GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710802 **Subject Name: Computer Aided Design** Time: 2:30 pm to 5:00 pm

Total Marks: 70

Date:04/01/2017

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- (a) Explain different activities of Computer Aided Engineering. Mention scope of **0.1** 07 Computer Aided Design.
 - What is scan conversion? Explain Bresenham circle Algorithm for scan converting **(b)** 07 circle.
- Differentiate between (i) Geometric and coordinate transformations (ii) Raster scan Q.2 (a) 07 and vector scan display.
 - Develop the concatenated transformation of the graphics element consists of the 07 **(b)** following operations.
 - 1. Rotation about Y- axis

2. Translation through 20 and 15 units along X and Y axis respectively, and Rotation through 30 degree about x axis

OR

- (b) A triangle with vertices (4, 6) (9, 11), (6, 3) is first scaled by one unit about a fixed 07 point (5, 6), then translated by 3 units in y direction and finally rotated about point (2, 5) in CCW direction by 45 degree. Find the final position of the triangle.
- Given B_0 [1,1], B_1 [2,3], B_2 [4,3] and B_3 [3,1] the vertices of a Bezier polygon. 0.3 07 (a) Determine seven points on the Bezier curve.
 - (b) Determine the pixels for a straight line connecting two points (2, 7) and (15, 10) using 07 DDA algorithm.

OR

- Explain B-spline curves giving its characteristics. Show blending functions for any Q.3 (a) 07 case of your choice.
 - (b) From an algebraic form of a parametric cubic curve, deduce a generalized expression 07 for Hermite curves.
- Which are various schemes for solid model representations? Compare constrictive **Q.4** (a) 07 solid geometry and boundary representations. Explain clearly the difference between parametric and non-parametric curves. 07 **(b)**

OR

- What is DBMS? Explain briefly WCS, MCS and SCS. **O.4** 07 (a) What do you mean by mass property of an object? Derive the formulations for First 07 **(b)** Moments of Inertia.
- Explain IGES, STL and DXF file format of graphics interface. 07 Q.5 **(a)** Explain the continuity conditions for efficient modeling techniques. 07 **(b)** OR Explain feature based modeling techniques with its significances **Q.5** 07 (a)
 - Write a note on: -Wire frame modeling and surface modeling. 07 **(b)**
