

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: BTECH  
BRANCH: CSE/IT**

**SEMESTER : VI  
SESSION : SP/2023**

**SUBJECT: CS327 COMPUTER GRAPHICS**

**TIME: 3 Hours**

**FULL MARKS: 50**

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Consider a line from (0,0) to (6,7). Use Bresenham's Algorithm to rasterize the line. Find/List all these points lies in between the two given points above.	[5] 1	3
Q.1(b)	Write an algorithm/pseudocode/ step required to scan convert an ellipse using the trigonometric method.	[5] 1	2
Q.2(a)	Magnify the triangle with vertices A(0,0), B(1,1) and C(5,2) to twice its size while keeping C(5,2) fixed.	[5] 2	2
Q.2(b)	Prove that if two end points of a line is translated the entire line is translated.	[5] 2	3
Q.3(a)	Find the final transformation Matrix for mirror reflection with respect to a given plane.	[5] 3	2
Q.3(b)	Find the transformation matrix which aligns the vector $v=i+j+k$ with the vector $N=2i-j-k$ .	[5] 3	2
Q.4(a)	Find the general form/matrix of an oblique projection onto the XY plane.	[5] 4	2
Q.4(b)	Find a matrix for parallel projection onto the plane $3x+y+4z+1=0$ when an Orthographic projection is used.	[5] 4	3
Q.5(a)	List the points required for Curve and Surface Design.	[5] 5	1
Q.5(b)	Write an algorithm for removing hidden surfaces and explain with an example.	[5] 5	2

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