Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Computer Graphics

Subject Code: 4TE06CGR1 Branch: B.Tech (CE)

Semester: 6 Date: 11/04/2017 Time: 02:30 To 05:30 Marks: 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Answer the following question:

a)	What is a pixel?	**(01)**
b)	What do you mean by resolution?	**(01)**
c)	List out the application of computer graphics.	**(01)**
d)	What do you mean by aliasing?	**(01)**
e)	What do you mean by persistence?	**(01)**
f)	What is the use of frame buffer?	**(01)**
g)	What do you mean by aspect ratio?	**(01)**
h)	What is the use of look up table?	**(01)**
i)	What is a scan conversion?	**(01)**
j)	What is the use of view plane?	**(01)**
k)	What do you mean by homogeneous co-ordinate?	**(01)**
l)	What do you mean by ambient light?	**(01)**
m)	What do you mean by depth cueing?	**(01)**
n)	What do you mean by vanishing point?	**(01)**

Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions

a)	Explain the working of cathode ray tube.	**(5)**
b)	Digitize the line with end points (30, 20) and (40, 28) using DDA algorithm.	**(5)**
c)	Explain various character generation methods.	**(4)**

Q-3 **Attempt all questions**

a) Explain 2D rotation about any arbitrary point with suitable example. **(5)**

b) Consider the line from (10,10) to (18,13). Use the Bresenham's algorithm to rasterize the line. **(5)**

c) Give the difference between random scan and raster scan display. **(4)**

Q-4 **Attempt all questions**

a) Explain boundary fill and flood fill for polygon filling. **(5)**

b) Perform a counterclockwise 45^{o} rotation of triangle A (3, 4), B (6, 6), C (5, 4) about point (1, 1). **(5)**

c) Explain cohen-sutherland line clipping algorithm with suitable example. **(4)**

Q-5 **Attempt all questions**

a) Explain Liang Bersky line clipping algorithm with suitable example. **(5)**

b) Explain 2D reflection and shear transformation with suitable example. **(5)**

c) Prove that two rotation transformation commutative with suitable example. **(4)**

Q-6 **Attempt all questions**

a) Explain midpoint circle generation algorithm with suitable example. **(5)**

b) Explain Sutherland-Hodgeman polygon clipping algorithm with suitable example. **(5)**

c) Explain inside outside test with suitable example. **(4)**

Q-7 **Attempt all questions**

a) Explain Weiler Arthton Algorithm for polygon clipping with suitable example. **(5)**

b) Explain Nicholl-Lee-Nicholl (NLN) line clipping algorithm with suitable example. **(5)**

c) Briefly explain Z-buffer visible surface determination algorithm with example. **(4)**

Q-8 **Attempt all questions**

a) List out the different types of projections and explain any two in detail. **(5)**

b) Explain window to viewport conversion with suitable example. **(5)**

c) Explain RGB and CMY color model in details. **(4)**