POKHARA UNIVERSITY

Level: Bachelor   Semester: Spring   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) Compare and contrast raster scan display and vector scan display architecture.   7

   b) Define Display controller? What are the major application areas of computer graphics?   8

2. a) Define resolution. Suppose RGB raster system to be designed using on 8 inch x 10 inch screen with a resolution of 100 pixels per inch in each direction. If we want to store 6 bits per pixel in the frame buffer, how much storage (in bytes) do we need for frame buffer?   8

   b) Digitize one octant of a circle by using midpoint circle generation algorithm center at origin and radius is 12.   7

3. a) Derive an equation for drawing a line using Bresenhams's algorithm for slope less than one.   8

   b) Explain two dimensional line clipping algorithm with suitable example.   7

4. a) Differentiate between windows and viewport? Explain the steps of viewing transformation.   7

   OR

   A mirror is placed vertically such that it passes through the points (10,0) and(0,10). Find the reflected view of triangle ABC with coordinates A(5,50), B(20,40) and C(10,70).

   b) Describe the rotation of an object about an axis, which is parallel to any of three coordinate axes of coordinate system.   8

5. a) Explain the back face detection method with an example.   8

   b) What is ambient light? Compare diffuse reflection with Specular reflection.   7

6. a) Explain Fast Phong shading algorithm in detail with necessary equations and figures.   7

   b) Why machine independent programming language is used? Discuss about OPENGL.   8

7. Write short notes on: (**Any two**)   2×5

   a) 2D rotation

   b) Graphics file format

   c) RGB color model