Total No. of Questions : 09

B.Tech.(ECE)/(ETE) (2011 onwards) (Sem.–6)

OPERATING SYSTEMS

Subject Code : BTCS-401

Paper ID : [A2314]

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

    a) Define term operating system. Specify the objectives and functions of operating system.

    b) What is a bootstrap program?

    c) Define Thrashing.

    d) Differentiate preemptive and non-preemptive scheduling.

    e) What is Semaphores?

    f) Classify the OS into different types based on their processing capability.

    g) What do you understand by Spooling?

    h) What is a Process Control Block?

    i) Compare Thread and Process.

    j) Why size of page is always power of 2?

SECTION-B

2. State and distinguish the methods for handling deadlocks. Illustrate Deadlock Detection Algorithm with an example.

3. What is the need of paging? When do page-faults occur? Describe the action taken by the O.S when page fault occurs.

4. What is meant by process? Explain the process state transition with a neat sketch.

5. Differentiate between Multiprocessor and Distributed Operating System.

6. Assume that the following jobs are to be executed on a single processor system; the jobs are assumed to have arrived at time 0 and in the order P1, P2, P3, P4, and P5. Calculate the departure time (completion time) for job PI if scheduling is round robin with time slice 1.

Job-Id	CPU-Burst Time
P1	4
P2	1
P3	8
P4	1
P5	2

SECTION-C

7. Given memory partition of 100 KB, 500 KB, 200KB and 600 KB (in order). Show with the neat sketch how would each of the' first-fit, best-fit and worst-fit algorithms place processes of 412 KB, 317 KB, 112 KB and 326 KB (in order) Which algorithm is most efficient in memory allocation?

8. Explain the Problem of Critical Section (CSP) through Producer Consumer Problem. Give any one solution to solve it.

9. a) Explain the architecture of LINUX Operating System.

   b) List and discuss various methods of file allocation.