

C 28406

(Pages : 2)

Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JULY 2012

(CUCSS)

Computer Science

CSC 2 C 01—ADVANCED COMPUTER GRAPHICS

Time : Three Hours

Maximum : 36 Weightage

Part A

*Answer all questions.
Each question carries 1 weightage.*

1. State any *four* features of OpenGL.
2. Define the terms "depth cuing" and "surface rendering".
3. Give matrix representation for 3D rotation.
4. Give OpenGL command for 3D scaling.
5. What do you mean by coordinate transformation ?
6. List any *four* OpenGL quadric—surface and Cubic surface functions.
7. List any four OpenGL spline functions.
8. What is an Octress ? What is the significance of it in Computer Graphics ?
9. What do you mean by parallel projection ?
10. Explain exploded and cutaway views.
11. Define view plane normal vector and view—up vector.
12. Define texture.

(12 x 1 = 12 weightage)

Part B

*Answer any six questions.
Each question carries 2 weightage.*

13. Write a sample OpenGL program and explain its working.
14. Explain OpenGL viewing transformation functions.
15. Derive and explain with examples matrix formulation for 3D reflection and translation.
16. Write and explain OpenGL functions for 3D rotation and shear.
17. Explain Cubic Bezier curves.
18. Write note on wire—frame visibility methods.
19. Discuss 3D viewing pipeline.
20. Obtain oblique parallel—projection transformation matrix.
21. Discuss bit and pixel operations.

(6 x 2 = 12 weightage)

Turn over

Part C

*Answer any **three** questions.
Each question carries **4** weightage.*

22. Give a detailed account of 3D rotation. Write a complete **OpenGL** program for rotating a shape of your choice, about an arbitrary axis.
23. Discuss various approaches to representation of curves.
24. Discuss basic Ray—tracing algorithm.
25. Give a detailed account of orthogonal projection.
26. Give a detailed account of perspective projection:
27. Discuss sampling and **aliasing** techniques.

(3 x 4 = 12 **weightage**)