

Roll No. 0102503.....

BCA-401(N)

**B. C. A. (Fourth Semester)
EXAMINATION, May, 2018**

(New Course)

Paper First

**COMPUTER GRAPHICS AND MULTIMEDIA
APPLICATION**

Time : Three Hours] [Maximum Marks : 75

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 3 marks.

1. (A) Define Computer Graphics and list out the types of Computer Graphics.
- (B) Explain shadow mask techniques.
- (C) Explain the following terms :
 - (i) Pixel
 - (ii) Frame buffer

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- (D) How much time is spent scanning across each row of pixels during screen refresh on a raster system with a resolution of 640×480 and a refresh rate of 60 frames per second ?
- (E) Explain Mid-point circle algorithm.
- (F) What is solid modeling ?
- (G) Explain polygon surface and polygon table with example.
- (H) Define the following :
- (i) Hypertext
- (ii) Hypermedia
- (I) What are the components of multimedia ?

Section—B

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

2. Write Bresenham's line drawing algorithm. Also draw a line whose starting points are (1, 2) and end points are (7, 6). 12
3. (a) What are the major application areas of the Computer Graphics ? 6
- (b) Explain the working of the following : 6
- (i) DVST
- (ii) LCD
4. (a) What is 2D transformation ? Explain its types. 6

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- (b) Give a 3×3 homogenous co-ordinate transformation matrix for each of the following translation :
- (i) Shift the image to the right 3-unit
- (ii) Move the image down $\frac{1}{2}$ unit and right 1 unit
- (iii) Move the image down $\frac{2}{3}$ unit and left 4 unit
5. (a) Explain Cyrus-Beck algorithm for line clipping. 6
- (b) Describe window-to-viewport transformation. 6

Section—C

(Long Answer Type Questions)

Note : Attempt any two questions. Each question carries 12 marks.

6. (a) What is polygon ? Also explain polygon meshes. 6
- (b) Describe the following : 6
- (i) Sphere
- (ii) Ellipsoid
7. What is Bezier curves ? Describe Bezier curve w. r. t. control points. Also write the properties of Bezier curve. 12
8. What is multimedia ? Explain multimedia system architecture. Also describe the application areas. 12
9. Explain the following : 12
- (a) Computer animation
- (b) Principle of animation
- (c) Types of animation system

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