

GUJARAT TECHNOLOGICAL UNIVERSITY**ME – SEMESTER – II (New)– EXAMINATION – WINTER-2019****Subject Code: 3720802****Date: 18-11-2019****Subject Name: Computer Aided Manufacturing****Time: 02:30 PM TO 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) 1) Explain classification of CNC Machine. **03**
 2) Write application and advantages of CNC Machine. **04**
 (b) Explain axes designation in CNC machine tool. Draw the neat sketch of four axes horizontal boring machine and specify all axes on it. **07**
- Q.2** (a) List components of DNC. Draw a switching and LAN network for a DNC. **07**
 (b) Explain the difference between NC and CNC machines. **07**
- OR**
- (b) 1) Explain G Codes & M Codes in part programming. **03**
 2) Explain about Parametric programming. **04**
- Q.3** (a) Consider the job as shown in fig. 1 with pre-existing holes of required diameter. Assuming 1.5 mm pitch and 1000 RPM. The required federate would be 1500 mm/min or 1.5 mm/rev. depending on federate mode. Write the part program for feed per minute mode. **07**
 (b) What is meaning of design by features? Explain procedural design by feature and declarative design by features. **07**
- OR**
- Q.3** (a) What is a canned cycle? Explain any two canned cycles used for CNC Lathes along with their formats and cycle diagrams. **07**
 (b) Discuss rectangular turning cycle (G90) and thread cutting cycle (G92) with example. **07**
- Q.4** (a) Explain recirculating ball screw used in CNC machine. **07**
 (b) Explain various network topologies. State merits and limitations of each of the topologies. **07**
- OR**
- Q.4** (a) What is the meaning of APT? Explain geometry and motion statements with suitable example **07**
 (b) Describe the principle of working of an automatic pallet changer (APC). **07**
- Q.5** (a) Explain about the evolution of NC/CNC controllers **07**
 (b) Discuss automatic feature recognition **07**
- OR**
- Q.5** (a) Explain intrinsic and extrinsic properties of features **07**
 (b) Specify any three generic types of feature validity checks. Explain about coverage of feature mapping. **07**
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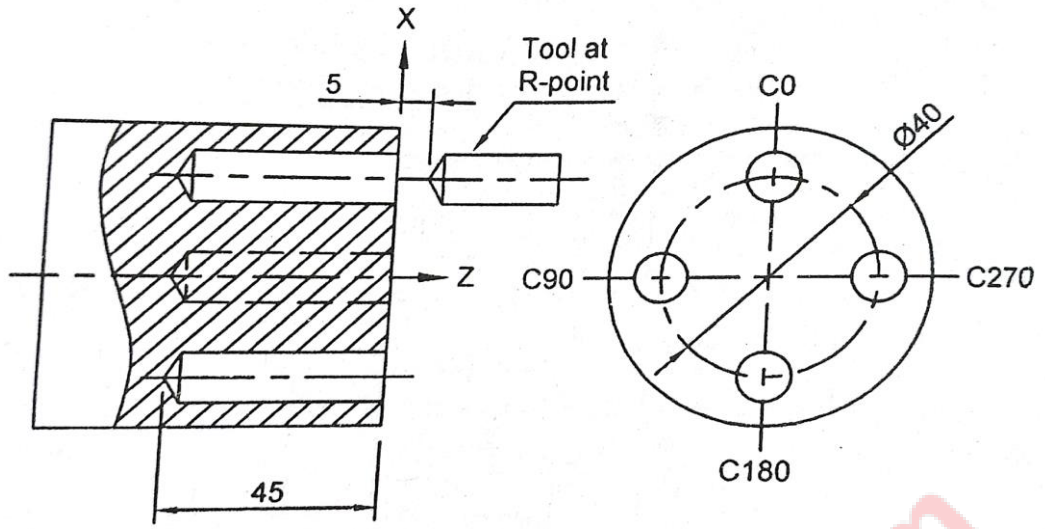


Fig 1

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