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( 5th Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-502

( Computer Graphics and Multimedia )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) (i) What is computer graphics? Explain the different applications of computer graphics. 1+5=6
- (ii) Distinguish between Random Scan and Raster Scan monitors. 4
- Or*
- (b) (i) Explain the working mechanism of refresh CRT monitor with a neat diagram. 6

(ii) Differentiate between Beam penetration and Shadow mask in color CRT monitors. 4

2. (a) (i) Explain Cohen-Sutherland Line Clipping Algorithm with suitable diagram. 6
- (ii) Translate a polygon with coordinates  $A(2, 5)$ ,  $B(7, 10)$  and  $C(10, 2)$  by 3 units in  $x$  direction and by 4 units in  $y$  direction with a neat diagram. 4

*Or*

- (b) (i) What is transformation? Explain the following 3D-geometric transformations with suitable diagram : 1+5=6
- (1) Translation
- (2) Scaling
- (ii) What is projection? Explain the different types of projection. 1+3=4

3. (a) What is an ellipse? Write some of the important properties of ellipse. Explain ellipse generating algorithm with suitable diagram. 10

*Or*

- (b) Explain Bresenham's Line Drawing Algorithm for straight lines of any slope. 10

( 3 )

4. (a) (i) Write notes on the following : 3+3=6  
(1) Sphere  
(2) Torus  
(ii) Differentiate between Superellipse and Superellipsoid. 4

Or

- (b) (i) Define Bezier curve. Explain the properties of Bezier curves. 2+4=6  
(ii) What is B-spline curve? Write the advantages of B-spline curves. 4

5. (a) (i) What is animation? Explain the different types of animation. 2+4=6  
(ii) Differentiate between JPEG and GIF. 4

Or

- (b) (i) What do you mean by multimedia? Explain the applications of multimedia in education, video conferencing, training and entertainment. 2+4=6  
(ii) What is MIDI? Write the advantages and disadvantages of MIDI file. 2+2=4

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**Subject Code : V/BCA/502**

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**To be filled in by the Candidate**

DEGREE 5th Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Subject .....  
Paper .....

**INSTRUCTIONS TO CANDIDATES**

- 1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.**
- 2. This paper should be ANSWERED FIRST and submitted within 1 (one) Hour of the commencement of the Examination.**
- 3. While answering the questions of this booklet, any cutting, erasing, overwriting or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.**

*Signature of  
Scrutiniser(s)*

*Signature of  
Examiner(s)*

**Booklet No. A**

Date Stamp .....

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**To be filled in by the  
Candidate**

DEGREE 5th Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Roll No. ....  
Regn. No. ....  
Subject .....  
Paper .....  
Descriptive Type  
Booklet No. B .....

*Signature of  
Invigilator(s)*

V/BCA/502

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( 5th Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-502

**( Computer Graphics and Multimedia )**

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**I.** Choose the correct answer by putting a Tick (✓) mark  
in the brackets provided : 1×10=10

1. The assembly of electron source, accelerator  
and focusing system is known as

(a) control grid ( )

(b) cathode ( )

(c) electron beam ( )

(d) electron gun ( )

2. The term 'Computer Graphics' was coined by

(a) Ivan Sutherland ( )

(b) William Fetter ( )

(c) Bresenham ( )

(d) Richter ( )

3. The changes in orientation, size and shape are called

(a) translation ( )

(b) rotation ( )

(c) scaling ( )

(d) transformation ( )

4. The combination of text, graphics and audio elements into a single collection or presentation is called

(a) hypertext ( )

(b) hypermedia ( )

(c) multimedia ( )

(d) protocol ( )

( 3 )

5. A sound produced by human voice is a good example of

(a) analog data ( )

(b) digital data ( )

(c) analog signal ( )

(d) digital signal ( )

6. In polygon clipping, if both vertices are inside the window boundary, the output vertex will be

(a) first vertex ( )

(b) second vertex ( )

(c) both vertices ( )

(d) end vertex ( )

7. Which of the following has a single direction and length?

(a) Point ( )

(b) Line ( )

(c) Vector ( )

(d) Line segment ( )

( 4 )

8. \_\_\_\_ is a set of points that are all at a given distance  $r$  from a center position.

(a) Circle ( )

(b) Sphere ( )

(c) Ellipse ( )

(d) Ellipsoid ( )

9. The individual dots of an image is called

(a) bitmap ( )

(b) pixel ( )

(c) megapixel ( )

(d) digital image ( )

10. If the two end-points of the codes of a line are (0001) and (0010), the line is

(a) totally visible ( )

(b) partially visible ( )

(c) totally invisible ( )

(d) transparent ( )

( 5 )

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

1. Graphics Packages are designed for non-programmers so that users can generate displays without worrying about how graphic operations work.

( T / F )

2. A transformation that distorts the shape of an object is called shear.

( T / F )

3. MIDI file is device independent.

( T / F )

4. The Cartesian slope-intercept equation for a straight line is  $y = m \cdot x + b$ .

( T / F )

5. Ellipsoid is an extension of a spherical surface where the radii can have different values.

( T / F )

( 6 )

SECTION—II

( Marks : 10 )

**III.** Answer the following questions :

2×5=10

1. Write a short note on plasma panels.

( 7 )

2. What do you mean by morphing?

3. What are the uses of homogeneous coordinate system?

( 8 )

4. Write a short note on analog video.

( 9 )

5. Differentiate between Points and Lines.

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