Worked out Examples

1. **Consider a program with 3 tasks, 1, 2 and 3, that have the priorities, Repetition periods and computation times defined below. Assume that the tasks are scheduled according to priorities, with no "Pre-emption". Explain the process of execution of the 3 tasks. List the main draw backs**

   Priority Period Comp. time

 | 1 | 1 | 7 | 2 |
   |---|---|----|---|
   | 2 | 2 | 16 | 4 |
   | 3 | 3 | 31 | 7 |

   Ans:

   If all three tasks have invocations and are ready at *time*=0, task 1 will be chosen for execution as it has the highest priority. When it has completed its execution, task 2 will be executed until its completion at *time*=6.

   At that time, only task 3 is ready for execution and it will execute from *time*=6 to *Time*=13, even though an invocation comes for task 1 at *time*=7. So there is just one Unit of time for task 1 to complete its computation requirement of two units and its next Invocation will arrive before processing of the previous invocation is complete.

2. **For the above mentioned process use preemption as well as the priorities and write the timing diagram**

   Ans:
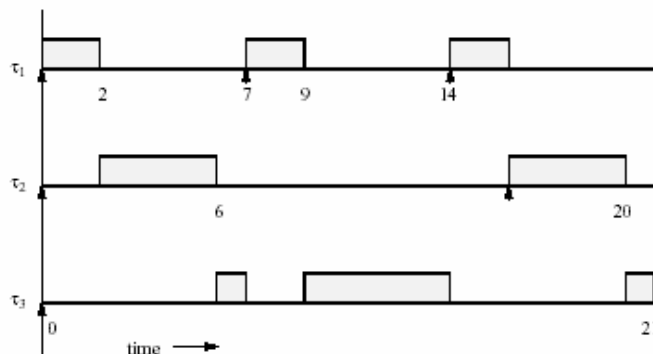
   As it can be seen from the figure that the execution of task 3 will then be Pre-empted at *time*=7, allowing task 1 to complete its execution at *time*=9

Process 3 is pre-empted once more by task 1 at *time=14* and this is followed by the Next execution of task 2 from *time=16* to *time=20* before task 3 completes the rest of

Its execution at *time=21*.

3. ***Priority Period Comp. time***

    1   1   108

    2   2   53

    Assume that the execution starts at the time of t=0 state whether the task t2 will be able to complete its first deadline and state whether the above implementation is feasible or not

    Ans:

    At *time=0*, execution of task 1 begins (since it has the higher priority) and this will continue for eight time units before the processor is relinquished; task 2 will therefore miss its first deadline at *time=5*.
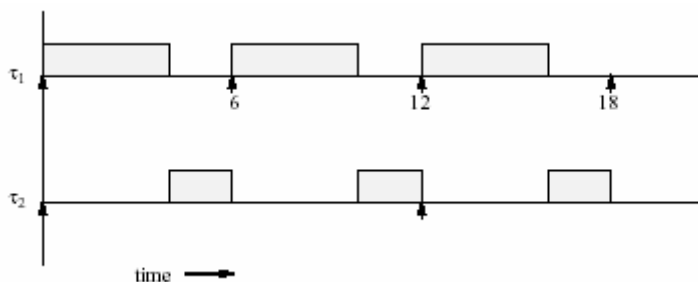
    Since the computation time of task 1 exceeds the period of task 2, the implementation is infeasible

4. ***Priority Period Comp.time***

    1   1   6 4

    2   2   124

    Write the timing diagram for the above implementation and state the advantage

    Ans:

    As shown in the figure utilization is 100% and implementation is feasible as All deadlines are met.