Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14CS2006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTER GRAPHICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Translate a polygon with coordinates A (2, 5), B (7,10) and C(10,2) by 3 units in x direction and 4 units in y direction. | CO3 | 10 |
| b. | A point (4, 3) is rotated counterclockwise by an angle of 450.Find the rotation matrix and the resultant point. | CO3 | 5 |
| c. | Scale the polygon with coordinates A (2, 5), B (7, 10) and C (10,2) by 2 units in x direction and 2 units in y direction. | CO3 | 5 |
| (OR) | | | | |
| 2. |  | Write an algorithm for Bresenham Line Generation which will work for all slopes. Calculate the pixel positions along the straight line between P1 (10, 12), P2 (20, 10). | CO3 | 20 |
|  |  |  |  |  |
| 3. | a. | How will you create a scene of a tree, chair and helicopter using elementary objects? | CO1 | 10 |
|  | b. | With a neat sketch explain parallel projection and perspective projection? | CO2 | 10 |
| (OR) | | | | |
| 4. |  | With a neat sketch explain about HLS and HSV colour models. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | Write an algorithm for Bresenham Circle Generation and then using this produce sequence of five points along the circumference of circle radius =20 and centered at (50, 50). | CO3 | 20 |
| (OR) | | | | |
| 6. |  | Let a clipping polygon be defined by the vertices (5, 5), (20, 2), (16, 10), (10, 10) and a line between (1, 2) and (23, 12). Perform the Cyrus Beck clipping algorithm. Find out for each intersection parameter t whether it is “entering” or “leaving” and finally determine which parameters for t are of interest only.  In the general case of an n - sided polygon: How many intersections have to be performed at most for every line to be displayed? | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | How to model a three dimensional object with voxels | CO2 | 20 |
| (OR) | | | | |
| 8. |  | With neat diagrams explain about z-buffer algorithm. | CO2 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Elucidate how sound effects is integrated into scenes using Java 3D | CO3 | 20 |

ALL THE BEST