

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 |

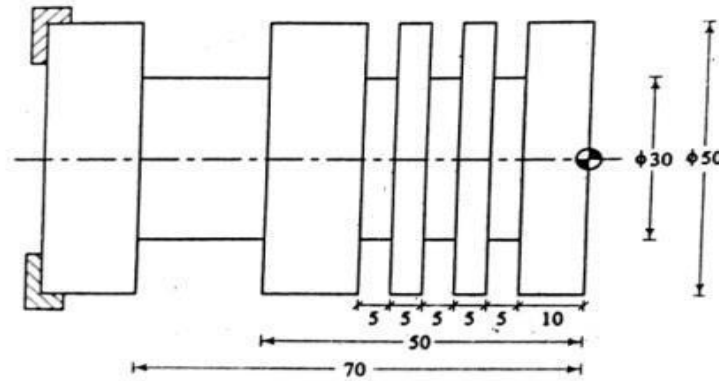


FIG 1.

- | | | |
|------------|---|-----------|
| 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 |

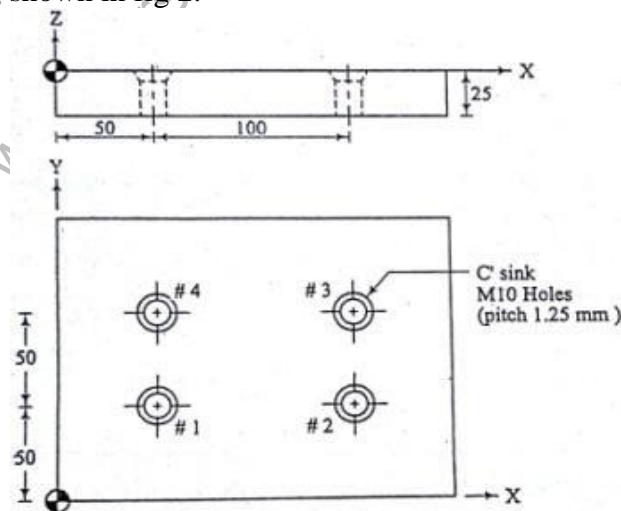


Fig 2.
OR

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

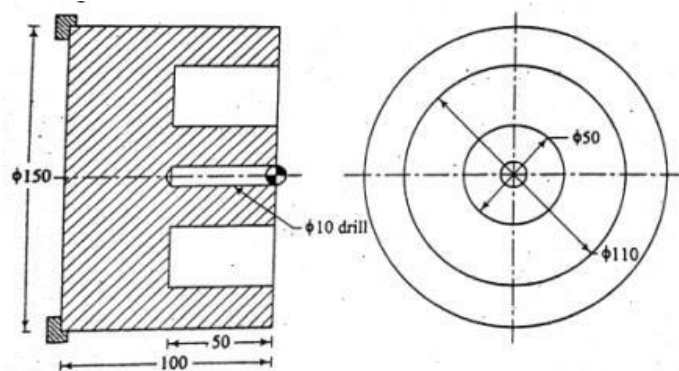


Fig 3

- 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
