**Assignment No:1**

Date of Assignment Given: Date of Submission:

Date of return after Evaluation:

**Title/ Questions:**

**Common to all**

1. **The requirement of a model train controller is given. Write the requirement form, specification, component identification and design**
2. **Question 2**

**Set 1**

A robot is working at high speed. When someone opens the door to enter the room, the robot continues its work but at a lower speed to guarantee the safety of the person. When the person leaves the room through the door, he/she has to push a button after closing the door. Now the robot can continue its work at high speed.

**Set 2.**

In the train project, the lamps have to light up when the train passes through a tunnel. Although, when the train drives in daylight, the lamps should be dimmed. Depending on the driving direction, either the white or red light should be working.

**Set 3**

In the train project, the train has to slow down when it takes a turn. The motor has to work harder when the train is riding upon a hill. The transitions between states are controlled by beacons. The image shows the possible transitions from/to driving in a straight line, other transitions are possible too.

**Scheme**

1. **Requirement form – 1 mark, Specification – 1 mark, component identification and design – 3 marks**
2. **The state machine diagram – 5 marks**

Name of the Faculty & Signature