



# **DIPLOMA IN MECHANICAL ENGINEERING**

## **CENTRALIZED QUESTION BANK**

**4020651 - Industrial Robotics and 3D Printing  
Practical**

**DIRECTORATE OF TECHNICAL  
EDUCATION GOVERNMENT OF  
TAMILNADU**

**Course : Mechanical Engineering**

**QP Code : 4020651**

**Max Marks: 100**

|    |    |   |            |
|----|----|---|------------|
| 1. | a) | Create the Robot Program for Profile cutting practice - (Complicated profile – combination of lines and arcs) and Simulate the same | (60 Marks) |
|    | b) | Create the model and produce the Geneva Gear & Ratchet mechanism in 3D printing.  | (30 Marks) |
| 2. | a) | Create the Robot Program for Spot welding practice the objects – (No. of objects - 6) and simulate the same.                        | (60 Marks) |
|    | b) | Create the model and produce the Slide-crank mechanism in 3D printing.  | (30 Marks) |
| 3. | a) | Create the Robot Program for Pick and stack the objects - (No. of objects - 6) and simulate the same.                               | (60 Marks) |
|    | b) | Create the model and produce the Gear Train in 3D printing.   | (30 Marks) |
| 4. | a) | Create the Robot Program for Position recording using Polar co-ordinate system - (No. of positions - 9) and simulate the same.      | (60 Marks) |
|    | b) | Create the model and produce the Geneva Gear & Ratchet mechanism in 3D printing.  | (30 Marks) |
| 5. | a) | Create the Robot Program for Arc welding practice – (Length of weld 50 mm) and simulate the same.                                   | (60 Marks) |
|    | b) | Create the model and produce the Slide-crank mechanism in 3D printing.  | (30 Marks) |
| 6. | a) | Create the Robot Program for Pick and place the objects - No. of objects - 6) and simulate the same.                                | (60 Marks) |
|    | b) | Create the model and produce the Gear Train in 3D printing.   | (30 Marks) |
| 7. | a) | Create the Robot Program for Assembling practice - (Minimum 3 Components) and simulate the same.                                    | (60 Marks) |
|    | b) | Create the model and produce the Geneva Gear & Ratchet mechanism in 3D printing.  | (30 Marks) |

8. a) Create the Robot Program for Position recording using Cartesian co-ordinate system - (No. of positions - 9) and simulate the same. (60 Marks)
- b) Create the model and produce the Slide-crank mechanism in 3D printing. (30 Marks)
9. a) Create the Robot Program for Spray painting practice - (Area - 300mm x 300mm) and simulate the same. (60 Marks)
- b) Create the model and produce the Gear Train in 3D printing. (30 Marks)