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B.Sc. Graphics & Web Designing (Semester – 4th)

COMPUTER GRAPHICS

Subject Code: BGWDS1403

Paper ID: 21132616

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. Describe the Track Ball.
- b. Describe the Graphic Tablets.
- c. Explain the terms adjacency and connectivity in the context of digital images.
- d. Describe simple random scan display system.
- e. What do you mean by Lookup Table?
- f. What are advantages of DVST over CRT?
- g. Write Short note on Rotation Transformation.
- h. Write Short Note on Anti-aliasing.
- i. Write Short Note on Refresh buffer?
- j. Write any two differences between perspective projection and parallel projection.

Section – B

(5 marks each)

- Q2. Write a suitable figure, describe the shadow masking techniques in CRT.
- Q3. Derive the Initial decision parameter of midpoint circle drawing algorithm.
- Q4. Explain the scan –line method used in visible surface detection with an example.
- Q5. Explain how polygon meshes are used for 3D modeling.
- Q6. Generate the points between the end points of a line viz. (2,2) and (9,6) by using Bresenham's line drawing algorithm.

Section – C

(10 marks each)

- Q7. Explain the Sutherland Hodgeman algorithm for polygon clipping with an example.
- Q8. Consider a triangle at (2,2) (10,2) (2,10). Perform the following 2D transformations in succession and find the resultant vertices
 - i) Scale with respect to (2,2) by scaling factors (2,2) respectively along x and y directions.
 - ii) Rotate by 90 counter clockwise directions.
- Q9. Explain flood fill polygon filling algorithm.