

**GUJARAT TECHNOLOGICAL UNIVERSITY**

B.E. Sem-IV Remedial Examination Nov/ Dec. 2010

Subject code: 140702

Subject Name: Operating System

Date: 03 / 12 / 2010

Time: 03.00 pm – 05.30 pm

Total Marks: 70

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) (i) Explain briefly different types of operating systems. 07  
(ii) Write different operating system services.
- (b) (i) Explain PCB. (ii) Explain thread in brief. 07
- Q.2** (a) (i) A computer has four page frames. The time of loading, time of last access and the R and M bit for each page given below. 07
- | Page | Loaded | Last Ref. | R | M  |
|------|--------|-----------|---|----|
| 0    | 126    | 280       | 1 | 0  |
| 1    | 230    | 265       | 0 | 01 |
| 2    | 140    | 270       | 0 | 0  |
| 3    | 110    | 285       | 1 | 1  |
- Which page NRU, FIFO, LRU will replace.  
(ii) Explain page table in brief.
- (b) Explain swapping in memory management. 07
- OR**
- (b) Explain deadlock prevention. 07
- Q.3** (a) What is priority inversion problem in interprocess communication? How to solve it with semaphore? 07
- (b) Explain different file system implementation methods. 07
- OR**
- Q.3** (a) Five batch jobs A to E arrive at same time. They have estimated running times 10,6,2,4 and 8 minutes. Their priorities are 3,5,2,1 and 4 respectively with 5 being highest priority. For each of the following algorithm determine mean process turnaround time. Ignore process swapping overhead. 07  
Round Robin, Priority Scheduling, FCFS, SJF.
- (b) (i) Explain different file attributes. (ii) Explain different file operations in brief. 07
- Q.4** (a) (i) Explain 'grep' command in Unix. (ii) Explain 'man' command in Unix. 07
- (b) Explain directory structure of Unix. 07
- OR**
- Q.4** (a) (i) Explain 'finger' command in Unix. (ii) Explain 'who' command in Unix. 07
- (b) Explain System administration commands in Unix. 07
- Q.5** (a) Explain multiprocessor operating system types in brief. 07
- (b) (i) Explain domain protection mechanism in brief. 07  
(ii) Explain kernel structure in UNIX.
- OR**
- Q.5** (a) Explain Distributed operating system in brief. 07
- (b) (i) What is Access Control list? Explain in brief. 07  
(ii) Explain operating system structure of windows 2000 in brief.

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