

Roll No.

22234

**M. Tech. 2nd Sem. Mechanical Engg.
(Machine Design) (Elective - I)**

Examination – May, 2016

COMPUTER AIDED DESIGN

Paper : M-838

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All Questions carry equal marks.

1. A rectangle is formed by four points whose coordinates are $A(50, 50)$, $B(100, 50)$, $C(100, 80)$ and $D(50, 80)$. Determine the coordinates of four points for new rectangle in reduced size using the scaling factors 0.5 and 0.6 along X and Y-directions respectively. 20
2. Comparison between Geometric transformation and Geometric mapping. Describe inverse translation; inverse rotation and inverse scaling. 20
3. Line L_1 has end points $(1, 2, 7)$ and $(5, 6, 1)$, while line L_2 has end points $(7, 3, 4)$ and $(3, 9, 10)$: 20

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P. T. O.

- (i) Find parametric equation of the lines.
(ii) Find the tangent vectors of the lines.
(iii) Are the two lines parallel or perpendicular.
(iv) Are the two lines intersecting ? If yes, find the point of intersection.
4. Describe the terms : 20
(a) Bezier curves
(b) Properties of bezier curve
(c) Bezier surface
(d) Spline blending surfaces
(e) Differentiation of bezier curve equations
5. Introduction to solid modeling; types of wire frame modeling; plane surface, ruled surface, tabulated surface, synthetic surface. 20
6. Describe product cycle with CAD/CAM and design process and application of CAD and advantages of CAD/CAM. 20
7. Describe zero point and reference point; common preparatory functions (G-codes); programming compensations. 20
8. Selection of CAD/CAM system; introduction to CAM and CIM; limitations of CAD/CAM; display devices and types of display devices. 20
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