ROLL NO. _____

Code: DC66 **Subject: COMPUTER GRAPHICS**

DipIETE – CS (NEW SCHEME)

Time: 3 Hours **JUNE 2012** **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. The portion of memory used to hold pixels is called

(A) Flash memory **(B)** Frame buffer
(C) Random access memory **(D)** ROM

b. DDA algorithm is used for

(A) Drawing a rectangle **(B)** Drawing a line
(C) Drawing a circle **(D)** Drawing a polygon

c. To move the image or object, which transformation is used

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

d. Sutherland-Hodgeman algorithm is used for

(A) Line clipping **(B)** Graphical representation
(C) 3D modeling **(D)** Polygon clipping

e. Reflection relative to a given axis is equivalent to

(A) 90^o rotation **(B)** 180^o rotation
(C) Reflection **(D)** None

f. Difference between parallel and perspective projection lies in the

(A) Centre of attraction **(B)** Centre of projection
(C) Line of control **(D)** None

g. 12 bit pixel values in a lookup table representation consists of _____ no. of entries.

(A) 4096 **(B)** 12
(C) 256 **(D)** 8

h. Hidden surface problem relies on a device called

(A) X-buffer **(B)** Z-buffer
(C) Y- factor **(D)** None

i. Which of the following is not a popular video format

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

j. Which of the following software is used for multimedia and animation

(A) Maya **(B)** 3D Studio
(C) Pinnacle Studio **(D)** All of the above

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

Q.2 a. Describe the graphics system interface at different levels that enables user to inherit the application program best suited to process the desired output. **(8)**

b. Explain the function of light pen. Why it has not become a popular desktop device? **(8)**

Q.3 a. Explain circle generating algorithm. **(8)**

b. Write short notes on:
(i) Character generation. **(4)**
(ii) Aliasing & Antialiasing. **(4)**

Q.4 a. Explain 2D rotation about an arbitrary point. **(6)**

b. What is the significance of homogeneous coordinates? **(2)**

c. Describe the transformation M_L which reflects an object about a line L. Find the form of the matrix M_L with slope m and y intercept (0,b). **(8)**

Q.5 a. State and explain in detail the Cohen-Sutherland Polygon clipping algorithm. **(8)**

b. Explain the Sutherland Hodgeman Line Clipping algorithm. **(8)**

Q.6 a. Define and explain Oblique Projection. What are various types of Oblique Projections? **(8)**

b. List various characteristics of Bezier Curve. **(8)**

Q.7 a. What is meant by visible surface detection? Explain back face detection method as hidden surface removal algorithm. **(8)**

b. Find the equation of a plane passing through the points (2, 4, 3), (4, 4, 5) and (8, 9, 3). **(8)**

Q.8 a. Explain various Video formats. **(8)**

b. Compare and contrast Frame by Frame animation technique with Real Time animation technique. **(8)**

Q.9 a. Describe MPC specifications for a multimedia PC. **(6)**

b. What is a Compact Disk? How does a CD drive store and retrieve data on a CD? **(6)**

c. How does a DVD differ from a CD? How is it superior to normal CD? **(4)**