Seminar 2 Problem Sheet

1. Process A has a period of 10 and a cpu requirement of 2. Process B has a period of 14 and a cpu requirement of 9.
   Draw a time line showing the execution of these two processes when the scheduling algorithm used is
   a. EDF (Earliest Deadline First)
   b. RM (Rate Monotonic).

2. Given the following sets of processes:

Set 1

Process	**T**	**C**
A	10	4
B	15	8
C	30	2

Set 2

Process	**T**	**C**
A	80	40
B	40	10
C	20	5

   For each
   i. Test the schedulability of this set of processes using the feasibility test for EDF;
   ii. Draw a timing diagram showing the execution pattern of the processes under EDF;
   iii. Check the process schedulability under RM using the Utilisation Bound Theorem;
   iv. Draw a timing diagram for the execution pattern of these processes under RM.

3. Which of the following systems of periodic processes are schedulable by the rate monotonic algorithm? By the earliest deadline first algorithm? Explain your answer.
   i. { A(T=8,C=3), B(T=9, C=3), C(T=15,C=3)}
   ii. { A(8,4), B(12,4), C(20,4) }
   iii. { A(8,4), B(10,2), C(12,3) }

4. Consider the following two systems of periodic processes: { (100,20), (150,50), (250,100) } and {(100,20), (150,50), (250,120) }.
   a. Calculate the utilisation for each system.
   b. Draw timing diagrams for each system over the time period 750. (750 is the cycle period for these processes) when the scheduling algorithm is:
      i. RM
      ii. EDF.