R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous Institute U/s UGC Act 1956)

B.Voc. SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1PT301   **DATE: 18-12-2025**
SUBJECT NAME: CAD-CAM
TIME: 11:00 AM to 01:00 PM   **TOTAL MARKS: 50**

Instructions
1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

			Marks	BL	CO
Q.1	**(a)**	Enlist various commercially available CAD software.	**05**	**R**	**1**
	(b)	Explain the various Boolean operations used in solid modelling with a neat sketch.	**05**	**U**	**2**
Q.2	**(a)**	Differentiate between wireframe modelling, surface modelling, and solid modelling.	**05**	**U**	**2**
	(b)	With a neat sketch, illustrate the CIM wheel and briefly explain how its components work together to improve productivity in a real manufacturing application.	**05**	**A**	**3**

OR

			Marks	BL	CO
Q.2	**(a)**	Discuss Constructive Solid Modelling (CSM).	**05**	**U**	**2**
	(b)	Differentiate between CNC machines and conventional machines, and briefly explain how this difference affects performance in a real manufacturing application.	**05**	**A**	**3**
Q.3	**(a)**	Enlist any five preparatory functions (G-codes).	**05**	**R**	**4**
	(b)	Differentiate between incremental and absolute dimensioning with a neat sketch.	**05**	**U**	**4**

OR

			Marks	BL	CO
Q.3	**(a)**	Define with neat sketch: 1. Machine Zero or Fixed Zero Point (M) 2. Workpiece Zero or Floating Zero Point (A)	**05**	**R**	**4**

(b) Which formats are used for manual part programming? Explain the word-address format.   **05**   **U**   **4**

Q.4 **(a)** Write a manual part program for finishing the component as shown in Figure 1. Assume spindle speed 600 rpm and feed rate as 0.5 mm/rev.   **05**   **A**   **4**
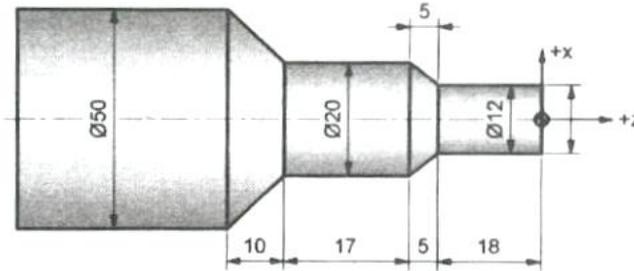

Figure 1

(b) Draw the various types or layouts of FMS.   **05**   **R**   **5**

OR

Q.4 **(a)** Write a manual part program for finishing the component as shown in Figure 2. Assume spindle speed 500 rpm and feed rate as 0.5 mm/rev.   **05**   **A**   **4**
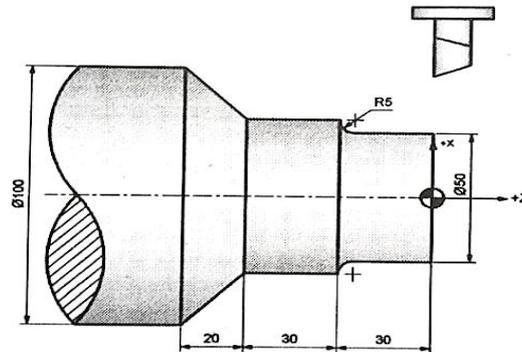

Figure 2

(b) What is AGV? What are the different types of AGVs?   **05**   **R**   **5**

Q.5 **(a)** Explain OPTIZ coding system.   **05**   **U**   **5**

(b) Differentiate between variant and generative type CAPP.   **05**   **U**   **5**

OR

Q.5 **(a)** Discuss various applications of robots.   **05**   **U**   **5**

(b) Enlist different types of grippers used in robot and explain any one.   **05**   **U**   **5**

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