Code: IT3T5

II B.Tech - I Semester–Regular/Supplementary Examinations November 2016

OPERATING SYSTEMS CONCEPTS
(INFORMATION TECHNOLOGY)

Duration: 3 hours   Max. Marks: 70
PART – A

Answer *all* the questions.   All questions carry equal marks
                                                       11x 2 = 22 M

1.
   a) Differentiate tightly coupled systems and loosely coupled systems.
   b) Differentiate Multitasking & Multiprogramming.
   c) Difference between Process and Program.
   d) What is meant by context switch?
   e) What is dispatch latency?
   f) Define throughput.
   g) Define race condition.
   h) Define logical address and physical address.
   i) Define lazy swapper
   j) What is a pure demand paging?
   k) What are the different accessing methods of a file?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2.

  a) What is an Operating System? Explain the evolution of operating systems.   8 M

  b) Explain about various memory hierarchies.   8 M

3.

  a) What is Inter Process Communication (IPC)? Explore all the IPC models in detail.   8 M

  b) Write short notes on System calls.   8 M

4.

  a) Consider the following set of processes, with the length of the CPU- burst time given in milliseconds:

Process	Burst time	priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4 and P5 all at time 0. Draw 3 Gantt charts illustrating the execution of these processes using SJF, Priority and Round Robin (quantum=3) scheduling. What is waiting time of each process for each of the scheduling algorithm?   12 M

b) What is critical section problem? What are the requirements that a solution to the critical section problem must satisfy? 4 M

5.

a) Give a detailed description about deadlocks and its characterization. 8 M

b) Given five memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory? 8 M

6.

a) List and describe various disk space allocation methods. 12 M

b) What is trashing? Explain the causes of trashing. 4 M