

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII EXAMINATION – WINTER 2025****Subject Code: 3172010****Date:24-11-2025****Subject Name: Automated Manufacturing****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Define Macros.	03
	(b) List types of manufacturing systems and compare each with Respect to flexible, variety and production quantity.	04
	(c) Draw neat sketches and explain various robot configurations.	07
Q.2	(a) Explain in brief programmable Logic controllers.	03
	(b) Using neat sketch explain the working principle of incremental and absolute optical encoder.	04
	(c) Explain with block diagram open loop and closed loop control system.	07
	OR	
	(c) Describe the type of positioning control systems in NC/CNC machines.	07
Q.3	(a) What is canned cycle?	03
	(b) Classify types of sensors.	04
	(c) Define functions of below G-Code (i) G70 (ii) G72 (iii) G74 (iv) G76 (v) G21 (vi) G90 (vii) G00	07
	OR	
Q.3	(a) What do you mean by 'Key machine' concept in GT?	03
	(b) Give full form of CNC, AS/RS, DNC and FMS.	04
	(c) Explain classification of FMS based on types of Layout.	07
Q.4	(a) Explain difference between modal and non-modal codes.	03
	(b) Define functions of below M-Code (i) M09 (ii) M42 (iii) M07 (iv) M05.	04
	(c) What is ATC? Explain how tool is changed in CNC machine with suitable sketch.	07
	OR	
Q.4	(a) Briefly discuss objectives of Computer aided Manufacturing.	03
	(b) "CNC machine tools are not suitable for mass production" evaluate.	04
	(c) Explain following with reference to Group Technology: (i) Coding structures in GT (ii) Composite Part.	07
Q.5	(a) What is the USA principle? What does each of the letters Stand for?	03
	(b) Which are the formats used for manual part programming? Write word address format.	04

- (c) Explain machine origin, part origin and program origin in context of turning centre. **07**

OR

- Q.5** (a) What are the advantages of ball-screws over lead-screws? **03**
(b) What are the reasons for implementations of automation in industries? **04**
(c) Explain linear and circular interpolations used in turning. Draw a neat sketch of circular interpolation. **07**
