| BME-004 |

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

01815

Term-End Examination

June, 2012

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) Briefly explain the principle of CNC machine tools.   5

   (b) Give the advantages and disadvantages of numerical control machine tools.   5

2. (a) What are the various types of control systems possible in NC machine tools ?   5

   (b) Give the examples of a few enhancements in programming that are available in the modern CNC control systems.   5

3. (a) Briefly describe the type of electric drives used in CNC machine tools.   5

   (b) What are the various types of tool magazines used in CNC machine tools ? Give their relative merits.   5

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4. (a) Explain the word address format that is   5
        generally used with CNC machining
        centres.

    (b) Briefly explain the purpose of miscellaneous   5
        functions (M-codes) in CNC programming.
        Give any M two codes with their
        applications.

5. Write a part program for the component shown   10
    in figure 1. All the hole making operations are to
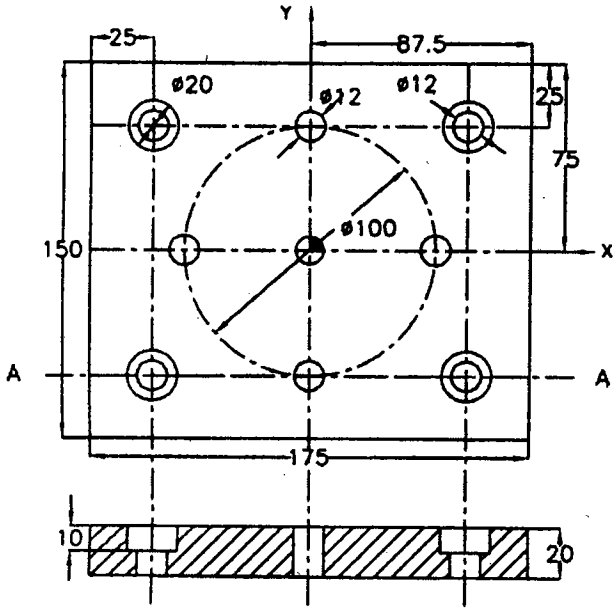   be machined using the 10 mm drill and 20 mm
    end mill.

Figure 1

(All Dimensions are in mm)

6. For the component shown in figure 2 below make 10
a part program for machining on the CNC turning
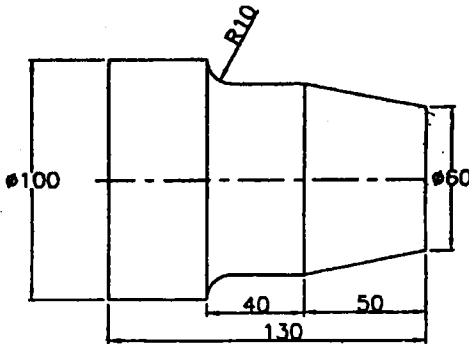centre.

Figure 2

(All Dimensions are in mm)

7. (a) Explain the need for canned cycles in 5
turning centres with a suitable example.

(b) Differentiate between turning centre 5
programming and machining centre
programming.

8. Explain any 10 vocabulary words used in APT 10
language.

9. (a) Explain the working of a bus network. 5
Explain the reasons for its wide usage.

(b) What are the various functions served by 5
the use of DNC ?

10. (a) Explain briefly the components of FMS. **5**

(b) Explain the advantages derived by the **5** application of an AGV. Compared to other material handling equipments.

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