No. of Printed Pages—3

51 (CG)

[16-HRAGDA-M3]

MCA/MScIT 3rd Semester Exam., 2016

COMPUTER GRAPHICS

[MCA (S3) 12]

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer any *five* questions from the following : 2×5=10

(a) What does refreshing of the screen mean?

(b) What do you mean by aspect ratio and vertical resolution?

(c) What is the use of frame buffer? Write down the formula to calculate memory in megabyte in a given resolution.

(d) When is composite transformation used?

(e) What is an illumination model?

(f) What is antialiasing?

2. Answer any *three* questions from the following : 4×3=12

(a) Differentiate between Random scan and Raster scan display. 4

(b) Define virtual reality. What is constant shading? 4

(c) Define shearing. Give the matrix expression for scaling transformation relative to the coordinate origin. 2+2=4

(d) How is intensity code for gray scale measured? What is the solution for aliasing problem? 2+2=4

3. Answer any *three* questions from the following : 6×3=18

(a) Explain the concept of general pivot point rotation. Differentiate general pivot point rotation with general fixed point scaling. 3+3=6

(b) What is 2D reflection? Discuss the reflection about x-axis and y-axis and give their transformation matrices. 6

(c) What are the rules for checking whether a point lies inside or outside a polygon boundary? Briefly discuss the concept of text clipping. 3+3=6

(d) Name three basic methods to generate characters on computer screen. Discuss any one of them. 2+4=6

4. Answer any *four* questions from the following : 10×4=40

(a) What is the purpose of clipping procedure? Briefly discuss line and polygon clipping operations with the help of examples. 2+4+4=10

(b) What is the use of splines in graphic applications? What is a convex hull? Discuss any one cubic spline method. How is spline curve different from Bezier curve? 2+2+4+2=10

(c) Write short notes on : 5+5=10

(i) Rendering

(ii) Plasma panel display

(d) What is composite transformation? Give an example of composite transformation. Discuss briefly reflection in three-dimensional coordinate system. 2+2+6=10

(e) Write short notes on (any *two*) : 5×2=10

(i) Circle generating algorithm

(ii) A line drawing algorithm

(iii) Graphics software

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