No. of Printed Pages : 3

BME-004

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

00663

June, 2018

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) Describe the typical stages in the product development of a product, with the help of a flow-chart. *5*

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

2. (a) Discuss the organisation of CNC control system. *5*

(b) Give the advantages of recirculating ball screws compared to the conventional acme screws. *5*

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

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

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

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

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

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

6. (a) Describe in brief, the components of FMS. 5

(b) Explain the advantages derived by the application of an AGV compared to other material handling equipment. 5

7. (a) How is cutter radius compensation given in the case of a machining centre ? Explain with the help of suitable example how it is operational. 5

(b) What is 'CNC' retrofitting ? Explain briefly. 5

8. Write a program for machining the component shown in Figure 1. The axes to be used are shown in the Figure 1. The initial tool position is assumed to be at (0, 0, 50). *10*

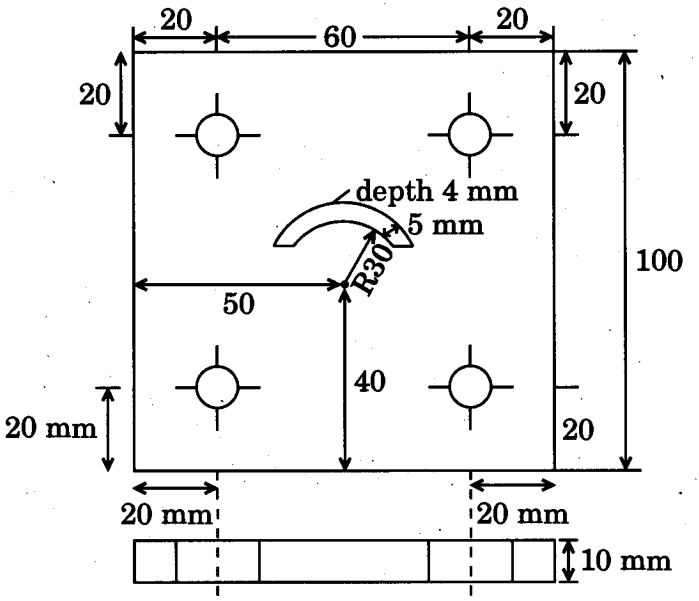

Figure 1