Code: DC66   **Subject: COMPUTER GRAPHICS**

DipIETE – CS

Time: 3 Hours   **JUNE 2014**   **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **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. Which of the following is correct about MPEG?

   (A) It is an image format   **(B)** It is an audio format
   (C) It is a video format   **(D)** It is text format

b. What is long form of TIFF?

   (A) Tagged Image File Format   **(B)** Tapped Image File Format
   (C) Triggered Image File Format   **(D)** Tagged Items File Format

c. Following is not a Display Device

   (A) Direct View Storage Tube   **(B)** Flat panel Display
   (C) CRT   **(D)** Keyboard

d. Visible point is assigned to the following bit-code in the Cohen Sutherland clipping algorithm

   (A) 0000   **(B)** 1001
   (C) 0110   **(D)** 1111

e. Following is not a Line Clipping Algorithm

   (A) Digital Diffential Algorithm   **(B)** Sutherland-Cohen Algorithm
   (C) Mid-Point Algorithm   **(D)** Cyrus-Beck Algorithm

f. Following function is used to set the colour of text Background

   (A) tectcolor( )   **(B)** textbackground( )
   (C) setcolor( )   **(D)** bgcolor( )

g. Following is not a type of transformation.

   (A) Translation   **(B)** Pulling
   (C) Rotation   **(D)** Scaling

h. Which of the following is not a Curve?

(A) Interpolation   **(B)** Concave
(C) B-spline   **(D)** Bezier

i. A point (5, 3) is translated 3 units X-direction and 5 units Y-direction. The final point is

(A) (8, 8)   **(B)** (-3, 8)
(C) (8, -8)   **(D)** (-5, -3)

j. Which of the following is not a video format?

(A) NTSC format   **(B)** PAL format
(C) GBR format   **(D)** SECAM format

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

Q.2 a. What are the advantages of Interactive Computer Graphics? What are the uses of Computer Graphics?   **(5+3)**

   b. Write short notes on: **(4+4)**
       (i) Refresh display
       (ii) GUI

Q.3 a. Write and explain a Mid-point Circle Generating algorithm.   **(8)**

   b. Define Polygon. What are the types of Polygons? Give example of each. **(8)**

Q.4 a. Rotate an object defined by A(0,0), B(1,0), C(1,1), and D(0,1) in clockwise direction by 45^0 about origin.   **(8)**

   b. Explain homogeneous co-ordinate system. Why is it required to be considered while transforming an object from one reference frame to other reference frame?   **(8)**

Q.5 a. Define the terms: **(8)**
       (i) Windowing   (ii) Clipping
       (iii) Window   (iv) Viewport

   b. What is Viewing Transformation? Find the normalization transformation for window to viewport which uses the rectangle whose lower left corner at (1, 1) and upper right corner at (3, 5) as a window and the viewport that has lower left corner at (0, 0) and right corner at (½, ½).   **(8)**

Q.6 a. What is projection? Explain orthographic and isometric projections in detail.
                                                                           (8)

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b. Explain how Bezier curves are developed? List any 5 characteristics of Bezier curves.   **(8)**

Q.7 a. Write the Depth Buffer Method or z-Buffer algorithm for detecting visible surfaces.   **(8)**

b. Can lines behind any face be hidden completely or be drawn with different attributes? Discuss. Also describe briefly "direct Method" and "Visible Surface Detection Method".   **(8)**

Q.8 a. What is animation? What are the different methods to produce real time animation?   **(8)**

b. Discuss various devices for producing animation. Compare NTSC and PAL video formats.   **(8)**

Q.9 a. What are the various components of multimedia? How do they affect human perception and understanding?   **(8)**

b. What are the differences between BMP and PCX file formats? Discuss the audio components of multimedia.   **(8)**