

**B. N. Bandodkar College of Science, Thane**

**S. Y. B. Sc. Semester IV Examination, March 2014**

**Course Code : USCS401**

**Duration: 2 Hrs.**

**Total Marks: 60**

- Note:**
- i. All questions are compulsory.**
  - ii. Figures on right indicate maximum marks.**

**Q. 1 a** What is Computer Graphics? Discuss the applications of computer graphics. **8**

**OR**

**a** Write notes on: **8**

- i. Raster Scan Displays**
- ii. Random Scan displays**

**b** Discuss in detail DDA line drawing algorithm. **7**

**OR**

**b** What is transformation? What is transformation matrix? Give the matrix representations in 3D for following transformations **7**

- i. Translation**
- ii. Rotation**

**Q. 2 a** What is windowing and clipping? Explain the concept of point clipping. **8**

**OR**

**a** Derive mathematical representation for Bezier curves and state there properties. **8**

**b** Explain Sutherland – Hodgeman algorithm for polygon clipping. **7**

**OR**

**b** With an example, explain Inside-Outside test. **7**

**Q. 3 a** Write note on: **8**

- i. Phong shading**
- ii. Shadow**

**OR**

**a** Discuss in detail “Painter’s Algorithm” for hidden surfaces. **8**

**b** Explain in detail key frame systems using Morphing. **7**

**OR**

**b** What is Virtual Reality? Write the applications of Virtual Reality. **7**

**Q. 4 a** Discuss Mid-point circle algorithm to draw a circle. **8**

**OR**

**a** Give mathematical representation of B-Spline curve. What are the properties of B-Spline curve? **8**

**b** Compare between window and viewport. What is viewing? **7**

**OR**

**b** Explain the various illumination models. **7**