a. Write a note on : 10

i) Memory allocation algorithms ii) Fragmentation.

b. With a neat paging hardware diagram, explain paging. 10

8 a. Apply different page replacement algorithms to find a page fault for the reference string 12

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1.

b. Define Thrashing. Briefly explain the cause of Thrashing. 8

Contd…2

UNIT - V

9 a.	List and explain File operations.	12
b.	Briefly explain different directory structures.	8
10 a.	Apply FCFS, SSTF and SCAN scheduling algorithms for the data : 98, 183, 37, 122, 14, 124, 65, 67 and calculate the total head movements.	12
b.	With a neat diagram, explain moving-head disk mechanism.	8

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