Pokhara University

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| Level: Bachelor | Semester: Fall | Year : 2013 |
| Programme: BE | | Full Marks: 100 |
| Course: Computer Graphics | | Pass Marks: 45 |
| Time : 3hrs. |

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| *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. |

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|  | 1. Define Computer graphics. Discuss the major application areas of computer graphics. 2. Define resolution & persistence. What is the difference between raster scan display and vector scan display? | 8  7 |
|  | 1. Consider two raster systems with resolutions of 640 by 840 and 1280 by 1024. How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second? What is the access time per pixel in each system? 2. Describe how color pixel is displayed in a computer system? | 8  7 |
|  | 1. Rotate the triangle A(2,3), B(5,3) and C(3,1) about a fixed point by 30⁰. 2. Derive an equation for calculating points of a circle using mid-point algorithm.   OR  Write a Code for drawing a full circle points. | 8  7 |
|  | 1. Explain the 2D viewing pipeline along with the derivation for the window to viewport transformation. 2. Why we need machine independent graphical language? Explain briefly about any two of the graphical file formats. | 7  8 |
|  | 1. What is meant by surface rendering? Explain the Gouraud Shading method for surface rendering. 2. What is projection? Derive the expression and matrix representation for perspective projection. | 7  8 |
|  | 1. Write Z-buffer algorithm for detecting visible surface with its drawback & remedy. 2. What is the significance of making plans for a project? What things should be considered during the project development? | 7  8 |
|  | Write short notes on: (Any two)   1. Touch screen. 2. Homogeneous Co-ordinates. 3. 3D Viewing Pipeline. | 2×5 |