Assignment

1. Explain product cycle with a neat block diagram.
2. Explain CPU with a neat diagram.
3. Explain the design process of a product cycle.
4. Describe explicit, implicit and parametric representations. What are the advantages of parametric representation over non-parametric representation. Write parametric equations for circle, parabola, hyperbola, line and ellipse.
5. A triangle with vertices A(30,20), B(90,20), C(30,80) is to be scaled by a factor of 0.5 about a point X(50,40). Determine:
   i. The composite transformation matrix.
   ii. The co-ordinates of the vertices for a scaled triangle.
6. Explain reflection about x-axis, y-axis, origin, and about line y=x.
7. Explain the process of problem identification.
8. Explain the different types of production techniques in Computer Aided Manufacturing.
9. Explain Translation..
10. Explain Scaling.
11. Explain Composite Transformation Matrix or Concatenation of Transformation matrix or combined Transformation Matrix.
12. Describe Hermite Cubic Splines.
13. Describe Bezier curves.
14. Describe B-spline curves.
15. Define Discretization, nodes, elements, mesh, nodal forces.
16. List the advantages and disadvantages of FEM.
17. Explain preprocessing, solution and post processing.
18. Explain the modelling of a 1D bar by elimination approach.
19. Explain the modelling of a 1D bar by penalty approach.
20. Explain the modelling of a 2D truss element.
21. Define homogeneous co-ordinate system.
22. Explain two main types of group technology systems.
23. Explain the different types of a NC system.
24. Explain the interpolation methods of a NC system.
25. Describe zeroth order, first order and second order continuity.