



B.Tech. Degree V Semester Examination, November 2006

ME 503 COMPUTER GRAPHICS

(Prior to 2002 Admissions)

Time: 3 Hours

Maximum Marks: 100

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|-----------|-------|--|------|
| I | a) | Explain raster scan and random scan displays. | (10) |
| | b) | Write a note on stereoscopic and virtual reality systems. | (10) |
| OR | | | |
| II | a) | Explain any two hardcopy devices. | (10) |
| | b) | Define locator and stroke devices. | (10) |
| OR | | | |
| III | a) | Explain Window-to-viewport coordinate transformation. | (10) |
| | b) | Write a note on composite transformation and properties of concatenation. | (10) |
| OR | | | |
| IV | | Give transformation matrix for the following operations: | |
| | (i) | rotate an object by 30° in anti-clockwise direction | |
| | (ii) | scale an object with scaling factors $S_x=2$, $S_y=1/3$ | |
| | (iii) | reflect an object about the line $y=x$ | |
| | (iv) | shear an object relative to the x-axis, with parameter $Sh_x=2$ | |
| | (v) | reflect an object about the y-axis | (20) |
| OR | | | |
| V | a) | Define orthographic and oblique projection. | (10) |
| | b) | Write a note on 3-dimensional projection. | (10) |
| OR | | | |
| VI | a) | Explain how an object is to be rotated about an axis that is not parallel to one of the coordinate axes. | (12) |
| | b) | Define axonometric projection. | (8) |
| OR | | | |
| VII | | Explain different cubic splines. | (20) |
| OR | | | |
| VIII | a) | Explain Bezier curves. What are its properties? | (16) |
| | b) | Explain the advantages of B-spline over Bezier curves. | (4) |
| OR | | | |
| IX | a) | Write a notes on quadric surfaces. | (10) |
| | b) | Explain rules and developable surfaces. | (10) |
| OR | | | |
| X | a) | Explain B-spline surfaces. | |
| | b) | Write <u>short notes</u> on: | |
| | (i) | surface of revolution | (10) |
| | (ii) | piecewise surface representation | (10) |