**Course: Real Time Systems**                                          **Semester:  VIII**
**Program: B.Tech (CS+LLB)**
**Time: 03 hrs.**                                                      **Max. Marks: 100**

**Instructions Attempt all questions.**

### SECTION A

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | Describe the concepts of soft real time systems with two applications | 5 | CO1 |
| Q 2 | Discuss the Digital Control real time System | 5 | CO1 |
| Q 3 | Describe the Stack Resource Policy | 5 | CO2 |
| Q 4 | Explain weighted round robin scheduling | 5 | CO3 |

### SECTION B

| | | | |
|---|---|---|---|
| Q 5 | With the help of an example explain the Drawback of Uniprocessor Scheduling Algorithm EDF | 10 | CO3 |
| Q 6 | Explain the meaning of "priority-inversion" with the help of timing diagram.. | 10 | CO3 |
| Q 7 | Explain the well-known dynamic algorithms for priority driven scheduling of periodic tasks with examples? | 10 | CO4 |
| Q 8 | Describe the challenges in validating timing constraints and resource constraints in priority driven systems? | 10 | CO4, CO3 |

### SECTION-C

| | | | |
|---|---|---|---|
| Q 9 | Discuss priority inheritance and priority ceiling protocol | 10+10 =20 | CO2 |
| Q 10 | Consider the following three periodic real-time tasks to be scheduled using EDF on a uniprocessor:     $T_1=(e_1=10, p_1=20), T_2=(e_2=5, p_2=50), T_3=(e_3=10, p_3=35)$. Determine whether the task set is schedulable. (Consider arrival times of all tasks are same) | 20 | CO5 |

## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
### End Semester Examination, May 2018

**Course: Real Time Systems**　　　　　　　　　　　　　**Semester:  VIII**
**Program: B.Tech (CS+LLB)**
**Time: 03 hrs.**　　　　　　　　　　　　　　　　　　**Max. Marks: 100**

**Instructions: Attempt all questions**

### SECTION A

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | Describe the concepts of Hard real time systems with two applications | 5 | CO1 |
| Q 2 | Discuss the high level control system | 5 | CO1 |
| Q 3 | Describe the Stack Resource Policy | 5 | CO2 |
| Q 4 | Explain weighted round robin scheduling | 5 | CO3 |

### SECTION B

| | | | |
|---|---|---|---|
| Q 5 | With the help of an example explain the Drawback of Uniprocessor Scheduling Algorithm EDF | 10 | CO3 |
| Q 6 | Explain the meaning of "priority-inversion" with the help of timing diagram.. | 10 | CO3 |
| Q 7 | Explain the well-known dynamic algorithms for priority driven scheduling of periodic tasks with examples? | 10 | CO4 |
| Q 8 | Check whether the following set of periodic real-time tasks is schedulable under RMA on a uniprocessor: $T_1=(e_1=20, p_1=100), T_2=(e_2=30, p_2=150), T_3=(e_3=60, p_3=200)$. (Consider arrival times of all tasks are same) | 10 | CO4, CO3 |

### SECTION-C

| | | | |
|---|---|---|---|
| Q 9 | Discuss priority inheritance and priority ceiling protocol | 10+10 =20 | CO2 |
| Q 10 | Is the following task set schedulable by EDF? Also Check whether it is schedulable using RMS. $T_1=(e_1=10, p_1=50, d_1=35), T_2=(e_2=15, p_2=100, d_2=20), T_3=(e_3=10, p_3=35, d_3=2$ [time in msec]. (Consider arrival times of all tasks are same) | 20 | CO5 |