POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2018
Programme: BE Full Marks: 100
Course: Computer Graphics Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

1. a) Explain frame buffer? How is computer graphics applicable in the field of GUI, Entertainment and medical science? Explain 5
   b) Calculate the access time for a pixel and a row for a graphics system having resolution of 1024*640 and frequency of 60 Hz. 5
   c) Explain raster scan system with video controller. 5
2. a) How colors are displayed in monitor? 5
   b) Explain in steps the Z-buffer algorithm. 5
   c) Explain scan Line Method. 5
3. a) Derive an equation for calculating points of an ellipse. 7
   b) Rasterize the points of given line end points A(-2 , -4) and B(-6,-9) using Bresenham's line drawing algorithm. 8
4. a) What is windowing and clipping? Derive window to viewport transformation matrix. 7
   b) Apply Cohen Sutherland line clipping algorithm for calculating the saved portion of a line from (2,7) to (8,12) in a window (X_{wmin} = Y_{wmin} = 5 and X_{wmax} = Y_{wmax} = 10) 8
5. a) Define Projection? Derive a matrix for a parallel projection. 7
   b) Calculate (x, y) coordinate of Bezier curve described by the following 4 control points (0, 0), (1, 2), (3, 3), (4, 0). Assume any needed values. 8
6. a) Explain the Gouroud shading method with its advantages. 5
   b) Explain why is RGB called as additive and CMYK called as subtractine model? 5

   c) Explain open GL. 5
7. Write short notes on: **(Any two)** 2×5
   a) Explain shading method of intensity interpolation.
   b) Explain different file formats.
   c) Viewing in 3D