

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016**

**Subject Code: 2710802****Date: 17/05/2016****Subject Name: Computer Aided Design****Time: 02:30 pm to 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist the application of CAD in mechanical engineering. State the potential advantages of CAD. **07**
- (b) A straight line is to be drawn between a pixel (1,2) and other at (7,6). Identify the pixels that need to be turn on. If the line is move 10 pixels in x as well as y-direction & draw twice the original scale. Find the pixels that to be turn on. **07**
- Q.2** (a) Write the full form of the following video display hardware: **07**  
1. LCD 2. LED 3. OLED 4. DLP  
What is ICG? Enlist various functions of typical CAD workstation.
- (b) What is Scan Conversion? Draw a flow chart for Scan Conversion of a Circle using Bresenham algorithm. **07**
- OR**
- (b) Highlight the pixels to be illuminated if a line to be drawn between end points (2,8) and (15,11), using DDA (Digital Differential Analysis) Scan conversion Theorem. **07**
- Q.3** (a) From an algebraic form of a parametric cubic curve, deduce a generalized expression for Hermite curves. **07**
- (b) Explain Bezier's surfaces and Ruled surfaces in brief. **07**
- OR**
- Q.3** (a) Explain B-spline curves giving its characteristics. Show blending functions for any case of your choice. **07**
- (b) Given  $B_0 [1,1]$ ,  $B_1 [2,3]$ ,  $B_2 [4,3]$  and  $B_3 [3,1]$  the vertices of a Bezier polygon. Determine seven points on the Bezier curve. **07**
- Q.4** (a) Explain relative advantages and disadvantages of CSG approach with example. **07**
- (b) Give your Comments on the need for standardization in Computer Graphics. Briefly discuss about various graphics standards available. **07**
- OR**
- Q.4** (a) Explain the continuity conditions for efficient modeling techniques. **07**
- (b) Discuss the contents of a database for line, circle and an arc. **07**
- Q.5** (a) Explain  $\beta$ -rep in detail with suitable examples with neat sketch. **07**
- (b) Describe Standard for the Exchange of Product Model Data (STEP) architecture using sketch. **07**
- OR**
- Q.5** (a) Write a note on: -Wire frame modeling and surface modeling. **07**
- (b) Describe the concept of feature based modeling with significance. Give examples of softwares which incorporate such concept. **07**

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