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**BME-004**

01351

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

## Term-End Examination

## December, 2010

## 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. Use of calculator is allowed*

1. (a) List ten applications of CNC in maufacturing process. 5

   (b) What are the advantages and limitations of NC machine tools ? 5

2. With the help of suitable sketch show all six axes of CNC machine tool standardized by EIA and ISO. Briefly describe the right hand co-ordinate system to identify the sign (positive or negative) of the axes. 10

3. (a) Write at least five applications of touch trigger probes. 5

   (b) Write the series of steps to develop a part program for CNC machine. 5

4. (a) With the help of suitable graphical sketch, explain the circular interpolation and G codes used in making part program. 5

(b) Write any ten M-codes and their function. 5

5. Write the meaning of cutter radius compensation. With the help of suitable sketch, justify the purpose of it. Mention the codes used for this purpose. 10

6. With the help of suitable example, differentiate the use of Radius Programming and Diameter Programming for linear interpolation with feed. 10

7. Write the geometry statements for the part given in figure - 1, to be used in APT part- program. 10

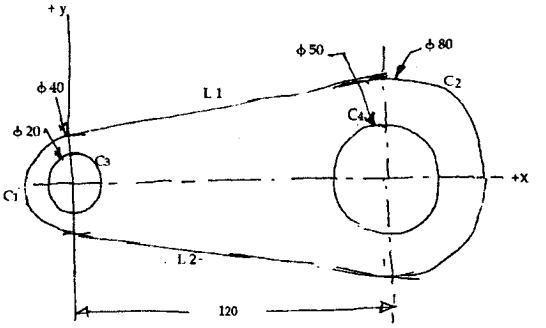


fig. 1
All dimensions are in mm

8. Describe various types of communication networks used in manufacturing shop. 10

9. With the help of suitable sketch/ block diagram, show the various elements that form the part of flexible manufacturing system. Briefly explain each element. **10**

10. With the help of suitable sketch, briefly describe the various types of layouts used in organizing the equipments in a FMS. **10**