R09

Code No: C1511

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, April 2011

ADVANCED COMPUTER AIDED DESIGN

(MACHINE DESIGN)

Time: 3hours **Max. Marks: 60**

Answer any five questions

All questions carry equal marks

\- - -

1. (a) With a neat diagram explain the working of colour raster display system with eight planes. [6]
   (b) A cubic Bezier curve is described by the four control points: (0,0), (2,1), (5,2), (6,1). Find the tangent to the curve at t = 0.25. [6]

2. (a) What are the various types of surfaces ? Briefly explain them with neat diagrams. [8]
   (b) Compare surface modeling with wire frame modeling. [4]

3. (a) Given the four corners $P_0(1,1)$, $P_1(3,1)$, $P_2(3,3)$ and P_3 (4,2). Find the equation of the bi-cubic surface. [8]
   (b) Discuss the important properties of Bezier Surfaces. [4]

4. (a) What is CSG representation in solid modeling? Explain the importance in the construction of the CSG solid models with examples. [8]
   (b) What is collaborative design? Explain the principles of collaborative design. [4]

5. (a) Derive the shape function of a two-node bar element in finite element analysis. [6]
   (b) Discuss the relationship between tolerance and manufacturing cost. [6]

6. (a) List various types of input devices and explain about any two of them with neat diagrams. [6]
   (b) Briefly explain various types of surface manipulation techniques. [6]

7. (a) Perform a 45^0 rotation of a triangle A (0,0), B(1,1) and C (5,2) about the origin and about the point (-1,-1). [6]
   (b) Explain B-Representation method solid modeling with an example. [6]

8. Write short notes on the following : [12]
   (a) Graphics Standards
   (b) COON's Surface
   (c) Mass Property Calculations

******