Code No: I1506/R16

## M. Tech. I Semester Regular Examinations, December-2016

## **GEOMETRIC MODELING**

Common to Machine Design (15), Mechanical Engineering Design (14), CAD/CAM (04) Computer Aided Design & Manufacturing (09) and Computer Aided Analysis & Design

(16)

## **Time: 3 Hours**

Max. Marks: 60

Answer any FIVE Questions	
All Questions Carry Equal Marks	

- 1. a What do you understand by Implicit and Explicit equations? Explain.
  - b Distinguish between parametric and non-parametric equations. Explain why nonparametric equations are not suitable for CAD.
- 2. a What are the characteristics of cubic spline?
  - b What do you mean by blending function? Explain how these are evaluated?
- 3. a What is the need of curve manipulation? Explain various curve manipulation techniques.
  - b What are the characteristics of the B-Spline curve?
- 4. a A Cubic Bezier curve is defined by the control points as P0 (1,1), P1(2,4), P2(4,3), P3(5,1).Find the equation of curve and its mid point.
  - b Write short notes on the following terms Sweep Surfaces and ruled surfaces.
- 5. a What conditions are required to convert a B-Spline surface to a Bezier Surface?b What are the closed and open splines? Explain
- 6. Derive the parametric form of following
  - a) Bezier surface
  - b) B-Spline surface
  - c) Coon's surface.
- 7. a Explain the solid modeling concepts of wire frames and Boundary representation methods. Discuss the advantages of each method.
  - b How can you create a solid fillet using unbounded half spaces?
- 8. a How solids are represented in geometric form. Explain with an example.
  - b What are the properties of tricubic solid?

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