GUJARAT TECHNOLOGICAL UNIVERSITY
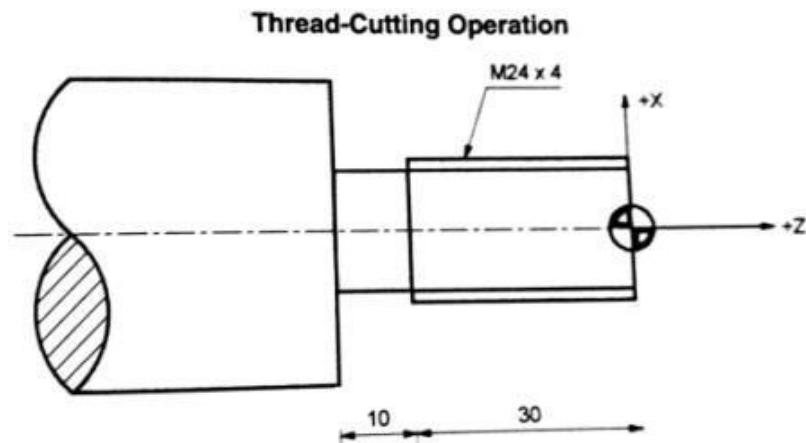## BE - SEMESTER–VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2172002   **Date:21/11/2016**
Subject Name:Automated Manufacturing - I
Time:10.30 AM to 1.00 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)** Write a manual part program for finishing the component as shown in Fig.1   **07**

Thread-Cutting Operation

Fig.1(All dimensions in mm)

  (b) What are the differences between NC, CNC and DNC machines?   **07**

Q.2 **(a)** Explain following;   **07**
       (i) Automatic tool changer (ATC) in CNC machine,
       (ii) Automatic pallet changer (APC) in CNC machine.

  (b) Explain the two most popular methods of preloading the ball screw nut in CNC machine.   **07**

OR

  (b) Explain the functions of the following G codes.   **07**
       G00, G90, G21, G76 and G92

Q.3 **(a)** Develop a part program using G and M codes to turn MS job of size Ø80 x **07**
120mm length as shown in fig.2.Assume suitable cutting parameters and
various parameters and various canned cycles to turn the final shape from the
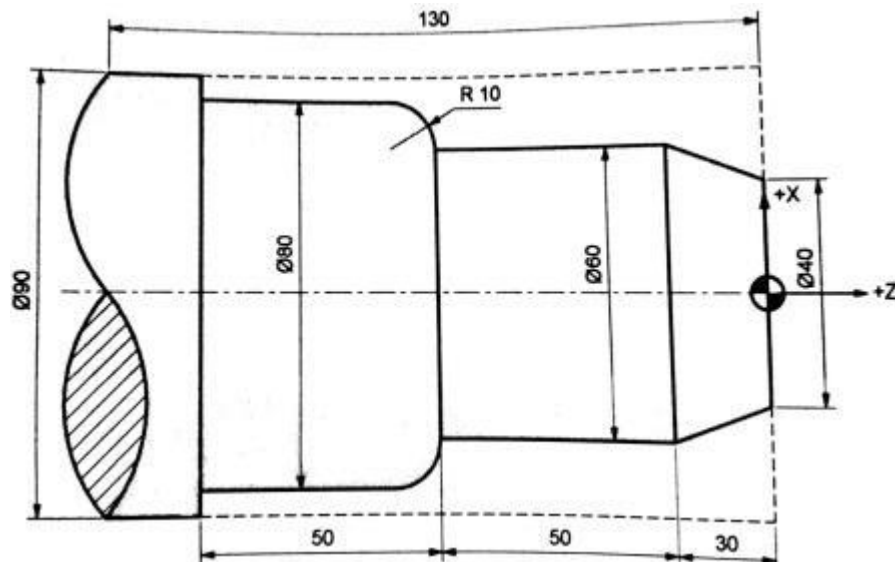raw material of size Ø90 x 130mm.

Fig.2(All dimensions in mm)

(b) With the help of neat sketch, explain the methods of eliminating the backlash in **07**
recirculating ball screws.

OR

Q.3 **(a)** Explain Geometrical and motion statements used in APT with illustration. **07**
(b) Explain with illustration: **07**
(i) Drilling canned cycle
(ii) Parametric Subroutine
(iii) Fixed zero and floating zero

Q.4 **(a)** What is process planning? Explain the generative type of CAPP system. **07**
(b) What is the difference between point to point and continuous path control system **07**
in CNC machine.

OR

Q.4 **(a)** Give the comparison Between Variant (Retrieval) CAPP and Generative CAPP **07**
system and also explain advantages of CAPP.
(b) With neat sketch explain six different types of coordinate measuring machine **07**
(CMM) configuration.

Q.5 **(a)** Explain basic component of automated storage/retrieval system. **07**
(b) Describe various types of vehicle guidance technologies used in commercial AGV **07**
system.

OR

Q.5 **(a)** Explain the types of Automated Guided vehicles. **07**
(b) Define rapid prototyping. What are the different application of rapid prototyping **07**

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