**Seat No.: _____** **Enrolment No._____**

# GUJARAT TECHNOLOGICAL UNIVERSITY

## ME Semester –II Examination Dec. - 2011

**Subject code: 1720802** **Date: 12/12/2011**

**Subject Name: Computer Aided Manufacturing**

**Time: 02.30 pm – 05.00 pm** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

| | | | |
|---|---|---|---|
| **Q.1** | **(a)** | Explain clearly the difference between NC, CNC and DNC machine. | **07** |
| | **(b)** | What do you understand by canned cycle? Explain at least three canned cycles. | **07** |
| **Q.2** | **(a)** | Discuss: point-to point, straight cut and continuous path control systems for CNC machine. | **07** |
| | **(b)** | Give classification of positioning feedback device. Explain (i) Linear Transducers (ii) Rotary Encoders. | **07** |
| | | **OR** | |
| | **(b)** | With the help of suitable figure explain the following with reference to CNC machines.<br>(i) Absolute and incremental dimensioning<br>(ii) Axis identification for lathe and milling machine. | **07** |
| **Q.3** | **(a)** | Write a CNC part program (using G and M codes) on two axis turning center for the geometry as shown in figure 1. | **07** |
| | **(b)** | Write short note on tooling for CNC machines. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Describe different ways of defining (i) A point and (ii) A line in Automatically programmed tools (APT). | **07** |
| | **(b)** | Write a CNC part program for milling contour as shown in figure 2. Clearly state the type of cutting tool. Also specify the reference point, programming mode and show the calculations for cutting parameters. | **07** |
| **Q.4** | **(a)** | What is the difference between Variant process planning and Generative process planning? | **07** |
| | **(b)** | What do you mean by FMS layout? Explain different types of FMS layouts with neat diagram. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Give advantages, limitations and application of FMS. | **07** |
| **Q.4** | **(b)** | Explain the objectives of 'Group Technology' in terms of design, manufacturing and systems. | **07** |
| **Q.5** | **(a)** | Explain the computer integrated manufacturing (CIM) in detail. Explain the different elements of CIM. | **07** |
| | **(b)** | Discuss: Role of automated guided vehicles in flexible manufacturing system. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Discuss different types of manufacturing system. | **07** |
| | **(b)** | Write short note on Mechatronics including benefits, needs. | **07** |

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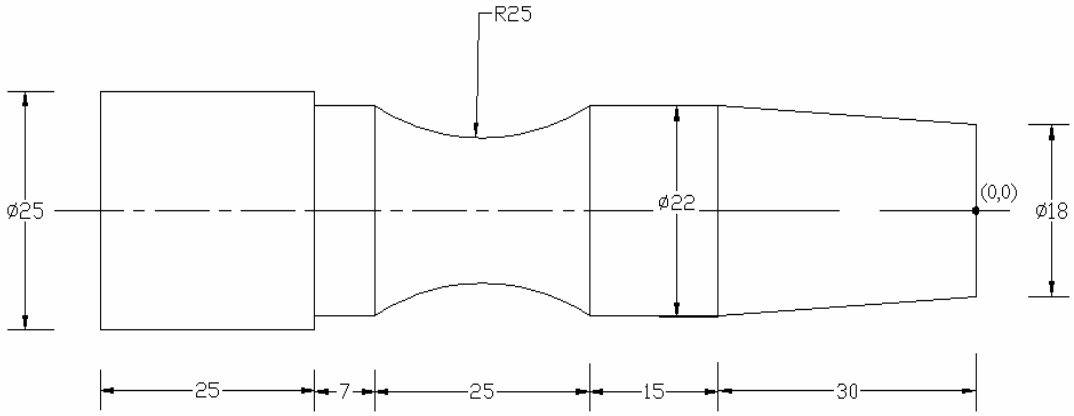


**FIG.NO.-1**

**All Dimensions are in mm**
**Material:C45 Ø 28 x 105 Length**

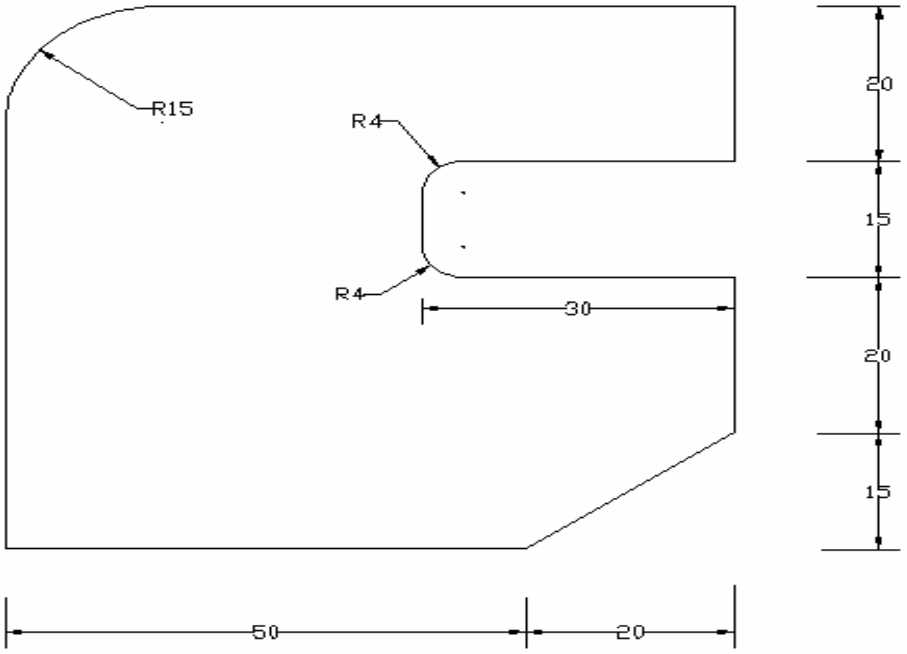


**FIG.NO.2**

**All Dimensions are in mm**
**Material C15,thickness of work piece =5 mm**