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RNLKWC/VIS/CGM/ C14T/22

End Semester Examination, 2022

Semester - VI

Subject - BCA

Computer Graphics and Multimedia

PAPER - C14T

Full Marks : 40

Time : 2 Hours

Group - A

1. **Answer any five questions :** **5x2=10**
- Mention the major application areas of Computer Graphics.
 - What is window to view point Co-ordinate transformation ?
 - What do you mean by bit map and pix map ?
 - What are the advantages of Bresenham's line drawing algorithm ?
 - What is aspect ratio ?
 - What is frame buffer ?
 - If an image has a height of 4 inches and an aspect ratio is 1 : 5. What is its width ?
 - What is affine transformation ?

Group - B

- Answer any four questions :** **4x5=20**
- Calculate the pixel positions along a straight line between A (10, 12) and B (20, 20) using DDA algorithm. **5**

(Turn Over)

3. Rotate point A (2, 4) in 2-Dimensional plane by an angle 90 degree in Anticlockwise direction. 5
4. Explain 2D transformation using Homogenous co-ordinator system. 5
5. A triangle is defined by $\begin{pmatrix} 9 & 6 & 14 \\ 12 & 2 & 4 \end{pmatrix}$.

Find the transform co-ordinates after 45° rotation about the origin.

6. Let PQRS is the rectangular window with P (30, 30), Q (90, 30), R (90, 70) and S (30, 70). Use Cohen — Sertherland algorithm to clip lines AB with A (15, 40) and B (80, 90).
7. Given a circle of radius $R=8$. using the mid-point circle drawing algorithm, find the pixel co-ordinate.

Group - C

Answer any one question : **1x10=10**

8. Describe briefly Bresenham's circle drawing algorithm. Why do we prefer incremental algorithm over DDA? 7+3
9. How to find the region codes for inside and outside of a clipping window?

Explain mid-point sub-division line clipping algorithm.