(Please write your Exam Roll No.) *Exam Roll No.* 00815007719.

END TERM EXAMINATION

THIRD SEMESTER [B.TECH.] DECEMBER 2019

Paper Code: ETCS-211 ***Subject: Computer Graphics & Multimedia***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions including Q. No. 1 which is compulsory. Select one question from each unit.

Q1 Answer following in brief: **(10x2.5=25)**

(a) Differentiate between random scan and raster scan system.
(b) Describe the components of interactive computer graphics.
(c) List five differences between Bezier curve and B spline curve.
(d) Why do we need homogeneous coordinate system?
(e) Explain MIDI devices in brief.
(f) What are media production standards?
(g) Differentiate between cabinet projection and cavalier projection with the help of a suitable example.
(h) Write general matrix form for all cases of 2D Reflection.
(i) Write steps of DDA line algorithm. List merits and demerits of DDA line algorithm.
(j) Find orthographic projection of a unit cube onto x=0 & z=0 plane.

UNIT-I

Q2 (a) Derive the matrix for 3D rotation about x axis. Perform a rotation by an angle 90 degrees clockwise about x axis followed by uniform scaling where scaling factor is 2, on a unit cube. **(6.5)**

(b) Reflect the diamond shaped polygon whose vertices are A(-1,0), B(0,-2), C(1,0) and D(0,2) about **(6)**

(i) the horizontal line y=2 (ii) the vertical line x=2 (iii) the line y=x+2

Q3 (a) Derive the expressions for midpoint circle drawing algorithm. Write the steps of the algorithm. **(6.5)**

(b) Plot a circle using midpoint's algorithm having radius r=8 and centre at (3,4). **(6)**

UNIT-II

Q4 Derive the general form of matrix for cubic Bezier curve. List the properties of Bezier Curve. Construct the Bezier curve of order 3 with 4 polygon vertices A(1,1), B(2,3), C(4,3) and D(6,4). **(12.5)**

Q5 (a) Write a short note on illumination models. **(6)**

(b) Write a short note on 3D projection hierarchy. Differentiate between parallel projection and perspective projection. **(6.5)**

UNIT-III

Q6 (a) Explain Z buffer algorithm in detail. List advantages and disadvantages of Z buffer algorithm. **(6)**

(b) Explain flat shading, gourard shading and phong shading model in detail. **(6.5)**

Q7 (a) Describe multimedia elements. Differentiate between linear and nonlinear multimedia with the help of a suitable example. **(6)**

(b) Explain different types of authoring tools with their features. **(6.5)**

UNIT-IV

Q8 Differentiate between lossy and lossless compression. Explain lossless compression methods in detail with examples. **(12.5)**

Q9 (a) Write short note on JPEG and MPEG. **(6.5)**

(b) Explain Multimedia Synchronization and Integration in detail. **(6)**

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