Registration No. : | | | | | | | | | | |

Total number of printed pages – 3

B. Tech

PCCS 4304

Sixth Semester Back Examination – 2015

OPERATING SYSTEM

BRANCH (S) : EC, ETC

QUESTION CODE : M 295

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) What system considerations are required in designing Real Time System?

   (b) What are resource sharing and its importance ?

   (c) What would be the effect of the system running too many I/O jobs ?

   (d) Differentiate between multiprogramming and Time sharing systems.

   (e) What is logical address space ?

   (f) What is demand paging ?

   (g) How are critical regions and the principle of mutual exclusion related to each other ?

   (h) What is multitasking operating system ?

   (i) What would be the effect, using the FCFS Scheme, if the running process got stuck in an infinite loop ?

(j) With respect to the Round Robin scheduling scheme, discuss the factors, which determine the ideal value for the time quantum.

2. (a) What is an Operating System ? Discuss in detail how the operating system can be classified into different categories. 5

(b) What are threads and processes ? Explain the issues in designing a "threads package" ? 5

3. (a) What is the critical section problem ? How is it handled ? 5

(b) Distinguish between preemptive and non-preemptive scheduling policies. 5

4. Suppose that the head of moving head-disk with 200 tracks, numbered o to 199, has just finished a request at track 125. The queue of the requests is kept 41 FIFO order : 86, 147, 91, 177, 94, 150, 102, 175, and 130.
What is the total number of head movements needed to satisfy requests for the following disk Scheduling algorithms : 10

(i) FCFS

(ii) SSTF

(iii) Scan

5. (a) Describe using a diagram how a logical address consisting of 24 bits could be converted into a segment address supporting up to 256 segments. What would be the maximum size of each segment ? 5

(b) Compare various methods of concurrency control and their advantages. 5

6. (a) How memory management is done in case of Unix ? Explain. 5

(b) The thread operation are most significant in cost explain. Do page fault present a problem for user level thread implementation ? 5

7. (a) What is round robin scheduling ? Explain taking any example. Can it be useful for a single user system ? If yes, then explain. If no, then why not ? 5

(b) Explain the various Directory structure used in operating system for storing files. Give Merits and demerits of all directory structure. 5

8. Write short notes on any **two** of the following : 5 × 2

(a) Critical Section Problem

(b) System Calls

(c) Semaphores

(d) Windows Vista.