Day:	Monday		Time: 10.00 AM TO 01.00 PM
Date:	13/05/2019	S-2019-2687	Max. Marks: 60

N.B:

    1)   All questions are **COMPULSORY.**

    2)   Figures to the right indicate **FULL** marks.

    3)   Draw appropriate figures **WHEREVER** necessary.

    4)   Assume suitable data if necessary.

Q.1   Digitize a line from (10, 12) to (20, 18) on a raster screen using DDA **(10)** algorithm show the result on Cartesian graph.

OR

Q.1   Write Bresenham's algorithm for ploting pixels of the line having slope less **(10)** than one.

Q.2   A square ABCD with vertices A (1, 1), B (3, 1), C (3, 3), D (1, 3) is to be **(10)** transformed to half its size, still the retaining square, at same position. If the Co-ordinates of center of square are (2, 2) determine:

    i)   The transformation matrix

    ii)   The Co-ordinates of transformed square

OR

Q.2   Explain 2D transformation matrix for translation, Rotation and scaling with **(10)** neat figures.

Q.3   A concatenated transformation of the graphics element consists of following **(10)** operations.

    i)   The rotation through 120^0 about Z axis

    ii)   The translation through 10 and -20 units along X and Y direction respectively and

    iii)   Rotation through 30^0 about x axis

OR

Q.3   What is oblique projection? Explain various types of oblique projections.   **(10)**

Q.4   Find the equation of hermite cubic spline which define by the end point P_0 **(10)** (0, 0), P_1 (3, 0) with tangent vector P'_0 (1, 1) P'_1 (1, 1). Also calculate intermediate points at U =0, U = 1/2, U = 2/3 and U =1.

OR

Q.4   Explain order of continuity C_0, C_1 and C_2 while designing the synthetic **(10)** curve.

Q.5   A line segment with end point P_1 (0, 0), P_2 (10, 5) line in x, y plan that **(10)** means Z = 0. Rotate a line about x axis. Which surface can be generated? Find the points on the surface at U = 0.5 and ϕ =π/2.

OR

Q.5   Explain surface of revolution with neat sketches.   **(10)**

Q.6   Explain surface CSG method of solid modeling with example of any **(10)** mechanical component.

OR

Q.6   Explain different sub sections of IGES files.   **(10)**

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