R09

Code No: C0401

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I - Semester Examinations, March 2011
ADVANCED CAD
(CAD/CAM)

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

Answer any five questions
All questions carry equal marks

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1 (a) With a neat diagram explain the working of Direct view Storage Tube.
(b) A cubic spline curve is defined by the equation.
$P(u) = C_3u^3 + C_2u^2 + C_1u + C_0$, $0 \leq u \leq 1$, where C_0, C_1, C_2 and C_3 are the polynomial Coefficients. Assuming these coefficients are known, find the four control points that define an identical Bezier curve. [6+6]

2. (a) Explain the parametric representation of a Lofted Surface.
(b) Magnify the triangle with vertices A (0, 0), B(1,1),and C(5,2) to twice its size while keeping C (5,2) fixed. [6+6]

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 Bezier surface.
(b) Discuss the important properties of B-Spline surfaces. [8+4]

4.(a) What is B-representation in solid modeling? Explain the importance in the construction of the B- representation with examples.
(b) Compare IGES and STEP format of data representation. [8+4]

5.(a) Derive the finite element equation of a two-node bar element using potential energy method.
(b) Discuss Mass property calculations on CAD/CAM systems. [8+4]

6. (a) List various types of output devices and explain about any two of them.
(b) Compare Segmentation and Trimming. [8+4]

7. (a)What is meant by Tolerance Synthesis? Explain Statistical method of tolerance synthesis.
(b) Compare analytical and synthetic curves. [8+4]

8. Write short notes on the following :
(a) Graphics Standards
(b) Finite element modeling
(c) Mechanical Tolerances [12]

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