24 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Ashwin

Exam.	Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Compare random and raster display technology. [6]
2. How symmetry property of circle reduces omplexity to draw a complete circle. Derive decision parameter for midpoint circle algorithm assuming the start position as (-r, 0) points are to be generated along the curve path in counter clockwise direction. [3+7]
3. Use Liang Barsky line clipping algorithm to clip a line starting from (6,100) and ending at (60, 5) against the window having its lower left corner at (10, 10) and upper right corner at (90, 90). [8]
4. Reflect the triangle ABC about the line 3X-4Y+8=0 the position Vector of coordinate ABC as A(4, 1), B(5, 2) and C(4, 3). [8]
5. Develop the Matrix to transform an object from Three-Dimensional World Coordinate to Viewing Coordinate system. A unit length cube with diagonal passing through (0, 0, 0) and (2, 2, 2) is shared with respect to ZX-plane with share Constants = 3 in both directions. Obtain the final coordinates of the cube after shearing. [5+7]
6. Do you agree Polygon Descriptions are referred to as "Standard Graphics Object", If yes, Why? If you have three coordinates (X1, Y1, Z1), (X2, Y2, Z2) and (X3, Y3, Z3), then how do you find the coefficient of Surface Normal N(A, B, C)? [3+3]
7. Compare the Gouraud shading with Phong shading. Develop the expression for Phong model considering the intensity attenuation for multiple point light sources with necessary figures. [6+8]
8. What is the difference between object space method and image space method for visible surface determination? Describe scan line method to find visible lines with example. [4+8]
9. What is OpenGL? Explain Call back function? [2+2]

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24 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. What do you understand by raster display technology? Suppose a RGB raster system is to be designed using an 8 inch by 10 inch screen with a resolution of 100 pixels per inch in each direction. How long would it take to load this raster system in frame buffer with 24 bits per pixel, if 10^5 bits can be transferred per second? [6]
2. How decision parameters can be used to draw circle? Calculate the points to draw a circle having radious 5 and center as (10, 5). [4+6]
3. Explain Sutherland-Cohen clipping algorithm with an example. [8]
4. Find the coordinate at U = 0.25, U = 0.5, and U = 0.75 with respect to the control points (2, 10), (6, 20), (12, 5) and (16, 15) using Bezier function. And plot Bezier curve with your calculated coordinates. [6+2]
5. Describe 3-D viewing pipelining. Derive the transformation matrix for prespective projection. [6+6]
6. How the geometric and attribute information of a 3-D objects are stored for the object representation? Explain with examples. [5]
7. What are the consideration factors to choose the Visible Surface Detection Algorithm? What are the two classes of visible surface detection techniques, explain? What is limitation of Z-Buffer method? How does A-Buffer method overcome it, Explain? [12]
8. Develop a phong illumination model. Show how this model is used for rendering by deriving of expression for phong shading. [6+8]
9. Explain callback function with example in openGL. [5]

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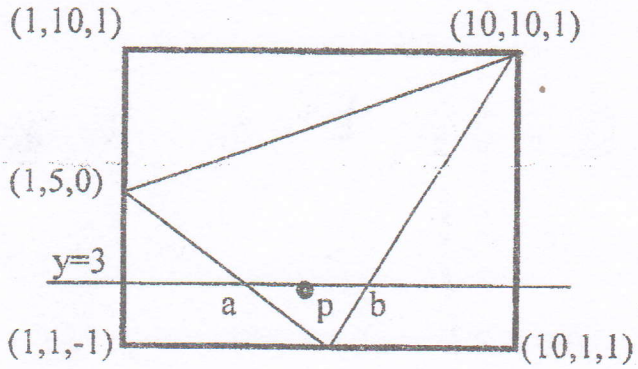
34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Ashwin

Exam.	Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Distinguish between Raster and Vector graphics methods. When do we prefer them? [6]
2. Digitize the line with end points A(20,10) and B(30,18) using Bresenham algorithm. [10]
3. Clip the line P1P2 with P1(-5,3) and P2(15,9) with clip window having diagonal coordinate (0,0) and (10,10) using Liang-Barskey line clipping method. [8]
4. Explain the steps required to rotate an object in 3D about a line which is not parallel to any one coordinate axis. [10]
5. How Geometric tables are used to represent a 3D object? Explain with example. Give conditions to generate error free table. [8]
6. Explain properties if Bezier curve. Find the coordinate at u = 0.2 with respect to the control points (1,1), (4,6) (8,-3) and (12,2) using Bezier function. [8]
7. Differentiate image space and object space method for visible surface determination. Explain scanline method to determine visible surface of object. [8+4]
8. 

   Find out intensity of light reflected from the midpoint P on scan line y = 3 in the above given figure using Gouraud shading model. Consider a single point light source located at positive infinity on Z-axis and assume vector to the eye as (1,1,1). Given d = 0, K = 1, $I_a = 1$, $I_L = 10$, Ks = 2, Ka = Kd=0.8 for use in a simple illumination model. [12]
9. What is OpenGL? Explain Callback Function. [4+2]

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35 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2073 Shrawan

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Differentiate between vector and raster scan systems. [4]
2. Derive and write midpoint algorithm for drawing a circle. [5+5]
3. What are the different steps of two dimensional world to screen viewing transformation? Describe with matrix representation at each steps. [5]
4. Obtain the end points of the line that connects P1(0,120) and P2(130,5) after cohen-sutheland clipping. The clip window has the following parameters. [5]

   $x\omega_{min} = 0,\ y\omega_{min} = 0,\ x\omega_{max} = 150$ and $y\omega_{max} = 100$
5. Describe three dimensional viewing pipelining. Derive the transformation matrix for parallel projection. [4+6]
6. Explain about parametric cubic curve? What is a Bezier Curve? Explain its properties with examples. [2+6]
7. Explain boundary representation technique to represent three dimensional objects with suitable example. [8]
8. Compare object space method with image space method. Explain, How Back-face detection method is used to detect visible surface. Also explain z-Buffer method. [2+4+4]
9. Define and explain the term ambient light, diffuse reflection and specular reflection with appropriate mathematical expressions. [7]
10. Explain the method of Phong shading for polygon rendering. [7]
11. Explain about Open GL and call back functions. [6]

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34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. What are the differences between random and raster display technologies? [4]
2. How do you apply symmetry concept while drawing circle? Calculate the point in the circumferences of the circle having radius 8 unit and center at (-5, 10) using midpoint circle algorithm. [2+8]
3. What are the conditions for a point clipping? Find the clipped region of the line with endpoins (5, 130) and (50, 5) in a rectangular window with (10, 10) and (100, 100) diagonal vertices using Cohen-Sutherland line clipping algorithm. [10]
4. What is 3D Shearing? Write its matrix representation. A unit length cube with diagonal passing through (0,0,0) and (1,1,1) is sheared with respect to yz place with the shear constants = 2 in both directions. Obtain the coordinates of all the corners of the cube after shearing. [2+8]
5. Explain about parametric cubic curves. What do you mean by Bezier Curve? Explain the properties of Bezier curves. [2+2+4]
6. Explain how the geometric and attribute information of a three dimensional objects are stored for the object representation? What are the conditions for error free generation of polygon table? [4+4]
7. Outline the Z buffer algorithm. List the advantages and disadvantages of the z-buffer algorithm. [6+2+2]
8. Explain about different types of lighting sources and how these light sources affect the illumination model? Explain about the intensity interpolation surface rendering technique by highlighting its pro and cons. Also give example about phong illuminations model. [3+5+6]
9. Why GLUT is implemented in OpenGL? What are the applications of OpenGL? [2+4]

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8/7 Morning.

34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Kartik

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt <u>All</u> questions.*
- ✓ *The figures in the margin indicate <u>Full Marks</u>.*
- ✓ *Assume suitable data if necessary.*

1. Derive the Bresenham's decision parameter to draw a line moving from left to right and having negative slope. State the condition to identify you are in the second region of the ellipse using mid point algorithm. [8+2]
2. Write down the condition for point clipping. Find the clipped region in window of diagonal vertex (10,10) and (100,100) for line P_1 (5,120) and P_2 (80,7) using Liang-Barsky line clipping method. [2+8]
3. Find the transformation matrix the transforms that rectangle ABCD whose center is at (4,2) is reduced to half of its size, the center will remain same. The co-ordinate of ABCD are A(0,0), B(0,4), C(8,4) and D(8,0). Find Coordinate of new square. Also derive the transformation matrix to convert this rectangle to square. [10]
4. List out the properties of Bezier curve. What is order of continuity? Explain. [8]
5. Explain the significance of spatial orientation of a surface and polygon tables. Explain with example. [8]
6. Compare Z-buffer and A-Buffer algorithm. Also write algorithm to find visible surfaces using scan-line method. [10]
7. Explain the general illumination model. How this model is used for rendering by using gouroud shading. [7+7]
8. Write short notes on: [5+5]
   a) Raster scan display
   b) OpenGL

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01 / 02

34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt <u>All</u> questions.*
- ✓ *The figures in the margin indicate <u>Full Marks</u>.*
- ✓ *Assume suitable data if necessary.*

1. Differentiate Random and Raster display technology. [4]
2. Compare between DDA and Bresenham's line drawing algorithm. Derive and write mid-point algorithm to draw ellipse. [10]
3. The reflection along the line y = x is equivalent to the reflection along the X-axis followed by counter clock wise rotation by α (alpha) Degree. Find the angle α. [10]
4. Write rotation matrix in clockwise direction with respect to x-axis, y-axis and z-axis. Rotate the object (0, 0, 0), (2, 3, 0), (5, 0, 4) about the rotation axis y =4. [3+7]
5. Write down properties of Bezier curve. Find equation of Bezier curve whose control points are P0(2,6), P1(6,8) and P2(9,12). Also find co-ordinate of point at u = 0.8. [10]
6. Explain boundary representation technique to represent the 3D object with suitable example. How can you find the spatial orientation of a surface? [8+2]
7. Explain z-buffer algorithm along with necessary steps needed to calculate the depth. What is its drawback? [10]
8. Define the terms: [10]
   i) Ambient light
   ii) Lambert cosine law
   iii) Diffuse reflection
   iv) Specular reflection.

   Also find equation for intensity of point by using Phong illumination model.
9. What is openGL? Explain callback function. [4+2

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35 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Shawan

Exam.	New Backe (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt <u>All</u> questions.*
- ✓ *The figures in the margin indicate <u>Full Marks</u>.*
- ✓ *Assume suitable data if necessary.*

1. Consider a raster scan system having 12 inch by 10 inch screen with a resolution of 100 pixels per inch in each direction. If the display controller of this system refreshes the screen at the rate of 50 frames per second, how many pixels could be accessed per second and what is the access time per pixel of the system? [4]
2. What is scan conversion? Derive the Bresenham's decision parameter to draw a line with negative slope and /m/>1. [2+8]
3. Given a clipping window A (10, 10), B (40,40), C(40,40) and D(10,40). Using cohen-sutherland line clipping algorithm find region code of each end points of lines P1P2, P3P4 and P5P6 where co-ordinates are P1 (5,15), P2(25,30), P3(15,15), P4(35,30), P5(5,8) and P6(40,15). Also find clipped lines using above parameters. [10]
4. Perform rotation of a line (10, 10, 10), (20, 20, 15) about Y-axis in clock wise direction by 90 degree. Explain about vector display. [6+4]
5. Derive the equation for cubic Bezier curve. Also write down its properties. [8]
6. Explain how the 3D object is represented using polygon table representation technique? Explain any one technique to calculate the spatial orientation of the individual surface component of 3D object. [4+4]
7. Describe scan line method to find visible lines with example. [10]
8. Under what condition(s) flat shading gives accurate rending? Mention the disadvantage of intensity interpolation technique and explain Phong shading with necessary mathematical calculation. Explain the diffuse reflection. [2+1+6+1]
9. Why GLUT is implemented in OpenGL? Explain OpenGL syntax to draw a parallelogram having verticals (0.0, 0.0), (1.0, 0.0), (1.5, 1.2) and (0.5,1.2). [2+4]

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34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Chaitra

Exam.	Regular		
Level	BE	**Full Marks**	80
Programme	BEX, BCT	**Pass Marks**	32
Year / Part	III / I	**Time**	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Differentiate Random and Raster display technology. [4]
2. Compare between DDA and Bresenham's line drawing algorithm. Derive and write mid-point algorithm to draw ellipse. [10]
3. The reflection along the line y = x is equivalent to the reflection along the X-axis followed by counter clock wise rotation by α (alpha) Degree. Find the angle α. [10]
4. Write rotation matrix in clockwise direction with respect to x-axis, y-axis and z-axis. Rotate the object (0, 0, 0), (2, 3, 0), (5, 0, 4) about the rotation axis y =4. [3+7]
5. Write down properties of Bezier curve. Find equation of Bezier curve whose control points are P0(2,6), P1(6,8) and P2(9,12). Also find co-ordinate of point at u = 0.8. [10]
6. Explain boundary representation technique to represent the 3D object with suitable example. How can you find the spatial orientation of a surface? [8+2]
7. Explain z-buffer algorithm along with necessary steps needed to calculate the depth. What is its drawback? [10]
8. Define the terms: [10]

   i) Ambient light
   ii) Lambert cosine law
   iii) Diffuse reflection
   iv) Specular reflection

   Also find equation for intensity of point by using Phong illumination model.
9. What is openGL? Explain callback function. [4+2

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34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2070 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX603)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. How much time is spent scanning across each raw of pixels during screen refresh on a raster system with resolution 1024×768 and a refresh rate of 60 frames per second? [4]
2. Mention the disadvantages of DDA method. Write the complete Bresenham's line drawing algorithm and using midpoint circle drawing algorithm calculate the co-ordinate on the first quadrant of a circle having radius 6 and centre (20,10) [2+4+4]
3. State the conditions of point clipping. Perform clipping operation for the following using Liang Barskey line clipping algotithm: [2+6]

   Clipping window: (Xmin, Ymin) = (2,5) and (Xmin, Ymin) = (35,50)

   Line: (x1, y1) = (-2,2) and (x2,y2) = (45,40)
4. Define window and view port. Describe three dimension windows to view port transformation with matrix representation for each step. Derive oblique projection matrix with necessary assumptions. [1+4+5]
5. Define Hermite Interpolation in defining a curve. Use it to find the blending function of a parametric cubic curve in 2D graphics. [2+6]
6. Describe polygon, Vertex and Edge table of polygon. How these terms are important in computer graphics. [8]
7. Describe z-buffer method for visible surface detection in detail. State its limitation and recommended method that addresses it. [7+3]
8. Calculate the total intensity using phone secular reflection model by considering all type of light sources. [8]
9. Compare and Contract between Gouraud and Phong Shading Model. [8]
10. Write short notes on: [3×2]
    a) Call back function
    b) Open GL

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34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2068 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Computer Graphics *(EX 603)*

- Candidates are required to give their answers in their own words as far as practicable.
- *Attempt **All** questions.*
- *The figures in the margin indicate **Full Marks**.*
- *Assume suitable data if necessary.*

1. What is the size of frame buffer required to store a SVGA with 24 bit true color video of 10 min without compression? [4]
2. Digitize the endpoint (10, 18), (15, 8) using Bresenham's algorithm. [8]
3. find the composite transformation matrix for reflection about a line y = mx+c. [8]
4. Find the new coordinates of a unit cube 90°-rotated about an axis defined by its endpoints A(2,1,0) and B(3,3,1). [8]
5. Why 3D graphics is more complex than 2D graphics? Explain with the help of viewing pipeline. [8]
6. Explain about parametric cubic curve? What is a Bezier Curve? Explain its properties. [3+3+2]
7. Explain how the geometric and attribute information of a three dimensional objects are stored for the object representation? What are the conditions for error free generation of polygon table? [5+3]
8. Differentiate between image space and object space methods of visible surface detection. Describe A-Buffer method of visible surface detection. [4+6]
9. Explain the Gourad shading for polygon-rendering and compare it with phong shading. [8+2]
10. Write short notes on: (any two) [4×2]
    a) Specular Reflection
    b) Midpoint circle decision parameter
    c) Application of OpenGL in Computer Graphics

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36 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2068 Bhadra

Exam.	Regular / Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / II	Time	3 hrs.

Subject: - Computer Graphics

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Write Bresenham's line algorithm (you may assume $|m| < 1$). How the demerit of DDA algorithm is corrected in Bresenham's algorithm? [7+3]
2. Calculate all pixels of a circle in the first octant, proceeding to positive X axis direction. The radius = 30 and center at (10, 20). [10]
3. Perform scaling transformation to the triangle with vertices A (6, 9), B (10, 5), C (4, 3) with scaling factors $S_x = 3$ and $S_y = 2$. [Show the necessary transformation matrix] [10]
4. How do you perform shearing operations in 3-D in different directions? Discuss with necessary shear matrix. [10]
5. Formulate a matrix that converts 2-D scene described in world coordinates to viewing coordinates. [10]
6. What are the object space and image space method of hidden surface removal? Describe back face detection method of hidden surface removal. [4+6]
7. Discuss a constant intensity shading method. Mention the advantage of Phong shading over Gouraud shading. [7+3]
8. Write short notes on: (any two) [5+5]
   a) Raster display and vector display system
   b) 2-D viewing pipeline
   c) Plasma display

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36 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2067 Mangsir

Exam.	Regular / Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / II	Time	3 hrs.

Subject: - Computer Graphics

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Write down the mid point circle algorithm. How symmetry of circle helps to reduce computation steps? Explain. [6+4]
2. Write down the Bresenham's line drawing algorithm for drawing straight line with consideration of all the slope categories. [10]
3. Which transformation converts a square to a rhombus? Obtain reflection matrix to reflect a point about the line y = x. [3+7]
4. A unit length cube with a diagonal passing through (0,0,0) and (1,1,1) is sheared with respect to yz plane with the shear constants = 2 in both directions. Obtain the coordinates of all the corners of the cube after shear. [10]
5. A 3-D scene is viewed from point (1,1,1) with camera orientation described by the orientation of three orthogonal vectors (1,1,1), (1,2,-3) and (-5,4,1). Obtain the transformation matrix to describe the scene with respect to camera orientation. [10]
6. What are object space and image space method of hidden surface removal? Describe one of the image space methods of hidden surface removal. [4+6]
7. Explain the Phong shading algorithm. Mention the advantages of Phong shading over Gouraud shading. [7+3]
8. Write short notes on: (any two) [5+5]
   a) Bezier Curve
   b) Resolution and Aspect ratio of a Monitor
   c) Flat panel Displays

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36 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2066 Magh

Exam.	Regular/Back		
Level	BE	Full Marks	80
Programme	BEX, BCT	Pass Marks	32
Year / Part	III / II	Time	3 hrs.

Subject: - Computer Graphics

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt <u>All</u> questions.*
- ✓ *<u>All</u> questions carry equal marks.*
- ✓ *Assume suitable data if necessary.*

1. Devise Bresenham's decision parameters for a straight line with negative slope with $|m| < 1$, applying left to right sampling. Assume that the line is in first quadrant.
2. Calculate all the pixels of a circle with radius = 10 and center at (50, 50) in the first octant starting from (50, 60) proceeding to positive x axis direction.
3. Justify with necessary matrix operations that the two successive rotations in 2-D is additive.
4. A 2 units length cube with a diagonal passing through (0,0,0) and (2,2,2) is spinning about an axis parallel to z-axis with angle 180 degree. Obtain the matrix involved for the operation.
5. Derive appropriate mathematical relation to transform 2-D scene (points) in world window to normalized view window.
6. Mention different types of projections. Derive oblique projection matrix with necessary assumptions.
7. Discuss Phong Illumination model with distance consideration.
8. Write short notes on:
   a) Backface Detection Algorithm
   b) Flat Panel Display

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