ST. XAVIER'S COLLEGE

MAITIGHAR, KATHMANDU
MIDTERM EXAMINATION
B.Sc.CSIT — 6th SEMESTER – 2015

Course Title: Real Time System	**Full Marks: 60**
Course Code: CSC-354 **Time: 2Hrs**	**Pass Marks: 24**

Candidates are requested to answer the questions in their own words as far as practicable.

Long Answer Questions: [12*8=24]

1) State the optimality of EDF and LST algorithm. And prove the optimality of EDF.

OR

Prove that the set of independent, preemptable jobs with fixed release times is predictable when scheduled in a priority-driven manner on one processor.

2) Describe radar signal processing with suitable example and diagram.

Attempt all (short questions): [6*5=30]

3) How does Air Traffic Control system describe control hierarchies? Explain with diagram.
4) Differentiate between clock driven scheduling and priority driven scheduling.
5) How many jobs does a hyper period (H) comprise if the periods are provided as 4ms, 6ms and 9ms and their respective execution times are 2ms, 2ms and 5ms? Find the total utilization of the system.
6) Describe reference model of a Real Time System.
7) Find the effective release time and effect dead lines of the jobs in the following task graph. Why do we need to find the effective release time and deadline of the jobs?

J_1 (2,10] J_3 (1,12] J_4 (4,9] J_6 (0,20]

J_2 (0,7] J_5 (1,8] J_7 (6,21]
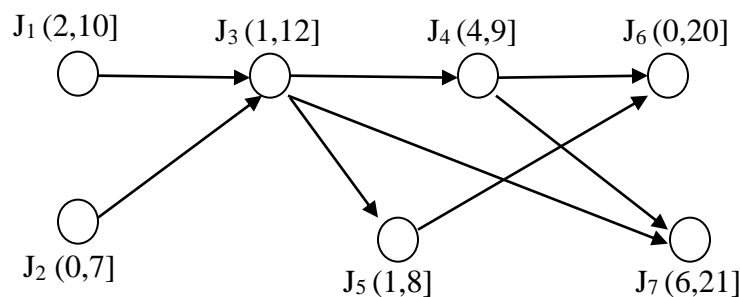
8) **Write short notes on: (Any two)** [3*2=6]
   a. Digital controller.
   b. Periodic task model
   c. Off-line versus On-line Scheduling.