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Total number of printed pages – 2

B. Tech
BCSE 3305

Seventh Semester (Special) Examination – 2013

OPERATING SYSTEM

BRANCH : EC

QUESTION CODE : D 392

Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10
 - (a) Why is the Operating System viewed as a resource allocator and control program ?
 - (b) What is the advantage of Multiprogramming ?
 - (c) What do you mean by Time-sharing systems ?
 - (d) What is a process ?
 - (e) What is PCB ?
 - (f) What is a thread ?
 - (g) Define turn-around time.
 - (h) What is the main function of the memory-management unit ?
 - (i) What is critical section problem ?
 - (j) What is a system call ?
2.
 - (a) Describe the difference between preemptive and non-preemptive scheduling algorithm. Which one is more suitable for time sharing system ? 5
 - (b) What are the five major activities of an operating system in regard to process management ? 5



P.T.O.

3. (a) Explain the necessary conditions for deadlock and draw resource allocation graph for following situation. 5
 $P = \{p1, p2, p3\}$
 $R = \{r1, r2, r3, r4\}$
 $E = \{p1 \rightarrow r1, p2 \rightarrow r3, r1 \rightarrow p2, r2 \rightarrow p2, r2 \rightarrow p1, r3 \rightarrow p3\}$
- (b) Write an algorithm for finding out whether or not a system is in a safe state. 5
4. Given the following processes and burst times 10

Process	Burst Time
P1	10
P2	6
P3	23
P4	9
P5	31
P6	3

Calculate the average wait time when each of the following scheduling algorithms is used. Assume that a quantum of 8 is being used.

Describe the following scheduling algorithms

- Non Pre-Emptive First Come First Serve
- Round Robin
- Shortest Job First

5. (a) Explain a paging model of logical and physical memory with an example. 5
 (b) Explain the difference between Internal and external fragmentation. 5
6. Discuss the following page replacement algorithms with example : 10
 (a) FIFO
 (b) LRU

Find out % of page faults.

7. What are the different accessing methods of a file ? Give an example of each access method. 10
8. Explain the following on any **two** of the following : 5×2
 (a) First-Fit
 (b) Best-Fit
 (c) Worst-Fit.

