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



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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14MT2005** | **Duration :** | **3hrs** |
| **Sub. Name :** | **GRAPHICS AND ANIMATION** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Recall the person who used oscilloscopes to create the first graphics imagery. | CO1 | 1 |
| b. | State the significance of boeing 777 in Computer graphics history. | CO1 | 2 |
| c. | Summarize the process of union of two different 2D shapes with an example. | CO3 | 2 |
| d. | With example diagrams explain quadratic and cubic curves. | CO3 | 6 |
| e. | Explain the process of drawing a line on a display using Bresenham’s line drawing algorithm. | CO3 | 9 |
| (OR) | | | | |
| 2. | a. | Scale and translate a given triangle having points at (2,4), (2,6) and (4,6). If the scale factor in x is 2, scale in y is 1 and the translation Tx and Ty are 2, Calculate the vertices of the transformed triangle. | CO3 | 8 |
| b. | Explain with an example the working of Cohen Sutherland line clipping algorithm. | CO3 | 12 |
|  |  |  |  |
| 3. | a. | Describe why aliasing is a problem that needs to be handled in computer graphics. With diagrams explain the various processes of Anti aliasing. | CO3 | 10 |
|  | b. | Write the sample code for creating a simple path in javafx. | CO3 | 10 |
|  |  |  |  |  |
| (OR) | | | | |
| 4. | a. | Summarize on the various types of sensing cells present in the eye of a human being. | CO2 | 2 |
|  | b. | Explain the working of CMYK and HSB colour models with example applications for each. | CO2 | 10 |
|  | c. | List and Summarize on the various types of interpolations available in Javafx. | CO3 | 8 |
|  |  |  |  |  |
| 5. | a. | Name the various StrokeLineJoin options available in Javafx. | CO3 | 2 |
|  | b. | State the parameters required to draw an ellipse in Javafx. | CO3 | 2 |
|  | c. | With examples distinguish between Kerning, Leading and Tracking in Text. | CO2 | 6 |
|  | d. | Explain the process of finding interiors of shapes and filling them with colour and texture. | CO2 | 10 |
|  |  |  |  |  |
| (OR) | | | | |
| 6. | a. | r.setFill(Color.rgb(255,255,0)), State the colour that will fill the rectangle “r”. Justify your answer. | CO3 | 3 |
|  | b. | “An RGB colour model is an Additive colour Model”. Defend this statement. | CO2 | 2 |
|  | c. | Explain the process and syntax of creating a simple path animation in Javafx. Also explain setCycleCount and setAutoReverse properties. | CO3 | 15 |
|  |  |  |  |  |
| 7. | a. | Name a real world example motion where ease-in ease-out happens. | CO2 | 2 |
|  | b. | Name the transition that one uses to animate the fill colour of an object. Give its syntax. | CO3 | 3 |
|  | c. | State the reason for using Homogenous coordinates and matrices to represent transformations. | CO3 | 5 |
|  | d. | Give the rotational Matrices for 3D transforms. | CO3 | 10 |
|  |  |  |  |  |
| (OR) | | | | |
| 8. | a. | Explain the two types of projections used for camera based rendering of the scene. | CO2 | 5 |
|  | b. | List and explain the various types Clipping with examples. | CO2 | 15 |
|  |  |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | State the location of the origin point(0,0) in Javafx. | CO2 | 1 |
|  | b. | List and explain the Stereoscopic Viewing principles. | CO2 | 12 |
|  | c. | Define: Collision Detection and its types. | CO3 | 3 |
|  | d. | Describe Raytracing based rendering with a diagram. | CO2 | 4 |