Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER –III • EXAMINATION – WINTER-2014

Subject Code: 3331602 **Date: 29/11/2014**

Subject Name: COMPUTER GRAPHICS

Time: 10:30 am - 01:00 pm **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. **14**

1. List the different application of computer graphics.
2. Explain term : Resolution
3. Explain term : aliasing
4. Briefly describe Shadow Masking
5. Write the drawback of DDA algorithm
6. What is view port
7. Explain Reflection in 2D Transformation
8. What is 3D Transformations
9. Explain sampling in computer graphics.
10. Define the Projection

Q.2 (a) Explain raster scanning. **03**

OR

(a) Explain Touch Panel device. **03**

(b) Explain Boundary fill Algorithm. **03**

OR

(b) Explain Flood fill Algorithm, **03**

(c) Explain the importance of Image processing. **04**

OR

(c) Explain the Homogenous coordinate of basic transformation. **04**

(d) Write Bresenham line drawing algorithm. **04**

OR

(d) Explain Mid-Point Circle Drawing Algorithm. **04**

Q.3	(a)	Explain Window to Viewport Co-ordinates Transformation.	**03**
		OR	
	(a)	What is General Fixed-Point Scaling.	**03**
	(b)	What is polygon clipping.	**03**
		OR	
	(b)	Explain jagging, zooming and panning.	**03**
	(c)	Explain Translation in 2-D transformation.	**04**
		OR	
	(c)	Explain Shears in 2-D transformation.	**04**
	(d)	Explain requirements for human vision.	**04**
		OR	
	(d)	Give Difference between digital and real image.	**04**
Q.4	(a)	Explain 3-D Scaling.	**03**
		OR	
	(a)	Explain 3-D Rotation.	**03**
	(b)	Explain Parallel Projections.	**04**
		OR	
	(b)	Explain Perspective Projections	**04**
	(c)	Explain Sutherland – Cohen Line Clipping Algorithm.	**07**
Q.5	(a)	Describe Flat panel display.	**04**
	(b)	Explain Bitmap character generation method.	**04**
	(c)	Scale a Triangle by 4 units in X direction and 5 units in Y direction. Coordinates of the triangle are given as (3,6), (8,11), (11,3).	**03**
	(d)	Explain color classification system.	**03**

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ગુજરાતી

પ્રશ્ન. ૧ દશમાંથી કોઇપણ સાતના જવાબ આપો. **૧૪**

૧. Computer graphics ની જુદી જુદી application ને list કરો.

૨. પદ સમજાવો: Resolution

૩. પદ સમજાવો : aliasing

૪. Shadow Masking ને ટૂંકમાં સમજાવો.

૫. DDA algorithm ના ગેરફાયદા લખો.

૬. View port શું છે.

૭. Reflection ને 2D Transformation માં સમજાવો

૮. 3D Transformations શું છે.

	૯.	Sampling ને computer graphics માં સમજાવો.	
	૧૦	Projection ની વ્યાખ્યા આપો.	
પ્રશ્ન. ૨	અ	Raster scanning ને સમજાવો.	૦૩
		અથવા	
	અ	Touch Panel device ને સમજાવો.	૦૩
	બ	Boundary fill Algorithm સમજાવો.	૦૩
		અથવા	
	બ	Flood fill Algorithm ને સમજાવો.	૦૩
	ક	Image processing નું મહત્વ સમજાવો.	૦૪
		અથવા	
	ક	Homogenous coordinate of basic transformation ને સમજાવો.	૦૪
	ડ	Bresenham line drawing algorithm લખો.	૦૪
		અથવા	
	ડ	Mid-Point Circle Drawing Algorithm ને સમજાવો.	૦૪
પ્રશ્ન. ૩	અ	Window to Viewport Co-ordinates Transformation ને સમજાવો.	૦૩
		અથવા	
	અ	General Fixed-Point Scaling શું છે	૦૩
	બ	Polygon clipping શું છે	૦૩
		અથવા	
	બ	Jagging, zooming અને panning ને સમજાવો.	૦૩
	ક	Translation ને 2-D transformation માં સમજાવો.	૦૪
		અથવા	
	ક	Shears ને 2-D transformation માં સમજાવો.	૦૪
	ડ	Human vision ની જરૂરીયાત ને સમજાવો.	૦૪
		અથવા	
	ડ	Digital અને real image નો તફાવત આપો.	૦૪
પ્રશ્ન. ૪	અ	3-D Scaling ને સમજાવો.	૦૩
		અથવા	
	અ	3-D Rotation ને સમજાવો.	૦૩
	બ	Parallel Projections ને સમજાવો.	૦૪

અથવા

	બ	Perspective Projections ને સમજાવો.	૦૪
	ક	Sutherland – Cohen Line Clipping Algorithm ને સમજાવો.	૦૭
પ્રશ્ન. ૫	અ	Flat panel display ને વર્ણવો.	૦૪
	બ	Bitmap character generation method ને સમજાવો.	૦૪
	ક	Scale કરો Triangle ને 4 units in X direction અને 5 units in Y direction. Coordinates of the triangle are given as (3,6), (8,11), (11,3).	૦૩
	ડ	Color classification system ને સમજાવો.	૦૩

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