Pokhara University

|  |  |  |
| --- | --- | --- |
| Level: Bachelor | Semester: Fall | Year : 2014 |
| 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. Discuss the concept of the computer graphics in IT field. 2. Explain the need of GKS. 3. Explain the need for machine independent Graphical Language. | 5  5  5 |
|  | 1. Compare raster scan display system with vector scan display system along with their architectures. 2. What is flat panel display? Explain the working principles of LCD monitor with figure | 8  2+5 |
|  | 1. Rasterize the circle of 10 unit radius 2. Explain boundary fill technique with its algorithm.   **OR**  Derive equations for Bresenham’s line drawing algorithm for line with slope |m| > 1. | 8  7  7 |
|  | 1. Perform a 45 degree rotation of a line A (5,3) and B (10,15) about the origin.   **OR**  Calculate viewing transformation matrix with given information: given triangle with sides A(5,5)B(15,5) C(10,10), given window coordinate (7,4)(13,4)(13,8),(7,8) and view port location is (17,7)(18,7)(18,8)(17,8)?   1. What is clipping? Explain in detail about Sutherland-Hodgeman polygon clipping algorithm. | 8  8  7 |
|  | 1. Derive a transformation matrix due to orthographic and oblique parallel projection. 2. Derive an matrix for cubic Bezier curve formation. | 8  7 |
|  | 1. Compare object space method with image space method Explain scan line algorithm for detecting visible surfaces with suitable figure. 2. Explain the Constant Gouraud and Phong shading models | 4+4  7 |
|  | Write short notes on: (**Any two**)   1. Scan line method 2. A- Buffer algorithm 3. Project development | 2×5 |