POKHARA UNIVERSITY

Level: Bachelor   Semester: Fall   Year   : 2017
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) What do you understand by computer graphics? Mention some of the advantages of computer graphics.   2+5
    b) Explain the working principal of LCD and LED.   4+4
2. a) Explain the techniques of pixel considered as connected? Write logic to draw a circle using midpoint circle algorithm.   3+5
    b) Using the Bresenham's line drawing algorithm predict the pixels on the line from (2,2) to (12,10)   7
3. a) Show that the composition of two successive rotation are additive.   5
    b) Derive the composite transformation matrix for reflection of an object about a line Y=mx+c. Apply the derived matrix for the object A (4,2) B(7,3) C(9,2) D(10,1) on to the line y=3x.   10
4. a) What are the issue in 3D that makes it more complex than 2D? Derive an equation for 3D translation and reflection.   3+4
    b) Define Projection. Difference between parallel and perspective projection along with an equation.   2+6
5. a) Compare object space method with image space method. Explain scan line algorithm for detecting visible surfaces with suitable figure.   4+4
    b) What is Specular reflection? Explain the total intensity due to Specular reflection.   2+5
6. a) Explain Gouraud Shading and Phong Shading technique in detail with their advantage and disadvantage.   4+4
    b) Define Graphics file format. Explain with example, the need for machine Independent Graphical Language.   2+5
7. Write short notes on: (**Any two**)   2×5
    a) Frame Buffer Organization
    b) Beizer Curve
    c) Depth Buffer method
    d) Cohen-Sutherland