Reg. No. :

Question Paper Code: 41212

M.E. DEGREE EXAMINATION, DECEMBER 2014.

First Semester

CAD / CAM

14PCD101 - COMPUTER APPLICATIONS IN DESIGN

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions.

PART A - (5 x 1 = 5 Marks)

1. Primary colors in the CAD color models are
   - (a) White, Black, Red
   - (b) Yellow, Violet, Black
   - (c) Red, Green, Blue
   - (d) Red, Yellow, Blue

2. B-rep parameters are
   - (a) Length, Area, Volume
   - (b) Density, Area, Volume
   - (c) Length, Width, Height
   - (d) Vertex, Edge, Face

3. Z-Buffer method is coming under
   - (a) Object space methods
   - (b) Image space methods
   - (c) CGG
   - (d) B-rep

4. Center of mass and center of volume coincide when
   - (a) Volume is constant
   - (b) Density is constant
   - (c) Mass is constant
   - (d) Gravitational force is constant

5. Pro-E is a
   - (a) Parametric tool
   - (b) Variational tool
   - (c) Analysis tool
   - (d) Meshing tool

PART - B (5 x 3 = 15 Marks)

6. Indicate the role of decision parameters in line algorithms.

7. What are homogeneous coordinates? Derive the expressions for 2D transformations using homogeneous coordinates.

8. Recall the influences exerted by the computers on the design scene

9. Compare geometrical and conventional tolerances.

10. Compare solidworks, Pro-E and Ansys packages.

PART - C (5 x 16 = 80 Marks)

11. (a) Find the transformed Co-ordinates of triangle A(3,3), B(7,3), C(5,6) after 45° rotation about A. (16)

Or

(b) Derive the decision parameters used in the Bresenham's circle algorithm and illustrate the algorithm with a circle of radius 12 units and (5, 7) as center point. (16)

12. (a) Create the CSG table and tree of the solid shown in the figure. (16)
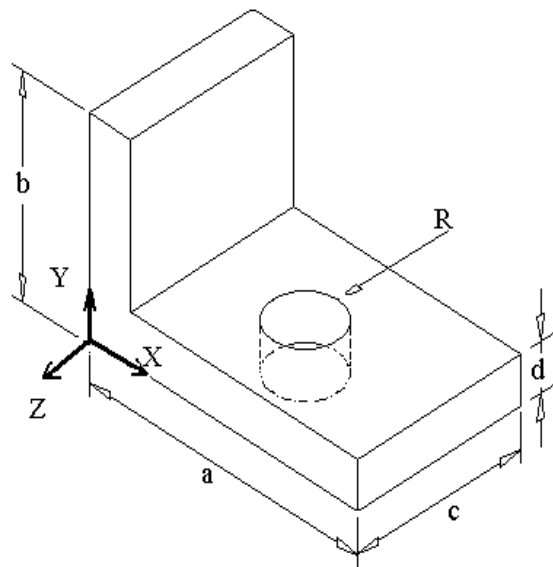
Or

(b) Compare IGES with STEP and explain the file format used in IGES and its significance. (16)

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13. (a) Describe the following hidden line removal methods:
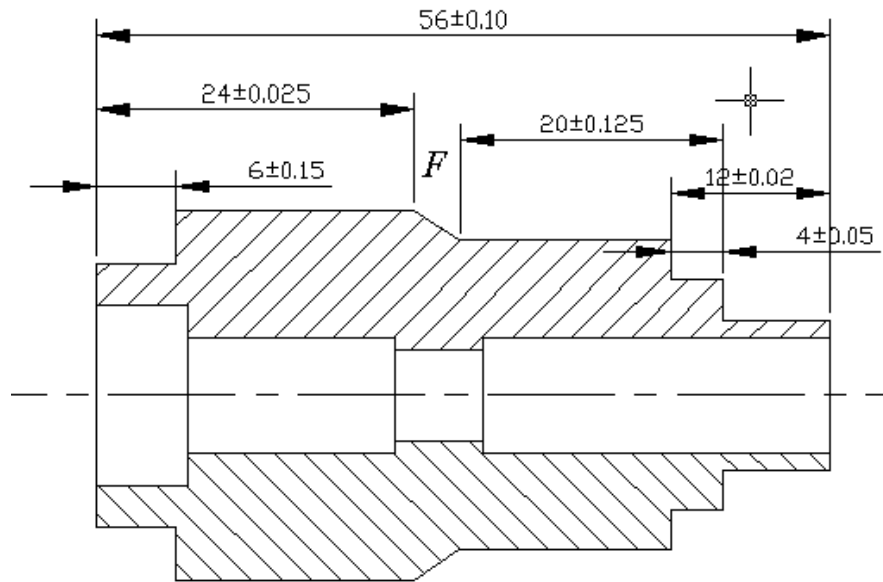
      (i) Scan line removal method.   (8)

      (ii) Z-buffer method.   (8)

Or

(b) Summarize the various methods of parametric modeling.   (16)

14. (a) Figure shows a part design with assigned tolerances. Use the arithmetic method to calculate the tolerance information for the axial dimension F of the outside surface shown.   (16)

Or

(b) Describe mathematically how mass properties of a model are calculated.   (16)

15. (a) Explain about feature based modeling.   (16)

Or

(b) Illustrate computer aided design of mechanical parts with a suitable example.   (16)

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