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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