

Nirma University of Science and Technology

Institute of Diploma Studies

Supplementary Examination, January 2009
Diploma in Information Technology, Semester- VII
1CED04 COMPUTER GRAPHICS

Roll/
ExamNo.

Supervisor's initial
with date

Time: 3 Hours

Max. Marks: 100

- Instructions:
1. Attempt all questions.
 2. Figures to the right indicate full marks.
 3. Section wise separate answer book to be used.
 4. Draw neat sketches wherever necessary.

SECTION - I

Q-1 A Do as directed.

[10]

1. Explain Z-Mouse.
2. List out any two types of Input device.
3. Animation means _____.
4. Which function is used to load graphics in C language?
5. What are the disadvantages of Light pen?
6. In which cases slope m of line is 0?
7. What is the initial decision parameter for Mid Point Circle algorithm?
8. Which file is loaded from the bgi directory when we are executing a CG program?
9. How many parameters are there in C Language for circle() function?
10. What are the advantages of CAD?

Q-1 B Answer the following Questions. (Any Four)

[20]

1. Write a short note :
 - i. Image processing
 - ii. Virtual Reality
2. Differentiate between Flood fill and Boundary fill algorithm.
3. Define Aliasing and explain any two Anti-aliasing techniques.
4. Explain Tag Image File Format.
5. Explain Display File Processor with a neat diagram.

Q-2 Answer the Following. (Any Three)

[12]

1. Explain BMP file format.
2. Explain following segment operations.
 - i. CREATE SEGMENT
 - ii. DELETE SEGMENT
 - iii. RENAME SEGMENT
3. Explain :
 - i. Joystick
 - ii. Spaceball
4. Explain applications of Computer Graphics.

Q-3 Write C Programs for following. (Any Two)**[08]**

1. To print a dotted line using DDA line algorithm.
2. To draw a circle by taking mid-point algorithm. Take radius from the user.
3. To print a line using Bresanham's algorithm.

SECTION - II**Q-4 A Do as directed.****[10]**

1. What is the return type of getmaxx()?
2. When slope m of the line is negative?
3. What is the use of getch() function?
4. Stereoscopic view is used in _____.
5. What is the use of spring in Joystick?
6. What is the use of potentiometer?
7. What is visualization?
8. What is the significant of closegraph() function?
9. initgraph() function is mandatory for every CG program. [T/F]
10. What is the use of delay() function?

Q-4 B Answer the following. (Any Four)**[20]**

1. Reflect the polygon whose vertices are A(-2,0), B(0,-2), C(2,0), and D(0,2) about the line $y=2x+6$.
2. Prove for 3D that $R(\theta) = T^{-1} * R_x^{-1}(\alpha) * R_y^{-1}(\beta) * R_z(\theta) * R_y(\beta) * R_x(\alpha) * T$.
3. A triangle A(3, 3) B(2, 2) c(4, 2) is rotated by 180 degree with respect to a point A. Find new coordinates of the triangle.
4. Plot points for Mid point circle having $r = 15$.
5. Prove for 2D that scaling followed by rotation is equivalent to shearing.

Q-5 Answer the Following. (Any Three)**[12]**

1. Explain following operations on Display file.
 - i. Insertion
 - ii. Deletion
 - iii. Selection
2. Plot points for line having end points A(20, 10) B(30, 18) using Bresanham's line drawing algorithm.
3. Write a code to divide screen having resolution of 800X600 in to two equal horizontal parts. What is the use of getmaxy() function?
4. Prove that Two successive scaling are multiplicative.

Q-6 Write C Programs for following. (Any Two)**[08]**

1. To fill the polygon using flood fill algorithm. No. of edges will be taken from user.
2. To scale a polygon. Polygon edges and scaling factor will be taken from user.
3. To clip a line using Liang-Basky algorithm.