Hall Ticket No | | | | | | | | | | | Question Paper Code: BCC001

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Regular) - February, 2017

Regulation: IARE–R16

ADVANCED CAD
(CAD/CAM)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. Summarize the following transformation Geometric models with mathematical representations. **[14M]**
   i. Translation
   ii. Scaling

2. (a) Given a hermite cubic spline, show that its point wise translation and translating its geometric representation are identical. **[7M]**
   (b) Rotate a triangle with verticies (10,20), (10,10), (20,10) about the origin by 30 degrees and translate it by t_x=5,t_y=10. **[7M]**

UNIT – II

3. Find the equivalent bi-cubic formulation of a cubic Bezier surface patch **[14M]**

4. (a) The non parametric implicit equation of a circle with centre at the origin and radius r is given by $x^2 + y^2 = r^2$.Generate the parametric equation. **[7M]**
   (b) Discuss the need for concatenation of transformation. Explain the necessary care to be taken. **[7M]**

UNIT – III

5. (a) Determine the minimum distance between a point in space and a plane surface. **[7M]**
   (b) Explain the concept of ruled surface. **[7M]**

6. (a) Write short notes on : Surface of revolution **[7M]**
   (b) Write short notes on : Tabulated cylinder **[7M]**

UNIT – IV

7. (a) What you mean by Blending surface? Explain. **[7M]**

   (b) Explain different types of surface manipulation techniques with neat sketches . **[7M]**

8. (a) Write short notes on following **[7M]**

      i. Segmentation

      ii. Displaying

   (b) Differentiate between interpolation and approximate approaches used in design of surfaces. **[7M]**

UNIT – V

9. (a) Discuss the steps involved in finite element analysis. **[7M]**

   (b) Explain the importance of B-representation in construction of solid models. **[7M]**

10. (a) Explain evolution of data exchange format. **[7M]**

    (b) Discuss CSG representation and its importance in solid modelling. **[7M]**