JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST 1 (SEP. 2011)

Marks: 15 **Time:** 1 Hr.
Subject Name: Operating System **Subject Code:** 10B11CI511
Semester: 5th Sem (CSE & IT)

Note: All questions are compulsory.

Question1) Explain is the purpose of interrupts? What are the differences between a Trap and an Interrupt? Can Traps be generated intentionally by a User Program? Explain the purpose? **[Marks 2]**

Question 2) What are two models of interprocess communication? What are the strength and weaknesses of these two approaches? **[Marks 2]**

Question 3) (a) Generate C Code which guarantees that the child process can print its message before the parent process? **[Marks 2]**

(b) Context-Switching is an overhead to CPU utilization? Justify? **[Marks 1]**

Question 4) What do you mean by a single thread kernel vs multi-threaded kernel? Can a single kernel truly support multi-threaded application? Justify your answer? **[Marks 2]**

Question 5) Develop the following process execution scenario (given below) according to FCFS, SJF (Preemptive and Non-Preemptive approach) and RR (quantum time = 4ms.)? Also calculate the average waiting time and average turnaround time respectively. **[Marks 4]**

PROCESS	ARRIVAL TIME	CPU TIME
P_1	0	14
P_2	3	12
P_3	5	7
P_4	7	4
P_5	19	7

Question 6) Explain Critical-Section Problem with the help of an example? What are the requirements that the solution to Critical-Section Problem should satisfy. **[Marks 2]**