OS : TE - E&T : sem VI : CBSGS

03/06/2015

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**Q.P. Code : 5140**

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No. **1** is **compulsory.**
(2) Answer any **three** out of the remaining questions.
(3) Assume suitable **data** if **necessary**
(4) Assumptions made should be **clearly** stated.

1. (a) What is operating system? Explain the different functions of OS. 5
(b) What is system call? Explain any five system calls. 5
(c) Describe the structure of an I -Node in UNIX. 5
(d) What are the different characteristics of real time operating systems? 5

2. (a) What is deadlock? What are the necessary and sufficient conditions to occur deadlock? Explain deadlock avoidance and Prevention. 10
(b) Describe process management in Linux. 10

3. (a) Explain various page replacement algorithms with example. 10
(b) Explain the working of EDF and RMA real time scheduling algorithms. 10

4. (a) Explain RAID with Different levels. 10
(b) Consider a following set of processes, with length of CPU bursts given in milliseconds as follows: 10

| Process | Burst Time | Arrival Time | priority |
|---|---|---|---|
| P1 | 8 | 0 | 3 |
| P2 | 1 | 1 | 1 |
| P3 | 3 | 2 | 2 |
| P4 | 2 | 3 | 3 |
| P5 | 6 | 4 | 4 |

(i) Draw the Gantt Charts for FCFS, SJF, Preemptive priority and RR (Quantum = 2)
(ii) What is the turnaround time of each process for above algorithms?
(iii) What is the waiting time of each process for each of the above algorithms
(iv) Which algorithms results in minimum average waiting time.

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5. (a) Explain the linked and indexed methods for allocating a disk space to a file. 10

(b) How is a directory system useful in file organization? Explain single level, Two level and Hierarchical directory system. 10

6. Write a note on (any **two**) : 20

(a) Cyclic Schedulers

(b) Linux file System

(c) Unix Security measures

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