

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 172501****Date: 26/12/2012****Subject Name: Computer Aided Manufacturing****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) What is NC machine? Differentiate between NC and CNC machine. 07
(b) Describe NC paper tape and explain various tape formats. What is parity check? 07

- Q.2** (a) Give classification of NC machines and explain with neat sketch close loop control system. 07
(b) With the help of suitable figure explain Axis Identification for lathe and milling machine. 07

OR

- (b) Explain the constructional features of NC machine tool. 07

- Q.3** (a) Write a CNC part program on two axis turning center for the geometry as shown in figure 1. 07
(b) What do you understand by canned cycle? Explain at least three canned cycles. 07

OR

- Q.3** (a) What is adaptive control? Explain the important constraints taken for ACC system. 07
(b) Enlist the various methods of Rapid-prototyping and explain about Stereo Lithography technique. 07

- Q.4** (a) 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
(b) Explain Absolute and Incremental system for CNC part programming. 07

OR

- Q.4** (a) Explain the computer integrated manufacturing (CIM) in detail. Explain the different elements of CIM. 07
(b) Differentiate between Generative process planning and Variant process planning. 07

- Q.5** (a) Explain different types of automated guided vehicles. How traffic is controlled in AGV? Explain the safety features in AGV systems. 07
(b) Define robot. List the various types of robots used in industry and explain any one with neat sketch. 07

OR

- Q.5** (a) What do you mean by FMS layout? Explain different types of FMS layouts with neat diagram. 07
(b) Give advantages, limitations and application of FMS. 07

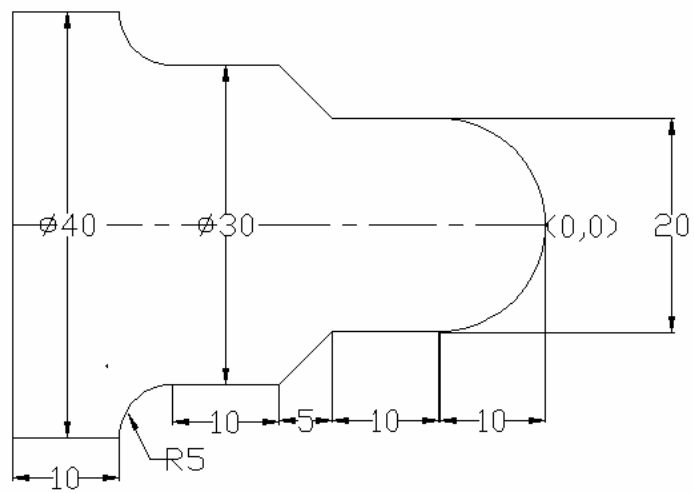


FIG NO.1

(All dimensions are in mm)
 Work piece material: Low carbon steel, Round bar of 40 mm diameter and length 70 mm.

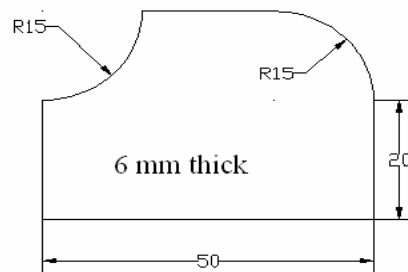


FIG NO. 2

(All dimensions are in mm) (Assume suitable data)