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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 | 10 |
| | iii) Rotation by 60° 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). | |
| 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 |

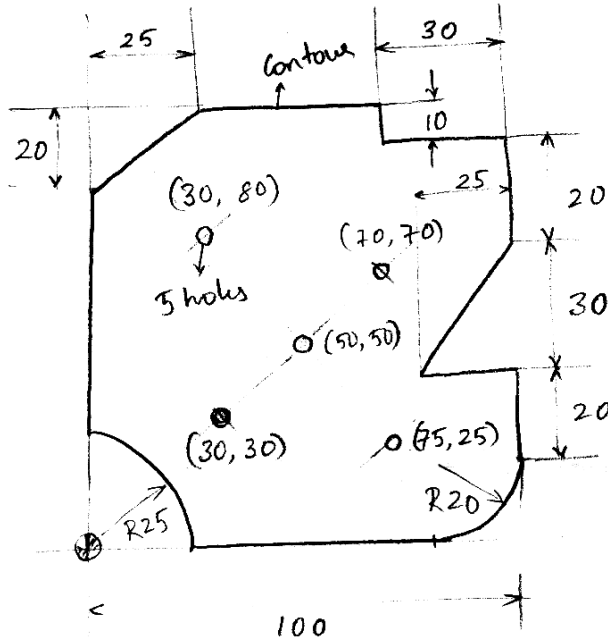
UNIT - IV

- | | | |
|------|---|---|
| 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 |

- 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),

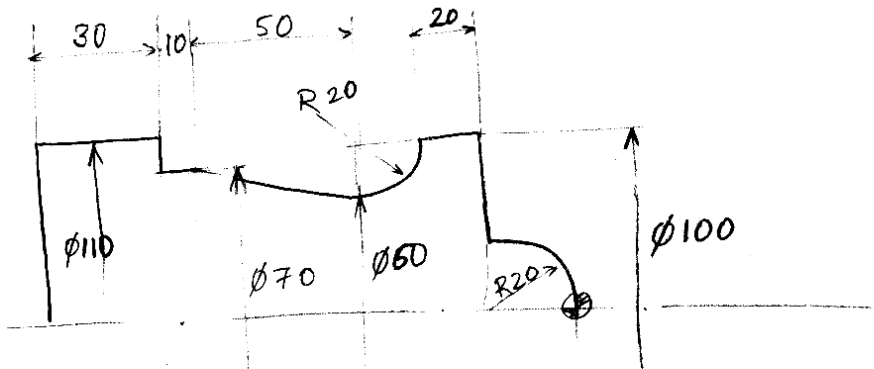


5 holes: $\phi 5$
depth 15mm
Contour: depth 10mm
tool: 6ϕ
Blank: 120 x 120

16

fig: 9b

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



16

Fig 10@

Blank:
 $\phi 110 \times 150$ Length

- b. Summarize the significance of using canned cycles. 4
