

**BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

Term-End Examination

December, 2011

BME-004 : CNC TECHNOLOGY

Time : 3 hours

Maximum Marks : 70

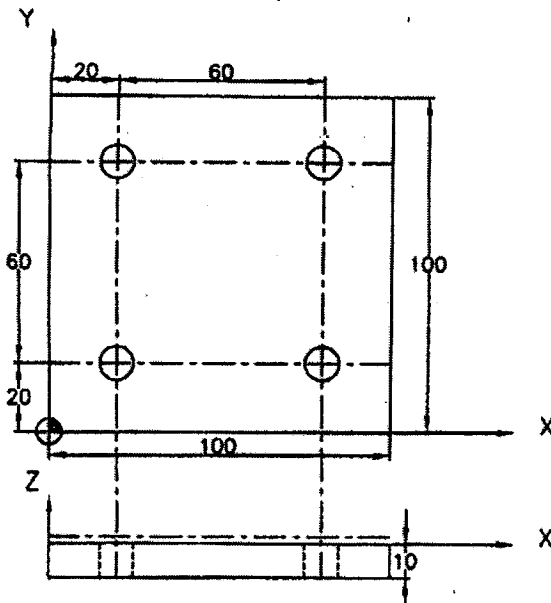
Note : *All questions carry equal marks.*

Answer any seven questions.

Assume missing data if any.

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|----|-----|--|---|
| 1. | (a) | Explain product cycle with a suitable block diagram. | 5 |
| | (b) | Explain the ways in which computers will help in manufacturing industries. | 5 |
| 2. | (a) | Briefly explain the basis of designing the coordinate axes in CNC machine tools. | 5 |
| | (b) | How is a CNC control system organised ?
Briefly explain the functions of any three elements in the control. | 5 |
| 3. | (a) | Give a brief description of the CNC machining centres. | 5 |
| | (b) | Describe five applications where the touch trigger probes can be used on a shop floor. | 5 |

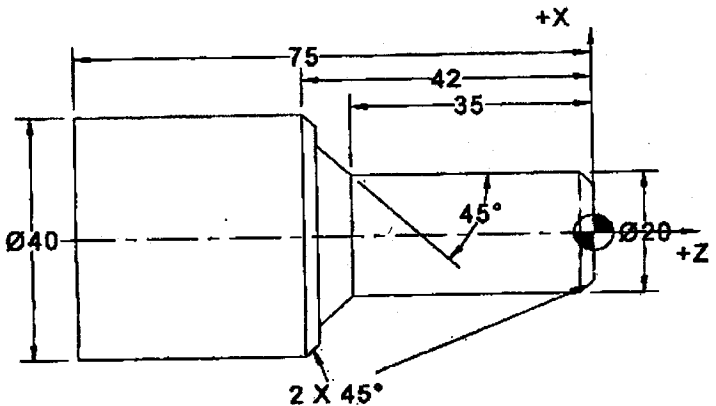
4. (a) Explain the purpose of preparatory functions (G-codes) in CNC programming. 5
- (b) Explain the differences and applications of absolute and incremental programming system in CNC applications. 5
5. The component to be machined is shown in Fig.1. Develop the part program without and with the use of canned cycles. 10



(All Dimensions are in mm)

Fig. 1.

6. For the components shown below in Fig.2 make part program for machining on the CNC turning centre. 10
- part program for machining on the CNC turning centre.



(All Dimensions are in mm) Fig. 2.

7. (a) What is a typical format used for turning centre programming? Explain any format you are familiar with in metric or inch units. 5
- (b) Explain the importance of the tool nose radius compensation in turning centres. 5

8. Develop the part program using APT language for the component shown below in fig.3. 10

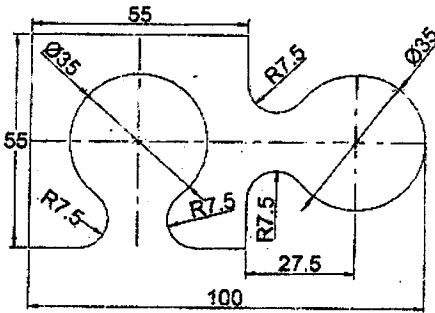


Fig. 3.

(All Dimensions are in mm)

9. (a) What do you understand by the word DNC ? Explain its applications. 5
(b) Write a short note on MAP. 5
10. (a) Briefly explain the components of FMS. 5
(b) What are the principles that need to be considered for selecting a material handling equipment to become part of an FMS ? 5