|BME-004|

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00480

Term-End Examination

June, 2013

## 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**.*

1. (a) With the help of suitable sketch show different elements of NC machine tool operation.   **5**

    (b) Explain the data processing in a CNC machine tool in closed loop control.   **5**

2. (a) Give the examples of a few enhancements to programming that are available in the modern CNC control system.   **5**

    (b) Name the five applications where touch trigger probes can be used.   **5**

3. (a) How is the datum selected in the case of CNC part programming ? Explain your answer with suitable example.   **6**

    (b) Explain the importance of part program verification.   **4**

4. What is the importance of prepartory function in **5+5**
   CNC machining center programming ? Give the
   description of any five functions and their
   applications.

5. For the component shown below make a part **10**
   program for machining on CNC turning centre.
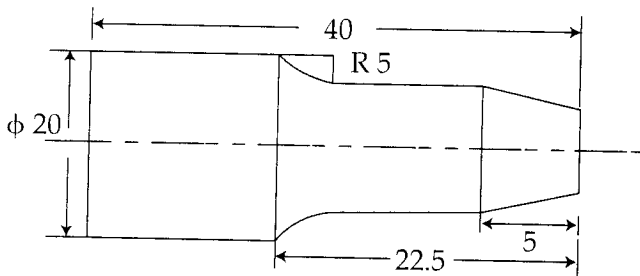
All dimensions in mm

6. (a) What are various formats in which feed rate **5**
       can be specified in turning centre ? Explain
       their application.

   (b) Briefly explain APT language structure. **5**

7. (a) Explain the concept of port processor as **5**
       used in computer aided part programming.

   (b) Explain the following APT Geometry **5**
       commands.
       CLW
       DECR
       INCR
       INTOF
       HYDERB

8. Explain various communication methods possible **10** between computers and CNC machine tools.

9. What is flexibility ? List the various elements that **10** form a flexible manufacturing system. Briefly explain the each element.

10. Give the short notes on *any two* : **10**
    (a) DNC
    (b) MAP
    (c) Cell layout