

Professional Course Examination, November 2018

(5th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Course : BCA-502

(Computer Graphics and Multimedia)

(Revised)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks : 25*)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks : 15*)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. Picture definition stored in memory area is called

(a) refresh buffer ()

(b) pel ()

(c) HDD ()

(d) register ()

2. A special purpose processor called the _____ is used to control the operation of the display device.

(a) display processor ()

(b) display coprocessor ()

(c) display controller ()

(d) display device ()

3. The translation distance pair (t_x, t_y) is called a

(a) translation pair ()

(b) translation vector ()

(c) translation distance ()

(d) translation shift ()

4. Two-dimensional scaling equation in the matrix form is

(a) $P \ S \ T$ ()

(b) $P \ S \ T$ ()

(c) $P \ S \ P$ ()

(d) $P \ S \ T$ ()

5. Digital differential analyzer algorithm is the _____ generation algorithm.

(a) straight line ()

(b) point ()

(c) circle ()

(d) ellipse ()

6. When line segments are scanned and converted in raster system _____ position must be calculated.

(a) pixel screen ()

(b) line length ()

(c) column of pixel ()

(d) frame buffer ()

7. SPLINE approximation method was developed by

(a) Pierre Bezier ()

(b) Sutherland ()

(c) Hodgeman ()

(d) Bresenham ()

8. The quadric surfaces are described with

- (a) first-degree equation ()
- (b) second-degree equation ()
- (c) third-degree equation ()
- (d) None of the above ()

9. MIDI message includes a status byte and up to ____ data bytes.

- (a) two ()
- (b) three ()
- (c) four ()
- (d) eight ()

10. An analog colour video signal contains

- (a) luminance ()
- (b) brightness ()
- (c) chrominance ()
- (d) All of the above ()

Indicate whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5

1. In active-matrix display, thin-film transistor technology is used.
(T / F)

2. The region against which an object is to be clipped is called Clip Window.
(T / F)

3. Bresenham's algorithm is another incremental scan conversion algorithm.
(T / F)

4. Torus is a sphere shape object.
(T / F)

5. Cloning means giving life to any object in computer graphics.
(T / F)

SECTION—B

(Marks : 10)

Answer the following questions in short : 2×5=10

1. What are the applications of computer graphics?

2. Briefly explain the technique of text clipping.

3. Differentiate between points and lines.

4. What is ellipsoid?

5. What is hypertext?

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

1. (a) What is computer graphics? List out the different input devices that are typically used with virtual reality systems. 1+4=5

(b) With a neat diagram, explain raster-scan system. 5

OR

(c) Explain flat-panel displays. 5

(d) Draw a diagram of CRT and simply explain the operation of CRT. 5

2. (a) What is clipping? Explain Sutherland-Hodgeman algorithm. 1+4=5

(b) What is translation? Explain the two-dimensional transformation of rotation and scaling. 5

OR

(c) Explain mirror reflection. Show and explain the reflection of an object about the x - and y -axis. 5

(d) Explain line clipping by showing binary region codes with respect to the clipping rectangle. 5

3. (a) Explain mid-point circle algorithm. 10

OR

(b) Set up a parallel version of Bresenham's line algorithm for straight lines of any slope. 10

4. (a) Differentiate between open-uniform B-splines and non-uniform B-splines. 4
(b) Explain the properties of Bezier curves. 6

OR

- (c) Write the properties of B-spline curve. 2
(d) Explain superellipse and superellipsoid. 8
5. (a) What is animation? Briefly explain the basic animation technique. 6
(b) Differentiate between analog audio and digital audio. 4

OR

- (c) Explain the different applications of multimedia. 5
(d) What is image compression? Giving an example, explain the different image formats. 5
