

Roll No.

Total No. of Questions : 13]

[Total No. of Pages : 02

Paper ID [A0223]

(Please fill this Paper ID in OMR Sheet)

BCA (503) (S05) (LE) (O) (Sem. - 5th)

COMPUTER GRAPHICS

Time : 03 Hours

Maximum Marks : 75

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

Section - A

Q1)

(15 × 2 = 30)

- a) What is meant by the image resolution and image's aspect ratio?
- b) How different shades of colors are generated on the RGB monitors?
- c) List the properties of the phosphorus used in the CRT monitors.
- d) Why impact printers are so called?
- e) What are the functions of a mouse?
- f) What is the concept of refreshing in the CRTs?
- g) What does the acronym pixel stands for? What are the characteristics of a pixel?
- h) What are cartesian and homogeneous coordinate systems?
- i) What is bit-map? How can it be used for character generation?
- j) What is the centre of projection in perspective projection?
- k) What are flatbed and drum plotters?
- l) What is the scan conversion? Why is it so called?
- m) How can light pen differentiate between two points when both have the same color and intensity?
- n) What is a window and a view port?
- o) What are normalized device co-ordinates?

A-79

P.T.O.

Section - B

(9 × 5 = 45)

- Q2)** Explain the working principle of track-ball and mouse.
- Q3)** What are plasma panel displays? What are their advantages?
- Q4)** Write Bresenham's ellipse drawing algorithm with example.
- Q5)** Distinguish between parallel and perspective projections.
- Q6)** Write the Cohen-Sutherland outcode algorithm.
- Q7)** Show that the reflections in the line $y = x$ and the line $y = -x$ can be performed by a scaling operation followed by rotation.
- Q8)** Find the transformation matrix for rotation by an angle "A" with respect to the vector :
- $N = AI + BJ + CK$
and a point given on the vector P (a, b, c)
- Q9)** Prove that the multiplication of three transformation matrices for each of the following sequence of operations is commutative :
- (a) Any two successive translations.
(b) Any two successive scaling operations.
- Q10)** How can you realize the device independent graphics systems.
- Q11)** Draw neat sketch of Plasma-Panel display and explain its working. Compare its working with a CRT.
- Q12)** Explain clipping in 3-D viewing transformation.
- Q13)** Explain the working of hard-copy devices in detail.

