2a. (15 points) Real-time Scheduling: Rate Monotonic Scheduling (RMS)

RMS $\leq \frac{e_i}{p_i} \leq n(2^{1/n}-1)$

Use the RMS schedulability analysis to check if the task set given is schedulable with RMS. If it is not schedulable under RMS, draw a timing chart to show where the first deadline miss occurs. Assume **pre-emptive** scheduling. Assume utility value for three tasks is 0.776 according to RMS. Assume all tasks arrive at t=0 and then periodically as given in the table.

Task Set

Task	Period	Execution time
1	4	1
2	10	2
3	6	3

100%

$U: \sum \frac{e_i}{p_i} \leq 1$ 100%

$U: \sum \frac{e_i}{p_i} \leq n(2^{1/n}-1)$

≤ 0.779 for $n=3$

$\frac{1}{4} + \frac{2}{10} + \frac{3}{6} = 0.25 + 0.2 + 0.5 = 0.95 \not\leq 0.779$

$\sum \frac{e_i}{p_i} \leq 0.779$

$1/4 + 2/10 + 3/9$

$= 0.25 + 0.2 + 0.3$

$= 0.75 \leq 0.779$

2b. (10 points) Real-time Scheduling: Earliest Deadline Scheduling (EDS)

For the same task set given in Question 2a use the EDS schedulability analysis to check schedulability. Draw the timing chart for at **least two cycles of all tasks**. Assume **non-preemptive** since we are looking at only the earliest deadline.

Not needed.

10/10/2016

(1) According to RMS
Priority

$t_1 \geq t_3 \geq t_2$
pre emptive