

Seat No.: \_\_\_\_\_

Enrolment No.: \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA ENGINEERING – SEMESTER – III • EXAMINATION – SUMMER 16**

**Subject Code: 3331602**

**Date: 17.05.2016**

**Subject Name: Computer Graphics**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

**Q.1** Answer any seven out of ten. દશમાંથી કોઈપણ સાતના જવાબ આપો. 14

1. Explain LED.
2. List Out Hardcopy and Input Device.
3. Explain Term: Convex Polygon.
4. Write the disadvantage of DDA algorithm.
5. Define the term: Jaggies.
6. Define the term: Refresh Rate.
7. Define the term: Contrast Ratio.
8. Explain Oblique Projection.
9. Define the term: Refraction.
10. Define the term: Shearing.

**Q.2** (a) Write the difference between Random scan and Raster scan display. 03  
**પૃષ્ઠ. 2** (અ) Random scan and Raster scan display વચ્ચેનો તફાવત લખો. 03

OR

- (a) Explain Shadow Mask Method. 03
- (અ) Shadow Mask Method સમજાવો. 03
- (b) Explain Boundary fill Algorithm. 03

(a)	Boundary fill Algorithm સમજાવો.	03
OR		
(b)	Explain Flood fill Algorithm.	03
(b)	Flood fill Algorithm સમજાવો.	03
(c)	Explain Bresenham's line drawing algorithm.	04
(s)	Bresenham's line algorithm સમજાવો.	08
OR		
(c)	Find the Intermediate Point between (20,10) and (30,18) using DDA Line Drawing Algorithm.	04
(s)	DDA Line Drawing Algorithm નો ઉપયોગ કરી પોઈટ (20,10) અને (30,18) ની વચ્ચેના પોઈટ શોધો.	08
(d)	Find the Intermediate Point between (20,10) and (30,18) using Bresenham's Line Drawing Algorithm.	04
(s)	Bresenham's Line Drawing Algorithm નો ઉપયોગ કરી પોઈટ (20,10) અને (30,18) ની વચ્ચેના પોઈટ શોધો.	08
OR		
(d)	Explain Mid-Point Circle Drawing Algorithm.	04
(s)	Mid-Point Circle Drawing Algorithm સમજાવો.	08
<b>Q.3</b>	(a) What is General Pivot-Point Rotation?	03
<b>પ્રશ્ન. 3</b>	(અ) General Pivot-Point Rotation શું છે?	03
OR		
(a)	Explain Inverse Transformation.	03
(અ)	Inverse Transformation સમજાવો.	03
(b)	Translate a rectangle with coordinate point a(4,6), b(10,6), c(10,10) and d(4,10) by 6 units in X direction and 6 units in Y direction.	03
(અ)	Translate કરો rectangle ને 6 units in X direction અને 6 units in Y direction, Coordinates of the rectangle are given as a(4,6), b(10,6), c(10,10) અને d(4,10).	03
OR		
(b)	Rotate a rectangle by $90^0$ about an origin with coordinate points a(4,6), b(10,6), c(10,10) and d(4,10).	03
(અ)	Rotate કરો rectangle ને ઉદ્ગમબિંદુ થી $60^0$ જટલું. Coordinate of the rectangle are given as a(4,6), b(10,6), c(10,10) and d(4,10).	03
(c)	Explain Rotation in 2-D transformation.	04
(s)	Rotation ને 2-D transformation માં સમજાવો.	08
OR		
(c)	Explain Scaling in 2-D transformation.	04
(અ)	Scaling ને 2-D transformation માં સમજાવો.	08
(d)	Explain in detail on CRT.	04
(s)	CRT ની માહિતી આપી સમજાવો.	08
OR		
(d)	Explain General viewing pipeline for 3D transformation.	04

	(S)	General viewing pipeline for 3D transformation સમજાવો.	08
<b>Q.4</b>	(a)	Differentiate between 2-D and 3-D Transformation.	03
<b>પ્રશ્ન. ૪</b>	(અ)	2-D અને 3-D Transformation વચ્ચેનો તફાવત આપો.	03
		OR	
	(a)	Differentiate between Parallel and Perspective Projection.	03
	(અ)	Parallel અને Perspective Projection વચ્ચેનોતફાવત આપો.	03
	(b)	Explain Translation for 3-D Transformation.	04
	(અ)	Translation ને 3-D Transformation માં સમજાવો.	08
		OR	
	(b)	Explain Rotation for 3-D Transformation.	04
	(અ)	Rotation ને 3-D Transformation માં સમજાવો.	08
	(c)	Explain Sutherland – Cohen Line Clipping Algorithm.	07
	(અ)	Sutherland – Cohen Line Clipping Algorithm. સમજાવો.	09
<b>Q.5</b>	(a)	Explain Z-Buffer method with algorithms.	04
<b>પ્રશ્ન. ૫</b>	(અ)	Z-Buffer method algorithms સાથે સમજાવો.	08
	(b)	Give the importance of Graphics in Image Processing.	04
	(અ)	Graphics in Image Processing નું મહત્વ આપો.	08
	(c)	Define Following Term: 1) Illumination model. 2) Ambient Light                          3) Phong model	03
	(અ)	વ્યાખ્યા આપો.	03
		1) Illumination model. 2) Ambient Light                          3) Phong model	
	(d)	Explain color classification system.	03
	(અ)	Color classification system સમજાવો.	03

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