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 ?

(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 : 2×4=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)*
   5×3=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) 10×3=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.

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