

**1483/IV**

**B.C.A. (PART-II) EXAMINATION, 2022-23**

**(Fourth Semester)**

**Paper : III**

**BCA-403 : Computer Graphics**

**Time : Three Hours]**

**[Maximum Marks : 70]**

- Note:** (i) Answer Five Questions in all.
- (ii) Question No.1 is **Compulsory**.
- (iii) Answer remaining four questions, selecting two questions from each Section A and B.
- (iv) All questions carry equal marks.

1. Answer all parts of the following :

- (a) Explain the working of direct view storage tubes.
- (b) What do you understand by Resolution ?
- (c) Generate shearing matrices along with x-axis, y-axis & z-axis in 3-D.

(d) Differentiate between DDA line drawing algorithm and Bresenham's line drawing algorithm.

#### SECTION - A

2. Write all the steps of mid-point circle generation algorithm. Given centre point co-ordinate at origin  $(0,0)$  and radius as 6. Generate all the points to form a circle using mid-point circle drawing algorithm.

3. What do you understand by the term Computer Graphics. Explain types of Computer Graphics. Write the application of Computer Graphics.

4. Write Liang Barsky line clipping algorithm. Apply Liang Barsky line clipping algorithm for calculating the saved portion of line from  $(2,14)$  to

$(8,24)$  in a window  $(x_{wmin} = y_{wmin} = 10)$  and  $x_{wmax} = y_{wmax} = 20$ .

5. Explain Translation, Scaling and Rotation with example. Compute a transformation of triangle  $A(1,2)$ ,  $B(2,1)$  and  $C(1,1)$  by rotating  $45^\circ$  about the point  $(2,2)$ .

#### SECTION - B

6. (a) Apply Cohen-Sutherland algorithm to clip line  $P_1(10,30)$ ,  $P_2(80,90)$  against a window  $A(20,20)$ ,  $B(90,20)$ ,  $C(90,70)$ ,  $D(20,70)$ .

(b) Given centre point co-ordinate at origin  $(1,1)$  and radius as 5. Generate all the points to form a circle using Bresenham's circle drawing algorithm.

7. (a) Define projection with example. Also explain the types of projection in detail.

(b) Write advantages and disadvantages of the DDA algorithm. Take two points P1(20,10) and P2(30,18). Apply DDA line drawing algorithm.

8. (a) Describe Cathode Ray Tube. Also discuss about its component.

(b) Write Sutherland Hodgman polygon clipping algorithm and take an example to explain it.

9. Write notes on any two of the following :

(a) 3D Display Devices

(b) RGB Color Model

(c) CMYK Color Model

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*Anmol Kumar*

**BCA 404**

**B.C.A. (PART-II) EXAMINATION, 2023-24**

**(Fourth Semester)**

**Paper : IV**

**Software Engineering**

**Time : Three Hours]**

**[Maximum Marks : 70]**

- Note:** (i) Answer **five** questions in all.  
(ii) Question No. **1** is **compulsory**.  
(iii) Answer remaining **four** questions, selecting **two** questions from each Section **A** and **B**.  
(iv) Simple scientific calculator and log tables allowed.  
(v) All questions carry equal marks

1. Answer all parts of the following :  
(a) What is COCOMO model ?  
(b) What is the Data Dictionary ?  
(c) Define Software Requirement Specification.  
(d) What is objective of software design ?

**Section-A**

2. Explain different phases of Software Development Life Cycle (SDLC). What is the requirement of software development model ?  
3. Discuss about classical water fall model of SDLC. Discuss its advantages and disadvantages.

4. What do you understand by Software Engineering? Explain its importance in development of computer software.
5. Clearly differentiate between top down and bottom up software development strategies.

### **Section-B**

6. Differentiate between the following :
  - (a) Physical and Logical DFD.
  - (b) White and Black Box testing.
7. (a) What is Cost Estimation of Software management ? Explain any Cost estimation model with suitable example.  
(b) Why we need various software testing tools? Discuss its advantages in developing standard and quality software.
8. (a) What is software project management ?  
(b) Discuss about four components (4P's) of Software project planning.
9. Write notes on any two of the following :
  - (a) Entity Relationship Diagram.
  - (b) Object Oriented Analysis.
  - (c) Software measurement metrics.

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