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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14CS2006** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Computer Graphics** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | What is the shortened form of picture element? | (1) |
| 2. | Which system formats the frame buffer stores the bitmap? | (1) |
| 3. | How does the translation process changes the position of an object? | (1) |
| 4. | Name the transformation that produces a mirror image of an object. | (1) |
| 5. | How do you produce a smooth curve through a designed set of points? | (1) |
| 6. | In perspective projection, the lines of projection are not parallel.True/False. | (1) |
| 7. | Mention any two types of light sources used by a shading model to illuminate the objects in a scene. | (1) |
| 8. | What is the process generate an image from a model? | (1) |
| 9. | What is the normal speed of a visual animation? | (1) |
| 10. | State name the object whose shape is irregular at all scales. | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | List out the methods used for smoothly joining two line segments. | (3) |
| 12 | What is aliasing and antialiasing? | (3) |
| 13 | What are the steps involved in 3D transformation? | (3) |
| 14 | State the difference between CMY and HSV color models. | (3) |
| 15 | Write about particle system modeling. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | Write a detailed note on the followingbasic two dimensional transformations. | |  |
| a. | Translation | 5 |
| b. | Rotation | 5 |
| c. | Scaling | 5 |
| (OR) | | | |
| 17. | a. | 1. **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?** | 8 |
| b. | 1. **What is the access time per pixel in each system?** | 7 |
| 18. | a. | Write the procedure for Cohen-Sutherland line clipping algorithm. Explain the intersection calculation and perform clipping for the following set of lines. | 8 |
| b. | Explain RGB color model in detail. | 7 |
| (OR) | | | |
| 19. | a. | Write the Bresenham’s line generation algorithm to plot the line from (20, 10) to (30,18). | 8 |
| b. | Explain in detail about HLS color model. | 7 |
| 20. | a. | Differentiate parallel projection from perspective projection. | 10 |
| b. | Explain about 3D object representations. | 5 |
| (OR) | | | |
| 21. | a. | How are polygon surfaces represented in 3D? | 8 |
| b. | What are the advantages of rendering polygons by scan line method? | 7 |
| 22. | a. | Write notes on 3D viewing. | 5 |
| b. | How to view the 3D animation sequence? What are the components associated with the viewing window? | 10 |
| (OR) | | | |
| 23. | a. | How does bound box help toclip the images within the polygon? | 5 |
| b. | Explain with example, how Z-buffer algorithm determine which surfaces are hidden? | 10 |
| 24. | a. | Explain Gouraud shading and Phong shading. | 8 |
| b. | What is the use of hidden line removing algorithm? | 7 |
| (OR) | | | |
| 25. | a. | What is an illumination model? Develop an illumination model to consider ambient light, specular reflection and diffused reflection. | 10 |
| b. | Explain the process of drawing shadows for modeled objects. | 5 |

ALL THE BEST