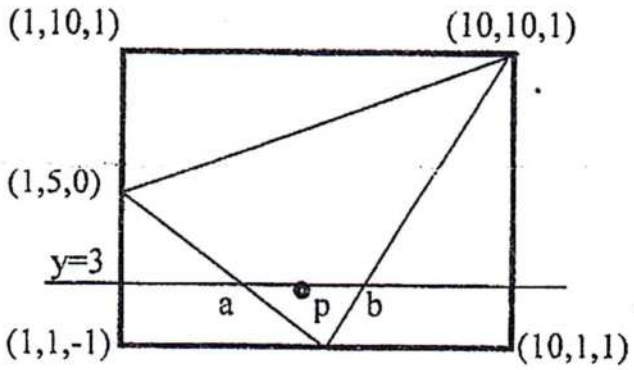
34 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Ashwin

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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