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Total number of printed pages – 3

B. Tech
PCCS 4304

Sixth Semester Regular Examination – 2014

OPERATING SYSTEM

BRANCH : AEIE, BIOMED, EE, EIE, ELECTRICAL, IEE, MME

QUESTION CODE : F 321

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

- Define the properties of Real –time operating system.
- What is the purpose of system calls ?
- Define CPU protection.
- What is Binary Semaphore ?
- Define the term “Thrashing”.
- What is the meaning of the term “busy waiting” ?
- What is a “Safe State” ?
- What is Belady’s anomaly ?
- What are the major activities of an operating system in regard to secondary-storage management ?
- What is Banker’s Algorithm ?

P.T.O.

2. (a) In a batch system, there are five jobs P1 ; P2, P3, P4 and P5 with run times 2, 4, 1, 1, 1 seconds, respectively. Their arrival times are 0, 0, 3, 3, 3 seconds. What is the turnaround time using the shortest-job-first scheduling algorithm ? Is this the optimal turnaround time among the non-preemptive runs ? 5
- (b) Why in Round-Robin scheduling, new processes are placed at the end of the queue, rather than at the beginning ? Discuss. 5
3. (a) Describe the differences between short-term, medium-term and long-term scheduling. 5
- (b) Define Deadlock. What is the difference between a deadlocked and an unsafe state ? 5
4. Explain the concept of Critical-Section Problem that is applicable to only two processes at a time. 10
5. (a) Explain the segmentation memory management scheme. 5
- (b) What is paging ? Explain the paging technique for mapping virtual address to physical address. 5
6. (a) Consider the following sequence of disk track requests : 27, 129, 110, 186, 147, 41, 10, 64, 120. Assume that initially the head is at track 30 and is moving in the direction of decreasing track number. Compute the number of tracks the head traverses using FCFS and SSTF algorithms. 5
- (b) Explain how file protection is provided in a multi-user environment. 5

7. (a) A small computer has 4 page frames. A process makes the following list of page references: 1, 2, 3, 4, 1, 5, 2, 3, 1, 2. How many page faults occur using FIFO and LRU page replacement algorithms? 5
- (b) Explain the difference between Internal and External Fragmentations. 5
8. (a) Briefly discuss the salient features of WINDOWS Operating System. 5
- (a) Explain in detail about File System in LINUX Operating System. 5


