

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Computer Graphics

Subject Code : 4TE06CGR1

Branch: B.Tech (CE)

Semester : 6

Date : 23/04/2018

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.
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Q-1

Attempt the following questions:

- a) What is pixel? (01)
- b) What is region code? (01)
- c) List down advantages of DVST. (01)
- d) What is Convex polygon? (01)
- e) What is Look up table? (01)
- f) What is Resolution? (01)
- g) What do you mean by anti aliasing? (01)
- h) List down application of High persistence phosphors and Low persistence phosphors. (01)
- i) What is Illumination? (01)
- j) What do you mean by Homogenous coordinates? (01)
- k) Define the term refresh rate. (01)
- l) What is the limitation of Bitmap character generation method? (01)
- m) What do you mean by a video devices with reduced volume, weight and low power consumption? (01)
 - a) Light weight monitors
 - b) Flat-panel displays
 - c) CRT
 - d) Portable display
- n) Which function is used to check the color of a pixel? (01)
 - a) set pixel
 - b) get pixel
 - c) inquiry function
 - d) status function

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

Q-2

Attempt all questions

- a) 1) What is computer graphics? List down its advantages and applications. (07)
2) Give the difference between Printer and Plotter. (07)
- b) Derive all necessary formulas for Midpoint Circle drawing algorithm. Write pseudo code for it. (07)

Q-3

Attempt all questions

- a) Explain HSV color model and CMY Color model. (07)
- b) What is projection? Explain the Perspective projection techniques (07)



- Q-4** **Attempt all questions**
- a) Explain CRT and Color CRT Techniques. (07)
 - b) Explain Boundary fill algorithm and Flood fill algorithm. (07)
- Q-5** **Attempt all questions**
- a) Explain Bresenham's Line drawing algorithm with its advantages and disadvantages. (07)
 - b) Clip the line using Liang Barsky algorithm against window with $(x_{Wmin}, y_{Wmin}) = (20, 20)$ and $(x_{Wmax}, y_{Wmax}) = (100, 50)$. Line end points are A(10,15) and B(110, 40). (07)
- Q-6** **Attempt all questions**
- a) What is shear operation? Explain 2D shear with its types. Use suitable example for explanation. (07)
 - b) Explain Sutherland Hodgeman Polygon clipping with suitable example. (07)
- Q-7** **Attempt all questions**
- a) Draw an ellipse using Midpoint ellipse drawing algorithm when radiuses $r_x = 5$ and $r_y = 4$. (07)
 - b) Prove that the reflection of a square ABCD [(2,2), (4,2), (4,4), (2,4)] about X axis and then do 60 degree rotation of the resulting square about origin will not be same if the order of transformation (first rotation and then reflection) is changed. (07)
- Q-8** **Attempt all questions**
- a) Explain 3D rotation technique. (07)
 - b) Explain Random Scan method and Raster Scan method with their advantages and disadvantages. (07)

