PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA / IMCA /Winter 2018 – 19 Examination

Semester:5   **Date: 22/10/2018**
Subject Code: 05101301   **Time: 02:00pm to 04:30pm**
Subject Name: Computer Graphics   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1   **Answer the followings.**

  A. Define the followings.   **(05)**

    1. Pixel   3. Image enhancement   5. Tweening

    2. Sampling   4. Viewport

  B. Multiple choice type questions/ Give the sentence true or false. (Each of 01 marks)   **(10)**

    1. A major disadvantage of DUST in interactive computer graphics is

      a.   Ability to selectively erase part of an image

      b.   Inability to selectively erase part of image from screen

      c.   Inability to produce bright picture

      d.   None

    2. A pixel of black-white image or graphic object take space in memory

      a. 1 Bit   c) 2 Bits

      b. 1. Byte   d) 1 Byte

    3. Expansion of line DDA algorithm is

     a) Digital difference analyzer   c) Digital differential analyzer

     b) Direct differential analyzer   d) Data differential analyzer

    4. In 2D-translation, a point (x, y) can move to the new position (x', y') by using the eq.

     a) x'=x+dx and y'=y+dx   b) x'=x+dx and y'=y+dy

     c) X'=x+dy and Y'=y+dx   d) X'=x-dx and y'=y-dy

    5. A polygon which has all its sides of equal length and all its angles of equal measures is called a Convex polygon. **(True/False)**

    6. Bresanham circle algorithm uses the approach of Midpoint. **(True/False)**

    7. The most basic transformation that are applied in three-dimensional planes are

     a) Translation   b) Scaling   c) Rotation   d) All of these

    8. Full form of TIFF is _____.

    9. A line with endpoints codes as 0000 and 0100 is ?

     a) Partially invisible   **c)** Completely visible

     b) Completely invisible   d) Trivially invisible

10. A _____ is a location on a timeline which can hold different objects of an animation.

   a) Frame   b) Layer   c) Scene   d) Keyframe

Q.2 Answer the followings.   **(15)**

   1. Differentiate between LCD and LED.   **3**

   2. Differentiate between Lossy compression and Lossless compression.   **3**

   3. Explain DDA Algorithm.   **3**

   4. Define Image Noise? List measures to remove or minimize it.   **2**

   5. Explain any 2 ways of Clipping Text.   **2**

   6. Explain Inside-Outside Test.   **2**

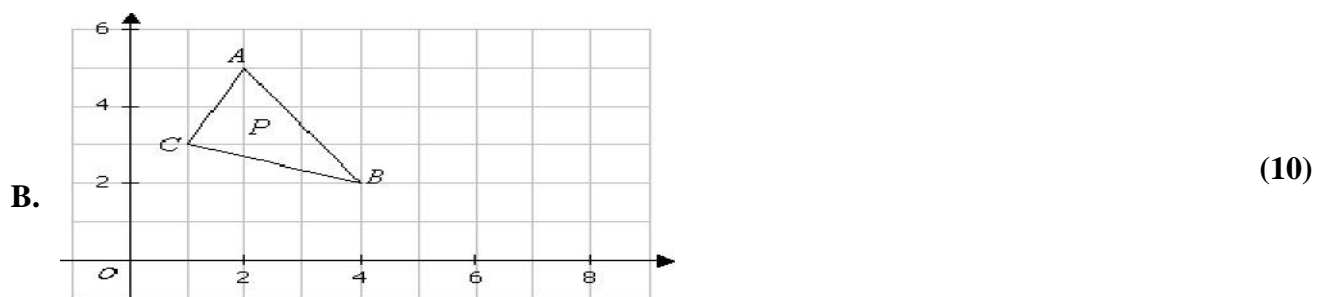**Q.3 Answer the following. (Any three)**   **(15)**

   1. Explain Mid Point Circle Generating Algorithm.

   2. Explain in brief Translation, Scaling, Rotation, Reflection and Shearing.

   3. Explain Image Smoothing and Image Sharpening.

   4. Explain JPEG, GIF and PNG File formats.

Q.4 Answer the following.

A. Draw and explain the construction of Cathode Ray Tube along with its advantages and disadvantages.   **(05)**

B. What is Translation? The triangle P is mapped onto the triangle Q by the translation $\begin{pmatrix} 4 \\ -1 \end{pmatrix}$.

    (10)

   a) Find the coordinates of triangle Q.

   b) Draw and label triangle Q.

OR

B. Explain Cohen- Sutherland Line Clipping Algorithm. Apply this algorithm to clip the line with coordinates (30,60) and (60,25) against the window with **(Xwmin,Y−wmin)(Xwmin,Y−wmin)=(10,10)** and **(Xwmax,Ywmax)(Xwmax,Ywmax)= (50,50)**.   **(10)**