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

(An Autonomous Institution affiliated to VTU, Belgaum)

Sixth Semester, B.E. - Mechanical Engineering

Semester End Examination; June - 2016

CAD / CAM

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.*
ii) Missing data may suitably assume.

UNIT - I

1 a. With a neat sketch, explain the role of computers in the design process. 10

b. Outline how a CRT works. What drawbacks does it have when compared to modern system? 10

2 a. Describe the conventional product life cycle. How does CAD/CAM accelerate the cycle? 12

b. List the advantages and disadvantages of CAD/CAM in the industry. 8

UNIT - II

3 a. With the help of a block diagram explain configuration of graphics software. 6

b. Write a brief note on Bezier curves. 4

c. Calculate the concatenated transformation matrix for the following operations performed in the sequence below :

i) Translation by 4 and 5 units along X and Y

ii) Change of scale by 2 units in X and 4 units in Y

iii) Rotation by 60º in CCW about the Z-axis passing through the point (4, 4) What is the effect of the transformation on a triangle A(4, 4), B(8, 4) and C(6, 8). 10

4 a. Summarize the different types of drawing interchange files. 10

b. Discuss CGS and B-rep in solid Geometry. 10

UNIT - III

5 a. Outline the basic components of NC systems. 8

b. Distinguish open loop systems from closed loop systems. 6

c. Describe the co-ordinate systems used in milling and turning centres. 6

6 a. Write a brief note on high speed machining centres. 5

b. Explain the different motion control systems used in modern CNC machines. 10

c. Enumerate the advantages and disadvantages of CNC technology. 5

UNIT - IV

7 a. Summarize the construction of a milling tool holder. 8

b. Outline the fundamental structure of CNC machines. 6

c. Explain the working of servo motors. 6

Contd….2

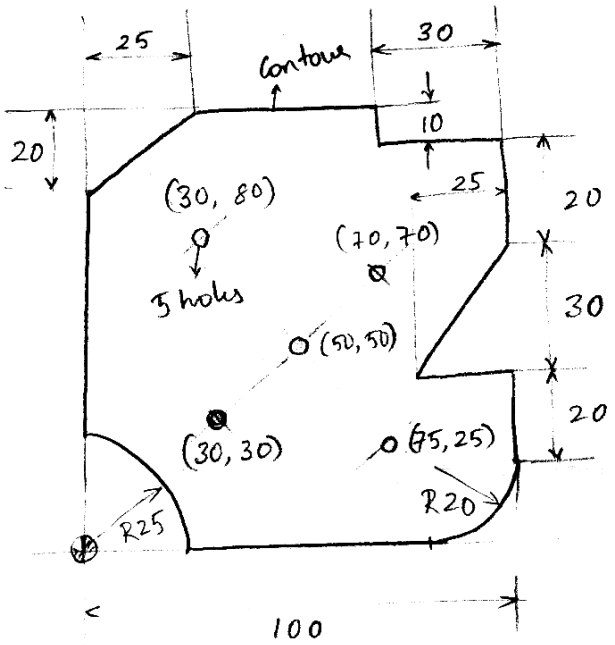
8 a. Write a brief notes on the five most commonly used cutting tooling materials. 15

b. With a neat sketch, explain the working of a chain type Automatic tool changer. 5

UNIT - V

9 a. Distinguish G codes from M codes. 4

b. Write the ISO program for the part shown in Fig. 9(b),

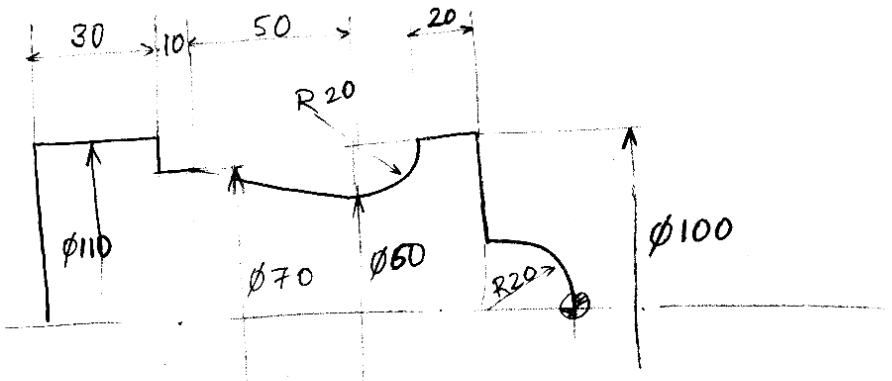


5 holes: ø5
depth 15mm
Contour: depth 10mm
tool: 6 ø
Blank: 120 x 120

16

fig: 9b

10 a. Writ an ISO programme for the part shown in Fig. 10(a),



16

Blank:
ø110 & 150 Length

Fig 10@

b. Summarize the significance of using canned cycles. 4

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