

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019

Subject Code:2172002/2172010

Date:14/05/2019

Subject Name:Automated Manufacturing - I

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.

- | | MARKS |
|---|-----------|
| Q.1 (a) Give the types of AS/RS. | 03 |
| (b) Explain basic component of automated storage/retrieval system. | 04 |
| (c) Write a part program using G75 for grooving in X axis as shown in fig. 1. | 07 |

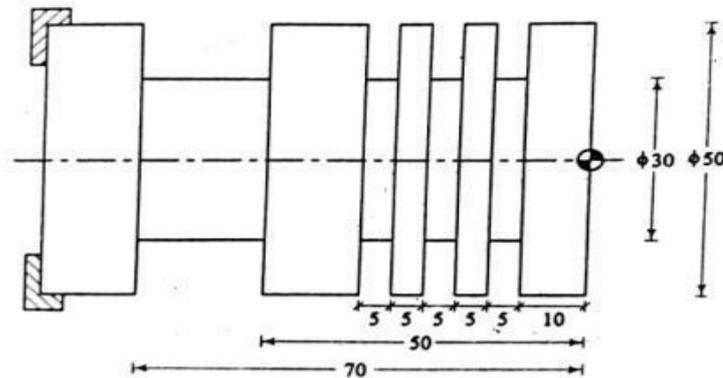


FIG 1.

- | | |
|---|-----------|
| Q.2 (a) Explain Parametric Subroutine. | 03 |
| (b) Give advantages of CNC over NC. | 04 |
| (c) Write a part program for producing four tapped holes as per the drawing shown in fig 2. | 07 |

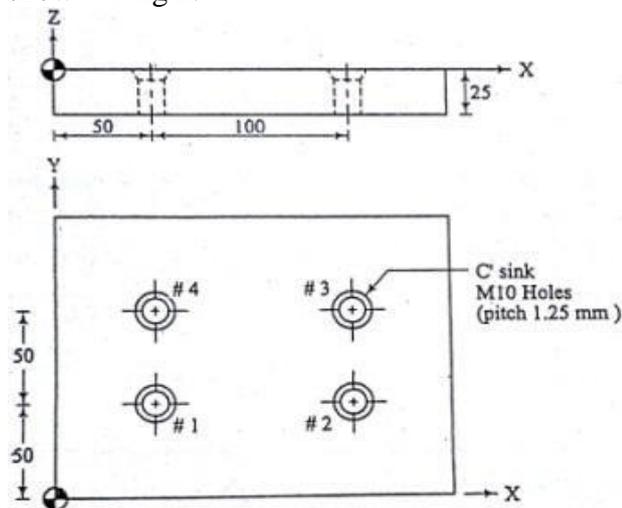


Fig 2.
OR

- (c) Write a part program using G74 to drill a central hole and face groove as shown in fig.3 **07**

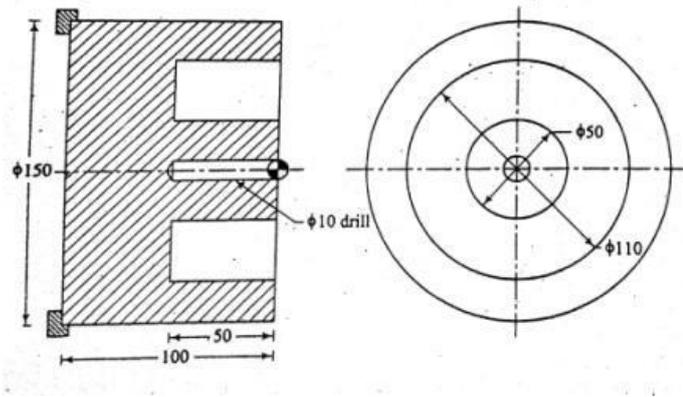


Fig 3

- Q.3** (a) Explain floating zero. **03**
 (b) Define: Accuracy, Precision, and Resolution. **04**
 (c) Explain following; **07**
 (i) Automatic tool changer (ATC) in CNC machine,
 (ii) Automatic pallet changer (APC) in CNC machine.

OR

- Q.3** (a) Define automation. **03**
 (b) Explain in briefly Drilling G81 in milling machine. **04**
 (c) What is the difference between hard products variety and soft product variety? **07**

- Q.4** (a) What is AGV? **03**
 (b) Explain in briefly Boring Cycles G90 in milling machine. **04**
 (c) With neat sketch explain the four basic steps of rapid prototype techniques. Describe the Stereo lithography (SLA) technology. **07**

OR

- Q.4** (a) What is process planning? **03**
 (b) Explain the functions of the following G codes. G21, G76 and G92. **04**
 (c) Explain the principle of CMM. Describe the methods of operating and controlling a CMM. **07**

- Q.5** (a) Explain Machine Origin in context of Turning Centre. **03**
 (b) Compare the roller screws over ball screws. **04**
 (c) What is an automation migration strategy? Explain three phase of a typical automation migration strategy. **07**

OR

- Q.5** (a) Explain Program Origin in context of Turning Centre. **03**
 (b) Explain the difference between the following cycles with respect to the spindle rotation and tool movements. (i) G74 and G84. **04**
 (c) Using neat sketches, explain the working principle of incremental and absolute optical encoders. **07**
