

Computer Aided Design / Computer Aided Manufacturing (New) (1220)

P. Pages : 4

Time : Four Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** subquestion from each unit.
5. Use of non-programmable calculator is allowed.
6. Assume suitable data if necessary.
7. Figures to right indicate full marks.

UNIT – I

1. a) i) What is CAD work station ? Enlist the various function that should be accomplished by CAD work station. **5**
ii) What do you understand by DVST. Explain it in detail. **5**
b) i) Describe with the help of neat sketch the influence exerted by computers on the manufacturing scene. **5**
ii) Discuss the points to be considered for the choice and implementation of CAD. **5**
c) What do you understand by Interfaces ? Describe different interfaces used in transmitting signals along with advantages and disadvantages. **10**

UNIT – II

2. a) Restrict the line to be drawn (10,20) to (150, 125) mm on a display screen which is mapped to approximately 300 x 250 mm. The resolution of screen is 640 x 480 pixels. **10**

- b) A triangle PQR with vertices P(2, 5), Q(6, 7) and R(2, 7) is to be reflected about the line $y=0.5x + 3$. Determine **10**
- i) the concatenated transformation matrix.
 - ii) the co-ordinates of the vertices for a reflected triangle and show the results graphically.
- c) i) How IGES format is used to exchange the data. **5**
- ii) Explain the terms related to C.G. **5**
- 1) Clipping.
 - 2) Rendering.

UNIT – III

3. a) Explain the various approaches used for creating the solid model of an object. **10**
- b) Explain the following curves in detail. **10**
- i) Bezier curves.
 - ii) B-Splines curve.
- c) i) Describe with the help of block diagram, three levels of automation and control in manufacturing. **5**
- ii) Explain the concept of Boolean operations used in solid modeling. Give neat sketches showing the effect of these operations by considering any example. **5**

UNIT – IV

4. a) Explain the following in detail related to industrial control system. **10**
- i) Supervisory control.
 - ii) Direct Digital Control.

- b) Write the APT program to generate the outline of the component on milling machine. Use suitable cutter, speed and feed for the operation. Take thickness of the plate = 14 mm.

10

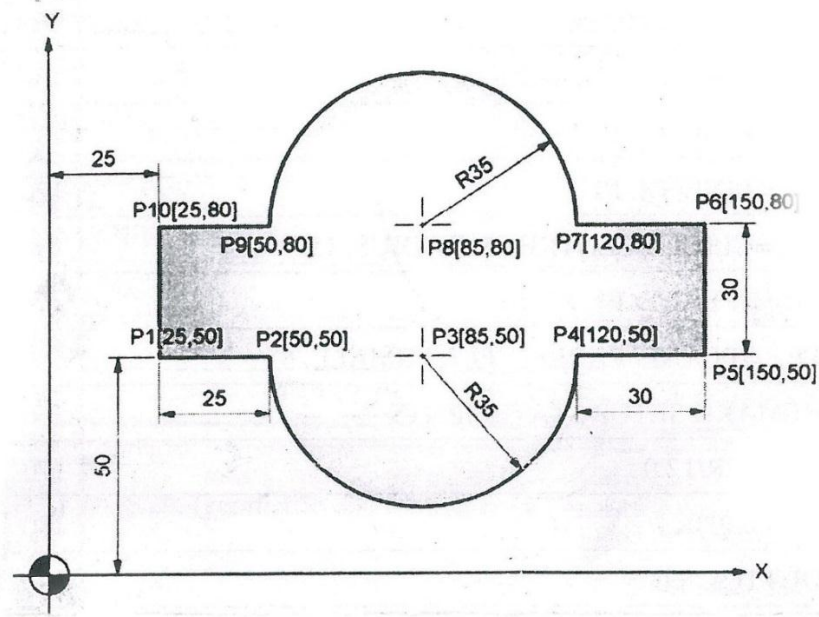


Fig (a) Que. 4 (b)

- c) Write NC program for machining a component as shown in figure 'b' by using end mill of 10 mm diameter. Assume the following data if necessary for machining parameters.

10

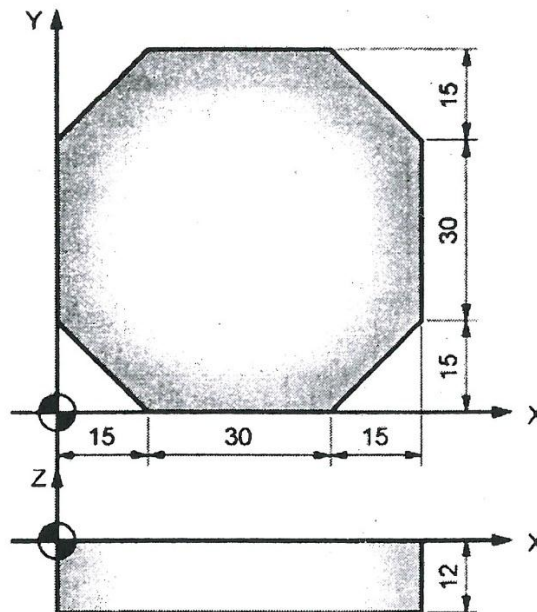


Fig (b) Que. 4 (c)

UNIT – V

5. a) i) Draw the various layout of typical FMS system. 5
- ii) Explain the various components of FMS. 5
- b) Explain optiz coding system and determine the form code in the optiz parts classification and coding system of the given rotational part as shown in the figure. 10

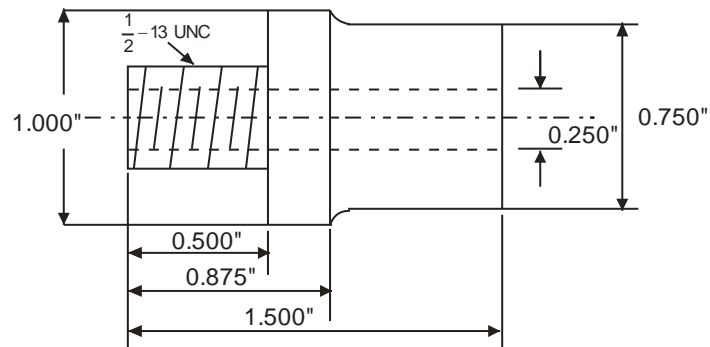


Fig. (c) Part Design for Q. 5 (b)

- c) What is end effector ? Explain the various types of end effector with the help of neat sketch. 10
