Hall Ticket No | | | | | | | | | | | Question Paper Code: BCCB01

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Regular) - January, 2019

Regulation: IARE–R18

ADVANCED CAD

Time: 3 Hours **(CAD/CAM)** **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. (a) Give the details of z-buffer method for hidden surface removal. **[7M]**
   (b) Explain the concept of obtaining a reflection about an arbitrary line starting from the plain reflection about an axis. **[7M]**

2. (a) Explain the Gouraud shading procedure for continues shading of surfaces represented by polygon surfaces. **[7M]**
   (b) If a line is represented by equation 2Y=3X-5, Find out the final position of the midpoint of the line. The line before the transformation starts at (1,-1) and ends at (5,5). The transformation being carried is rotation about the origin in the XY plane of 30^0 in counter-clockwise direction. **[7M]**

UNIT – II

3. (a) Derive the parametric equation of cubic Bezier curve. **[7M]**
   (b) Describe the evaluation criteria of CAD/CAM system. **[7M]**

4. (a) Explain different types of mathematical representation of curve. **[7M]**
   (b) Describe the characteristics of B-spline curve to provide local control of the curve shape. **[7M]**

UNIT – III

5. (a) What is surface of revolution? Derive its parametric equation. **[7M]**
   (b) Explain various types of analytic surface entities for shape design and to represent complex objects. **[7M]**

6. (a) Differentiate between ruled surface and tabulated cylinder with the help of diagram. **[7M]**
   (b) Find the minimum distance between a point in space and a plane. **[7M]**

UNIT – IV

7. (a) Define bezier surface and explain with a 4X4 Bezier surface. **[7M]**
   (b) Describe the boundary conditions of a Hermite bicubic surface. **[7M]**
8. (a) Explain the following surface manipulation (i) Trimming (ii) Intersection **[7M]**
   (b) Explain about blending surface with diagram. **[7M]**

UNIT – V

9. (a) Describe the architecture, structure and implementation of STEP. **[7M]**
   (b) Explain different types of boolean operators used for creating solid model with example. **[7M]**
10. (a) What are the different types of elements used in finite element analysis. Explain with example. **[7M]**
   (b) Write the various types of constraints used in assembly modeling. **[7M]**

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