Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER - I • EXAMINATION - SUMMER • 2013

Subject code: 712803N Date: 13-06-2013

Subject Name: Product Automation and CNC Technology

Time: 10.30 am - 01.00 pm**Total Marks: 70**

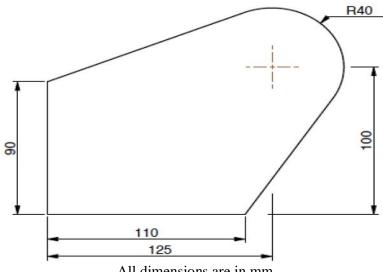
Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- (a) What are the two units of MCU of a machine tool? What does each unit do? 0.1 07 07
 - Explain the role of CNC Technology in recent manufacturing Industry.
- Why is a reciprocating ball in screw universally used in actuation system of 0.2 (a) 07 CNC machine tools?
 - Briefly describe the automatic tool changer used in CNC machining center. **07**

- Briefly describe about the type of electrical drives used in CNC machine tool. **07**
- **Q.3** What are G codes? Explain any three G code with example. (a) 07
 - Write a note on Word Address Format used in part programming. (b) 07

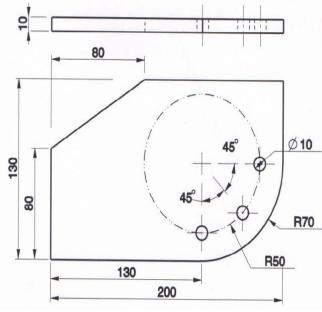
- 0.3 What are M functions? Explain any three M function with example. 07 (a)
- i) Explain difference between absolute and incremental programming mode. 07 ii) What are the modal and non modal commands?
- Briefly describe the steps involved in APT programme. 07 **Q.4** (a)
 - Discuss the importance of the various statements in APT language. 07

- Automation is the key factor for industrial growth, Justify the statement. 0.4 07 (a)
 - Explain the dielectric system of wire EDM in detail. **07**
- Differentiate fixed, programmable and flexible automation. 07 **Q.5** (a)
 - Write an APT program for profile milling a component shown in figure given **07** below. Thickness of part is 10 mm. Cutter diameter 15 mm and length 15 mm.



All dimensions are in mm

(a) List and explain the important APT auxiliary statements. **Q.5**



All dimensions are in mm
