



ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION : JANUARY 2021
(Academic Session: 2020 – 21)

Name of the Program: (Example: B. Sc./BBA/MA/B.Tech.)	B.Tech CSE/MCA/Int. BSc MSc Mathematics and Computing	Semester: (I/III/ V/ VII/IX)	V
Paper Title :	Elective-I (Computer Graphics & Visualization)/Computer Graphics	Paper Code:	ECS43107/ECS53101/ ECS53121
Maximum Marks :	40	Time duration:	3 hrs
Total No of questions:	8	Total No of Pages:	2
(Any other information for the student may be mentioned here)			

Answer all the Groups

Group A

Answer all the questions of the following

$5 \times 1 = 5$

1.
 - a) What is clipping?
 - b) Mention one disadvantage of DDA line drawing algorithm.
 - c) What is geometric transformation?
 - d) Mention one application area of Orthographic projection.
 - e) What is an additive color model?

GROUP –B

Answer *any three* of the following

$3 \times 5 = 15$

2. Given a clipping window A (20,20), B(60,20), C(60,40) and D(20,40), using Cohen Sutherland algorithm, find the visible portion of the line segment joining the point P(40,80) and Q(120,30).
5
3.
 - a) Differentiate between orthographic and oblique projection. Mention at least three points of difference.
 - b) Define the importance of projection.
3+2
4. How can you perform 3D scaling of an object? Write down the 3D scaling matrix.
3+2
5.
 - a) What is a fractal? Explain any one application area of fractals.
 - b) Rasterize a line starting at pixel (2,3) and ending at pixel (12,8) using DDA line drawing algorithm.
(1+1)+3

GROUP –C

Answer *any two* of the following

$2 \times 10 = 20$

- 6.** Explain Polygon surface and Polygon Mesh 3-dimensional object representation along with suitable diagram. 5+5
- 7.** a) Consider an object ABCD with given co-ordinates A(10,10), B(60,10), C(60,60) and D(10,60). It is desired to double the size of object, keeping in mind that point 'A' remains the same. Find the co-ordinates of the transformed object.
- b) What is the “Visible Surface Detection” problem?
- c) Explain the Back face detection algorithm. 5+2+3
- 8.** a) How do you represent a point in 3D and what are the advantages of homogeneous co-ordinates?
- b) How will you represent a 3D object in matrix form? Explain with a suitable example. (2+2)+(2+4)
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