(b) Show that the composition of two rotation is additive by concatenating the matrix representation for $R(\theta_1)$ and $R(\theta_2)$ to obtain $R(\theta_1).R(\theta_2)=R(\theta_1+\theta_2)$.

2. (a) Derive the Cohen-Sutherland line clipping algorithm.

(b) Explain any five graphics standards.

3. (a) Write short notes on :
a. Viewing and Clipping
b. Flood Fill algorithm

(b) Digitize a line from (10, 12) to (15, 15) on a raster screen using Bresenham's straight line algorithm.

4. (a) Explain about all the color models in detail.

(b) Write short notes on : Plasma and LCD.

5. Find the transformation for -

(i) Cavalier projection with $\theta=45^0$

(ii) Cabinet projection with $\theta=30^0$

Section - B
(Short-Answer-Type Questions)

Note - Section 'B' contains Eight (08) short-answer-type questions of Seven (07) marks each. Learners are required to answer any Five (05) questions only.

$(5 \times 7 = 35)$

1. What is the difference between DDA and Bresenham's line generation algorithm ?

2. Determine transformation matrices to rotate a point (Clockwise and anticlockwise) by angle θ around the point (x, y).

3. What are the major application areas of computer graphics ?

4. Compare DVST and refresh display. List the properties of phosphor used in CRT monitors.

5. What is the need of lookup table ? Give the organization of a color lookup table providing 12 bits per entry, per color for pixel position and with 8 bits per pixel in the frame buffer.

6. Explain all the types of animation and its uses.

7. Why are homogeneous coordinates used for transformation in computer graphics ?

8. What do you mean by VGA and SVGA monitors ?

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BCA - 17

Interactive Computer Graphics

Bachelor of Computer Application

(BCA - 11/16/17)

Fifth Semester, Examination - 2019

Time : 3 Hours **Max. Marks : 80**

Note - This Paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the Questions contained in these sections according to the detailed instructions given therein.

Section - A

(Long-Answer-Type Questions)

Note - Section 'A' contains Five (05) long-answer-type questions of Fifteen (15) marks each. Learners are required to answer any Three (03) questions only.

$(3 \times 15 = 45)$

1. (a) What is projection ? Explain the parallel and perspective projection in detail.