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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Mechanical Engineering

Semester End Examination; June - 2017

CAD/CAM

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Discuss about four functional areas of CAD. 10

b. Describe the advantages of CAD. 10

2 a. List out various output devices used in CAD and explain any two with sketches. 10

b. Enumerate latest display systems used in CAD and describe any two. 10

UNIT - II

3 a. With a neat sketch, explain graphics software configuration. 8

b. A square represented by (0, 0) (4, 0) (4, 4) (0, 4) is rotated by an angle of 30º, Later the rotated square is translated to 5 units in X-direction and 3 units in Y-direction. The translated square is scaled to 1.5 units in X-direction and 2 units in Y-direction. Then mirror the square in X-axis performs transformation and show it on graph sheet. 12

4 a. Give comparisons between CSG and B-rep solid modeling and also between wire frame and solid model. 10

b. Give the classification of surfaces used in geometric modeling and explain any three surfaces. 10

UNIT - III

5 a. Discuss about advantages of NC machine tools. 10

b. Explain with sketches types of control system possible in CNC. 10

6 a. List various types of CNC machining centres. Explain features of any two types. 10

b. With sketches explain the following :

i) Absolute and incremental programming 10

ii) Fixed zero and floating zero.

UNIT - IV

7 a. Explain two types of encoders used in CNC for rotary position measurement. 8

b. Discuss the principles followed to designate the axes of CNC machines. 12

8 a. Show ISO coding system for tungsten carbide inserts used in turning and explain the importance of each. 8

b. Explain with sketches tool change procedure of a tool change arm having a double gripper. 12

Contd….2

UNIT - V

9 a. Explain the following with the help of codes and its function:

i) cutter radius compensation ON and OFF 5

ii) Linear interpolation.

b. Write a manual part program using ISO codes to drill holes and profile milling of the component shown in Fig 9.b. Assume suitable cutting conditions also explain each line of the program. 15

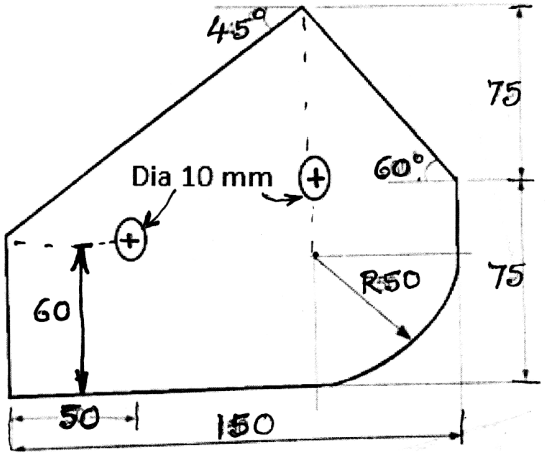

Fig: 9.b

10 a. Explain canned cycle with suitable example. 8

b. Write a turning part program for the part shown in Fig. 10(b) Assume appropriate cutting conditions. 12

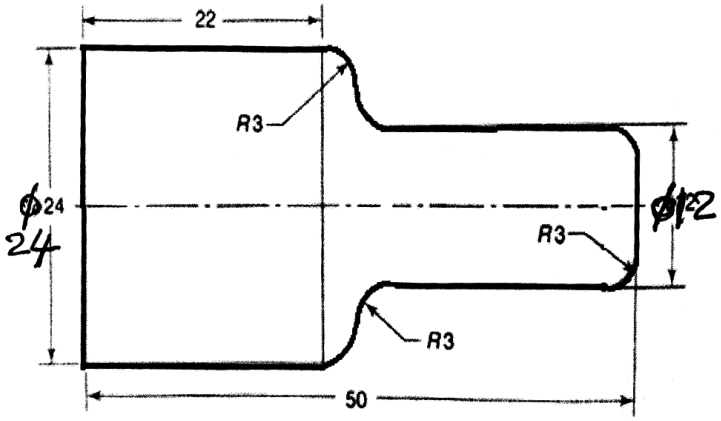

Fig 10.b

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