SE (COMP) IV

CG (CBGS)

1-/6/2016

**Q. P. Code : 541801**

(3 hours) [80 Marks]

N.B.:

1. Question No.1 is **compulsory**.
2. Attempt any **Three** questions out of remaining **Five** questions.
3. Figures to the right indicate full marks.
4. Assume any suitable data wherever required but justify the same.

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|---|---|---|---|
| Q.1 | a) | Prove that two successive rotations are additive. | 5 |
| | b) | Explain the various applications of computer graphics | 5 |
| | c) | Explain dithering technique in detail. | 5 |
| | d) | Specify the disadvantage of DDA algorithm | 5 |
| Q.2 | a) | Explain the steps used in rotation of 2 D object about an arbitrary axis and hence derive the matrix for the same. | 10 |
| | b) | Compare flood fill and boundary fill algorithm illustrating the same with a diagram | 10 |
| Q.3 | a) | Explain any one polygon clipping algorithm in detail. | 10 |
| | b) | Explain midpoint circle algorithm. Explain the same to plot a circle whose radius is 10 units | 10 |
| Q.4 | a) | Explain Cohen Sutherland line clipping algorithm in detail | 10 |
| | b) | Explain what is meant by Bezier curve. Also explain the properties of Bezier curve | 10 |
| Q.5 | a) | What is meant by parallel and perspective projections? Derive matrix for perspective projections | 10 |
| | b) | Define window , viewport and hence explain how window to viewport transformation is performed | 10 |
| Q6 | a) | Write short notes on (any two):- Gouraud and Phong shading technique | 20 |
| | b) | Shearing and viewing transformation | |
| | c) | Sweep representation | |