Sub Code: RCA501

Paper Id: 214501 Roll No:

MCA
(SEM. V) THEORY EXAMINATION 2019-20
COMPUTER GRAPHICS AND ANIMATION

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	What are the advantages of computer graphics?
b.	List out the hardware components used in computer graphics.
c.	Define polygon clipping.
d.	What are two types of parallel projection?
e.	Write down the names of various back-face detection algorithms?
f.	What are the advantages of B-spline curve over Bezier curve?
g.	Give advantages of animation.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

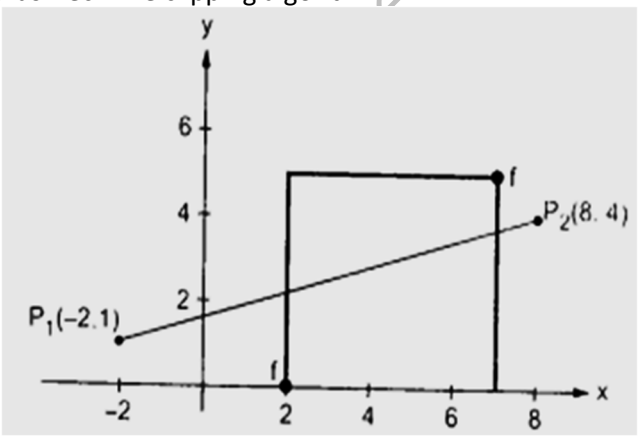
a.	Give various definitions of computer graphics. Differentiate between active and passive graphics.
b.	Explain window to viewport mapping in detail.
c.	Discuss basic principles of parallel and perspective projections.
d.	Explain various types of shading.
e.	Discuss parameterized and scripting system in terms animation.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss a 24-bit plane frame buffer with 8-bit planes per color to produce 2^{24} possible colors.
(b)	Discuss DDA algorithm with its advantages and disadvantages.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	How the intersection points can be calculated in case of Cohen-Sutherland line clipping algorithm?
(b)	Consider the line from $P_1(-2, 1)$ to $P_2(8, 4)$ clipped to the rectangular region R as shown in figure. The line P_1P_2 intersects the window. Calculate the intersection points using Cyrus-Beck line clipping algorithm. 

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5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss scan-line image space method for removing hidden surfaces.
(b)	Explain the working of A-buffer algorithm.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss various parametric and geometric continuity conditions.
(b)	Discuss transparency and shadows.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Write short note on general computer animation functions.
(b)	What do you mean by image filtering? Differentiate between image filtering and image warping.

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