

01221

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

**Term-End Examination**

**December, 2013**

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

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : All questions carry equal marks. Answer any seven questions. Assume missing data if any. Use of scientific calculator is allowed.*

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1. (a) Write the two possible ways through which computer can be used in manufacturing. 5
- (b) Write atleast ten applications of CNC machine tools in manufacturing industry. 5
2. (a) With the help of suitable sketch describe the axes designation for CNC tools as standardised by EIA and ISO. 5
- (b) Name the various drives used in CNC machine tools. 5

3. Briefly describe the CNC machining center. 5+5  
Mention the requirement of tool pre-setting in CNC machining.
4. (a) What is part program ? Write the steps to make a part program for a typical CNC machine tool to make a component. 5
- (b) Write the meaning of following preparatory functions. 5
- (i) G 02
- (ii) G 17
- (iii) G 40
- (iv) G 80
- (v) G 90
5. (a) Explain the differences and application of absolute and incremental programming system in CNC applications. 5
- (b) Briefly explain the purpose of miscellaneous functions ( M codes) in CNC programming. 5

6. The component to be machined is shown in Figure 10  
1. Develop the part program without and with  
the use of canned cycle.

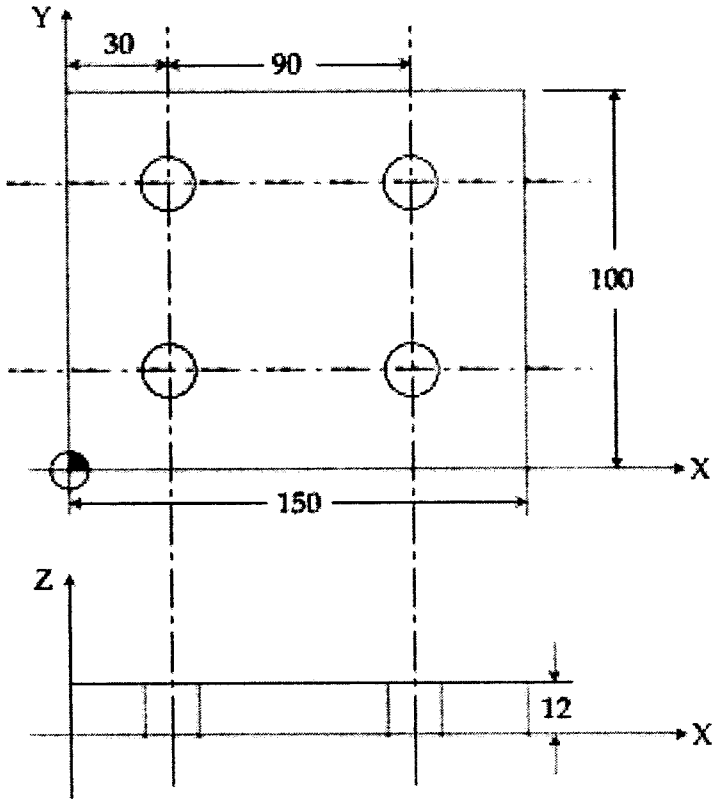


Fig. 1

7. For the component shown below fig. 2 make a part program for machining on CNC turning centre. 10

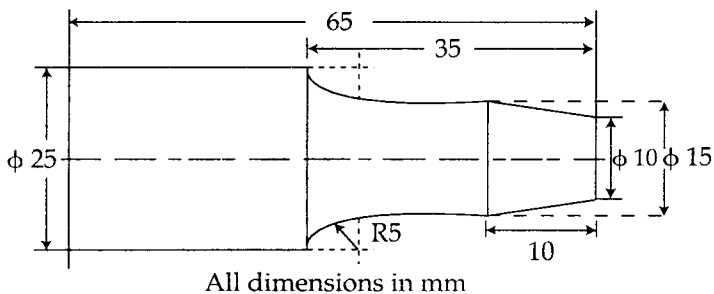


Fig. 2

8. Write the geometry statement for the part as identified in fig. 3. 10

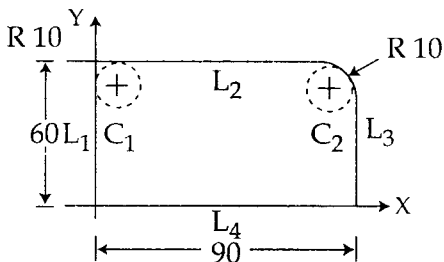


Fig. 3

9. What are the types of communication systems used with CNC machine tools? Give a brief description of each of them. 10
10. Write a short notes on any two. 5x2=10
- AS/RS
  - Functions performed by FMS control system
  - AGV