2650

Computer Aided Design / Computer Aided Manufacturing
(New) (1080)

P. Pages : 2

Time : Four Hours

Max. Marks : 100

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answersheet 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. All questions are compulsory & solve **any two** of a, b, c.
5. Assume suitable data and draw the figure, wherever necessary.
6. Figures to the right indicates full marks.

UNIT - I

1. a) Draw the block diagram showing relationship of CAD/CAM and explain in brief. **10**

   b) Explain benefits, limitations and applications of Computer Aided Design. **10**

   c) i) Explain the functional requirements of CAD work station. **5**

   ii) Differentiate between raster scan and latest graphics terminals such as LCDs. **5**

UNIT - II

2. a) Derive the expression for Line generation algorithm in integer incremental form. **10**

   b) A line PQ has vertices P(2, 4, 6), Q(2, 6, 8). It is translated by 2 units each in x, y and z direction. Write :

   i) Initial coordinate matrix in homogeneous representation.
   ii) 3D Transformation matrix.
   iii) Transformed coordinates of line PQ. **10**

   c) i) A point Q'(4, 3) was obtained after scaling about origin by 3 units. Write the initial co-ordinates of Q by inverse transformation. **5**

   ii) Explain the difference between viewport and windowing. **5**

UNIT - III

3. a) Explain levels of Automation with examples of each level. 　10

   b) Differentiate between wire frame, surface and solid modeling. 　10

   c) i) Describe Bezier Curve and its properties. 　5

   ii) Describe representation of surfaces. 　5

UNIT - IV

4. a) Explain in detail computer process control and its forms. 　10

   b) A matrix of holes are to be drilled in the manner shown in figure Q. 4 (b) The number of holes in the x direction is 5 and the number of holes in the y direction is 7, thus making 35 holes in all. Write the APT program to establish the hole coordinates. 　10
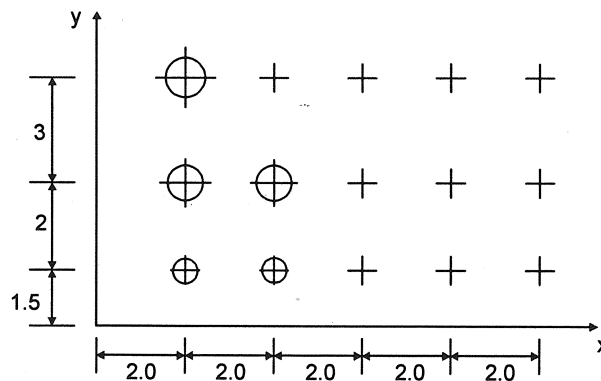
   c) i) Explain the rules to define and locate Axis of CNC machines. 　5

   ii) Explain the advantages of generating G & M codes through CAM softwares. 　5

UNIT - V

5. a) Explain application of Group Technology and FMS. 　10

   b) Define & explain with neat figures robot configuration with co-ordinate systems. 　10

   c) Explain different types of sensors used in Robots. 　10

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