### Week 2 Assignment 2

**Due on 2020-12-11, 23:59 EST.**

1. MPI should be preferred over the time-based round-robin algorithms for scheduling a set of soft real-time tasks on a uniprocessor.
   - a. True
   - b. False

2. The upper bound on achievable utilization improves as the number of tasks in a system being developed decreases to zero when MPI is used for scheduling a set of hard real-time periodic tasks.
   - a. True
   - b. False

3. If a set of periodic hard and soft tasks cannot be feasibly scheduled with MPIA, then the set of tasks cannot be feasibly scheduled by any other scheduling algorithm.
   - a. True
   - b. False

4. Under MPIA, the worst-case response time for a periodic hard real-time task occurs when it is out of phase with its higher priority tasks.
   - a. True
   - b. False

5. Suppose a set of periodic hard real-time tasks are scheduled on a uniprocessor. For some reason, an executing task takes more time to complete than its specified execution time. In this situation, it is extremely difficult to predict if a high priority task will miss its deadline.
   - a. True
   - b. False

6. Suppose a set of periodic hard real-time tasks are to be executed on a uniprocessor. For each of these tasks, the execution times and deadlines are equal for scheduling these tasks, let's call it MPI. MPI is more efficient than CDF.
   - a. True
   - b. False

7. Suppose we have a set of hard real-time independent tasks executing on a uniprocessor under CDF scheduling. We observe that a task of period \( T \) and higher priority is not in its deadline. From this observation, it would be safe to conclude that a task having period of \( 3T \) or less would definitely have its deadline.
   - a. True
   - b. False

8. In a periodic event-driven task scheduler, the scheduling points are defined by the arrival of tasks.
   - a. True
   - b. False

9. Suppose a set of periodic hard real-time tasks are being run on a uniprocessor system. For the set of tasks, the deadlines of the tasks are equal to their respective periods. Then, determining an optimal schedule for a set of independent periodic hard real-time tasks without any resource constraint is equivalent to solving a multiprocessor CDF scheduling problem.
   - a. True
   - b. False

10. While scheduling a set of hard real-time periodic tasks whose periods are harmonically related, the upper bound on the achievable CPU utilization is the same for both CDF and MPI algorithms.
    - a. True
    - b. False