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BME-004

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00579

Term-End Examination

June, 2014

BME-004 : CNC TECHNOLOGY AND PROGRAMMING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. All questions carry equal marks. Assume missing data if any.*

1. (a) With the help of a suitable flow chart describe the typical stages in the product development of a product. *5*

(b) Describe the elements of NC machine tool operation. *5*

2. (a) What are the applications in which numerical control can be found most suitable ? *5*

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

3. Describe the organisation of CNC control system. Briefly explain the functions of any three elements in the control. *10*

4. (a) Give the advantages of recirculating ball screws compared to the conventional acme screws. 5

(b) Describe five applications where the touch trigger probes can be used on a shop floor. 5

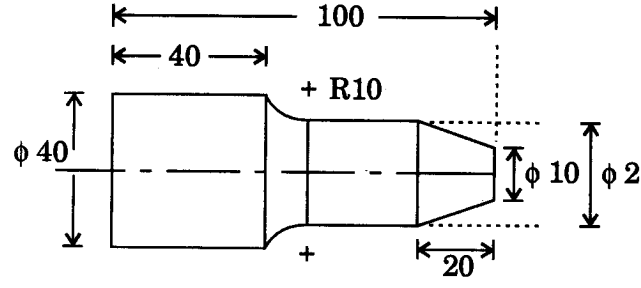
5. (a) In order to write CNC part program, what are the various types of information that need to be considered by a part programmer ? 5

(b) Write any five preparatory codes with their respective functions. 5

6. (a) Explain the need of canned cycles in milling. 5

(b) Specify how a circular interpolation can be specified in turning centres. 5

7. For the components shown below, make a part program for machining on CNC turning centre. 10



All dimensions in mm.

8. (a) Explain the concept of post-processor used in computer aided part programming. *5*

(b) Give a brief note on serial communication. *5*

9. What are the various functions served by the use of DNC ? State the situations where DNC will be beneficial. *10*

10. (a) Explain the procedure used for guiding the AGV along its path. *5*

(b) Describe the purpose of setting an FMS. *5*