

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

Term-End Examination

December, 2012

**BME-004 : CNC TECHNOLOGY AND
PROGRAMING**

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) | With the help of suitable flow chart describe the typical stages in the product development of a product. | 6 |
| | (b) | List atleast eight typical applications can be found for the CNC machines tools. | 4 |
| 2. | (a) | With the help of suitable sketch, give a brief description of the organisation of the modern machine control unit functions. | 5 |
| | (b) | Briefly explain the basis of designating the co-ordinate axis in CNC machine tools. | 5 |
| 3. | | Describe the various types of drives and actuation systems used in CNC machine tools to generate the necessary motions. | 10 |

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4. (a) Give the advantages of recirculating ball screws compared to the conventional Acme screws. 5
- (b) List the steps involved in writing part program. 5
5. Briefly explain the purpose of miscellaneous functions (M-codes) in CMC programming. Give any five codes with their application. 5+5
6. The component to be machined is shown as figure 1. Develop the part program without and with the use of canned cycle. 10

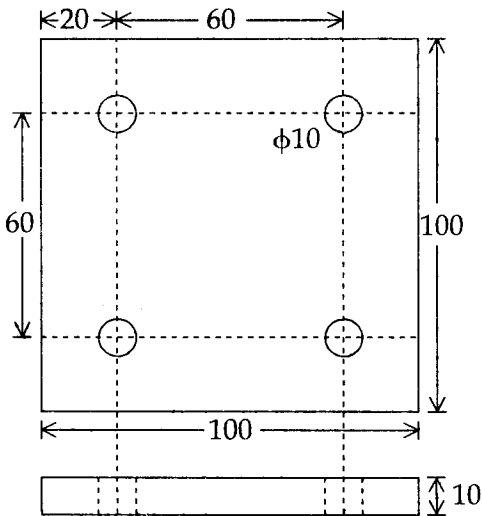


figure - 1

7. How is cutter radius compensation given in the case of a machining centre ? Explain with the help of suitable example how is it operational. Specify any of the limitation in using this facility. 10
8. (a) Explain any one canned cycle format that you are familiar with. 5
- (b) Explain the need of a computer aided part programming system. 5
9. Write any ten APT Geometry command and of any ten APT motion command used in APT language. 10
10. (a) What are various functions served by the use of DMC. 5
- (b) Give any two definitions of FMS (Flexible Manufacturing Systems) 5
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