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3 (Sem-6/CBCS) CSC HC 2

2023

COMPUTER SCIENCE

(Honours Core)

Paper : CSC-HC-6026

(Computer Graphics)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer **any seven** of the following questions : 1×7=7
 - (i) Name *any two* output devices used for graphics hardware.
 - (ii) What is CMY color model ?
 - (iii) What is vanishing point ?
 - (iv) Name *any two* properties of the Bézier curve.
 - (v) What is Hermite curve ?

Contd.

- (vi) What is meant by resolution of a video display unit ?
 - (vii) Name *two* types of parallel projections.
 - (viii) What is line clipping ?
2. Answer the following questions : $2 \times 4 = 8$
- (i) What is the fundamental difference in the method of monochrome CRT and a color CRT.
 - (ii) Explain briefly the A-buffer method.
 - (iii) What is clipping ? Name *two* ways of performing text clipping.
 - (iv) What is meant by ambient light ?
3. Answer the following questions : **(any three)**
 $5 \times 3 = 15$
- (i) Describe the random/vector display system with the help of a neat diagram.
 - (ii) Give the homogeneous co-ordinate for translation, rotation, and scaling.
 - (iii) Differentiate between parallel and perspective projection.
 - (iv) Explain the depth buffer method (or z-buffer method) briefly.

- (v) What is diffuse reflection ?
4. Answer the questions as desired :
(any three) $10 \times 3 = 30$
- (i) Explain the Bresenham's line drawing algorithm with its advantages and disadvantages.
 - (ii) Explain the midpoint ellipse algorithm.
 - (iii) What is text clipping ? Briefly explain the *three* ways of text clipping with the help of necessary diagram(s).
 - (iv) Explain the scan-line polygon-fill algorithm with the help of a neat diagram.
 - (v) Explain 2-D translation, rotation, and scaling with the help of examples.
 - (vi) Describe the specular reflection and the Phong specular reflection model.