Review Questions and Problems Chapter 10

1. Consider a task set T composed of the following three periodic tasks:

   - T1(0, 5, 25, 30) (release time, computation time, deadline, period)
   - T2(0, 10, 40, 50)
   - T3(0, 20, 55, 75)

   The task set is scheduled with the EDF algorithm.

   a) Verify the schedulability under the EDF algorithm. Build the corresponding schedule. What are the idle times of the processor?

   Consider the following aperiodic tasks:

   - T4(40, 10, 15) (release time, computation time, deadline)
   - T5(70, 15, 35)
   - T6(100, 20, 40)
   - T7(105, 5, 25)
   - T8(120, 5, 15)

   b) Can these requests be guaranteed in the idle times of the processor?

2. Consider a task set T composed of the following three periodic tasks:

   - T1(0, 5, 30) (release time, computation time, period)
   - T2(0, 10, 50)
   - T3(0, 25, 75)

   a) Compute the major cycle of the task set. Verify the schedulability under the RM algorithm. Build the schedule.

   Consider the following aperiodic tasks:

   - T4(5, 12) (release time, computation time)
   - T5(40, 7)
   - T6(105, 20)

   b) The aperiodic tasks are scheduled in the background. Compute the response times of tasks T4, T5, and T6.
   c) The periodic tasks are scheduled with a server. The server capacity is set to 5 and its period is set to 25. Verify the schedulability of the new task set. Build the schedule. Consider that the server is a polling server. Compute the response times of tasks T4, T5, and T6.