NATIONAL INSTITUTE OF TECHNOLOGY, PATNA

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MID-SEMESTER EXAMINATION – MARCH 2022

B. Tech. 6th Semester CSE

Date: 09th March 2022(FN) *Time: 02 Hrs.* *CS6401 – Computer Graphics*

Max. Marks: 30

Instructions: *It will be same as per the Exam section of NIT Patna. All the questions are compulsory.*

Ques. no.	Questions	Marks	CO	BL
Q. 1.	Define the following terms in brief with suitable diagram (if possible): (i) Computer Graphics (ii) Virtual reality triangle (iii) Frame (iv) Frame Buffer (v) Scan-line (vi) Scan-conversion (vii) Resolution and Aspect ratio (viii) Anti-Aliasing (ix) Mixed reality system (x) Interactive and passive graphics.	**[10*1=10]**	CO-1	I
Q. 2.	Explain the working components of Cathode Ray Tube (CRT) with suitable diagrams. Differentiate between normal CRT and colored CRT with suitable diagram.	**[04]**	CO-1	II, III, V
Q. 3.	Explain the importance of the video controller in an interactive raster-graphics systems with suitable diagram. Differentiate between raster-scan and random-scan display system with suitable diagram.	**[04]**	CO-1	II, III, V
Q. 4.	Define the functionality of each steps of the graphics viewing pipeline with suitable diagram. Explain the thumb rules for representing Three-Dimensional (3D) coordinate systems with the help of diagram.	**[04]**	CO-1, CO-3, CO-4	I, III
Q. 5.	Differentiate between Direct Differential Analyzer (DDA) and Bresenham's algorithms. Consider the line from (0, 0) to (-6, -6). Use the simple DDA algorithm and find intermediate points to rasterize this line segment, also draw the rough graph on your sheet.	**[04]**	CO-1	IV, V
Q. 6	Explain in steps how an ellipse rasterize with the mid-point ellipse drawing method could be properly filled and create a colored ellipse by using a boundary-fill algorithm. Differentiate between boundary-fill and flood-fill seed algorithms.	**[04]**	CO-1	III, VI

All the Best