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Total Number of Pages: 1

M.TECH
CMPC101

**1st Semester Regular/Back Examination – 2014
COMPUTER GRAPHICS**

BRANCH(S): CAD / CAM ENGINEERING

Time: 3 Hours

Max Marks: 70

**Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.**



- Q1 Answer the following questions: (2x10)
- a) What are the reasons to implement CAD?
 - b) Define the iterative procedure in the Design process?
 - c) What do you mean by Raster scan technique?
 - d) Explain the different ways to draw 3-D drawing.
 - e) Explain briefly about geometric modeling.
 - f) Explain the basic principle of CRT.
 - g) What are the functions of a design workstation?
 - h) What is surface modeling?
 - i) Discuss the use of various surface-modeling commands available in CAD package.
 - j) What do you mean by Reverse Engineering Tools?
- Q2 a) A cube is defined in three dimensional space with edges which are one unit in length. The corners of the cube are located at (0,0,0),(0,0,1),(0,1,0),(1,0,0),(1,0,1),(1,1,0),(1,1,1). Determine the locations of the corners if the cube is first translated by 3.0 units in the x direction and then scaled by a factor of 4.0. (5)
- b) What do you mean by Transformations? Explain about the common transformations used in computer. (5)
- Q3 A triangle is defined in a two-dimensional ICG system by its vertices (0,2),(0,3),and(1,2). Perform the following transformations on this triangle. (10)
- i. Translate the triangle in space by 2 units in the x direction and 5 units in the y direction.
 - ii. Scale the original triangle by a factor of 1.5.
 - iii. Scale the original triangle by a factor of 1.5 in the x direction and 3.0 in the y direction.
- Rotate the original triangle by 45° about the origin.
- Q4 a) Compare the splines for the same control points created by B-splines and Bezier spline technique. (5)
- b) Compare the wire frame modeling and solid modeling with details. (5)
- Q5 a) Explain the typical configuration of hardware components in a stand alone CAD workstation. (5)
- b) What are the different functions a graphics package must perform? Explain with examples. (5)
- Q6 a) What do you mean by Data exchange system? Discuss briefly the various data exchange systems currently in use. (5)
- b) Describe the working principle of the important output devices used in CAD? (5)
- Q7 a) How can you draw a 500 pixel wide square on a 1280 x 1024 screen whose aspect ratio is 4:3. (5)
- b) Describe briefly the surface modeling commands with a few application examples. (5)
- Q8 Write Short Notes (Any Two) (5x2)
- a) Intrinsic and parametric representation
 - b) Software in CAD/CAM application.
 - c) Sweep representation
 - d) Manipulations of curve and surface