

DipIETE – CS (NEW SCHEME) – Code: DC66**Subject: COMPUTER GRAPHICS**

Time: 3 Hours

DECEMBER 2011

Max. Marks: 100

NOTE: There are 9 Questions in all.

- Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.
- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. By generating only ____ of a circle, the rest of the points of the circle can be generated using symmetry

- (A) 3 quadrants (B) 2 quadrants
(C) 1 quadrants (D) All the 4 quadrants have to be generated

b. Time between two consecutive refreshes of CRT depend upon

- (A) Size of graphics image (B) Size of Screen
(C) Frame buffer size (D) Persistence factor of phosphor

c. In a screen with aspect ratio of 4:3, if 1280 pixels are along horizontal line then number of pixels along vertical line is

- (A) 960 (B) 800
(C) 1020 (D) 980

d. If a point (3, 6) is translated using value $t_x = 3$ and $t_y = -7$, then the new point is

- (A) (6, -1) (B) (6, 13)
(C) (0, 13) (D) (0, 1)

e. Which of the following is a type of projection?

- (A) Trimetric (B) Isometric
(C) Diametric (D) Tetrametric

f. Which of the following region code is not valid in Cohen Sutherland clipping algorithm?

- (A) 1010 (B) 0000
(C) 1001 (D) 1111

- g. Which of the following format is used for storing images only?
- (A) PCX (B) MP3
(C) AVI (D) WM V
- h. Shearing in computer graphics is a type of
- (A) Projection (B) Transformation
(C) Shading (D) Clipping
- i. Which of the following is not an input device?
- (A) Light pen (B) Optical mouse
(C) Digitizer (D) None of the above
- j. The following algorithm is not used for removal of hidden surface
- (A) Back Face removal Algorithm (B) Z-Buffer Algorithm
(C) Cyrus Beck Algorithm (D) Depth Buffer Algorithm

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Write a short notes on video adapter/controller. (8)
- b. Explain the components of graphic systems configuration with the help of a diagram. (8)
- Q.3** a. Find the points to be selected to draw a line using DDA algorithm between points (3, 5) and (10, 10). (8)
- b. Explain Seed Fill algorithm for polygon filling with a suitable example. (8)
- Q.4** a. Compute the transformation matrix required to translate a point (x,y) by distance 3 and 4 along x and y axis respectively and then rotate (x,y) anti clockwise by 45° . (8)
- b. Explain the concept of homogeneous coordinate system and its application. (8)
- Q.5** a. Clip a line segment between points (1,3) to (5,17) using Cohen Sutherland clipping algorithm so that it fit into view port with left bottom at (3,5) and right top at (8,12). (8)
- b. Explain the steps required in viewing transformation to map world coordinate scene to device coordinates. (8)

- Q.6** a. Find a rotation matrix to rotate the point (1,2,3) by 45° around origin in xy plane. Find transformed value of the point also. (8)
- b. Define oblique projection and then find the transformation matrix for the projection of a point (x, y, z) in x -y plane. (8)
- Q.7** a. Describe a technique used to draw only visible portion of an image. What factors are considered while selecting the visible portion of an image? (8)
- b. Describe the algorithm for hidden line removal. (8)
- Q.8** a. What are the devices required for producing animation? Describe in brief the steps required to produce real time animation. (8)
- b. Define the term morphing and explain its use in key frame systems of animation. (8)
- Q.9** Write short notes on the following:
- (i) MPC specification
 - (ii) BMP file format
 - (iii) WAV file format
 - (iv) Compact Disk
- (4×4)**