DIPLOMA IN Mechanical Engineering

(Tool & Die)

CENTRALIZED QUESTION BANK

4020651 - INDUSTRIAL ROBOTICS AND 3D PRINTING PRACTICAL

DIRECTORATE OF TECHNICAL

EDUCATION GOVERNMENT OF

TAMILNADU

DIPLOMA END SEMESTER / YEAR EXAMINATION – 2023

Course : Mechanical Engineering (Tool & Die)

Subject : Industrial Robotics And 3d Printing Practical   **QP Code :** 4020651

Time   : 3 Hours   Date :   Session: Max Marks: 100

Answer the Following Question

1.   **Part A**. Write and execute a program for Pick and Place components (no. of objects- 6).
      Part B. Create the model and produce the gear train in 3d printing

2.   **Part A.** Write and execute a program for recording positions of Polar coordinates. (no. of positions– 9).
      Part B. Create the model and produce the Geneva Gear & Ratchet mechanism in 3d printing.

3.   **Part A**. Write and execute a program for recording positions of Cartesian coordinates. (no. of positions – 6).
      Part B. Create the model and produce the Slide-crank mechanism in 3d printing.

4.   **Part A**. Write and execute a program for Pick and Stack components (no. of objects – 6).
      Part B. Create the model and produce the gear train in 3d printing

5.   **Part A.** Write and execute a program for Spot Welding (no. of spot - 9).
      Part B. Create the model and produce the Geneva Gear & Ratchet mechanism in 3d printing.

6.   **Part A.** Write and execute a program for Spray Painting (Area: 300 x 300).
      Part B. Create the model and produce the Slide-crank mechanism in 3d printing.

7.   **Part A.** Write and execute a program for Arc Welding (Length of weld 50 mm)
      Part B. Create the model and produce the gear train in 3d printing

8.   **Part A.** Write and execute a program for assembling (minimum 3 components)
      Part B. Create the model and produce the Geneva Gear & Ratchet mechanism in 3d printing

9.   **Part A.** Write and execute a program for Machine loading and unloading with time delay (no. of times – 9).
      Part B. Create the model and produce the Slide-crank mechanism in 3d printing

10.   **Part A.** Write and execute a program for Profile Cutting (Complicated Profile – Combination of lines and arcs).
      Part B. Create the model and produce the gear train in 3d printing

SCHEME OF EVALUATION

S. No.	Description	Max. Marks Allotted
	PART A – ROBOT PROGRAMMING	
1	Robot Program	20
2	Simulation / Execution	30
3	Result	10
	PART B – 3D PRINTING	
4	Cad Modelling	15
5	3d printing	15
6	Vivo - Voce	10
	TOTAL	**100**