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Other than MBA

End Semester Examination 2024

Name of the Course: BCA
Name of the Paper: Computer Graphics

Semester: VI
Paper Code: TBC601

Time: 3 Hour's

Maximum Marks: 100

Note:

(i) All Questions are compulsory.
(ii) Answer any two sub questions among a,b and c in each main question.
(iii) Total marks in each main question are twenty.
(iv) Each question carries 10 marks.

Q1	**(10 X2 = 20 Marks)**	CO1
(a)	How does a raster scan display function, and what are its advantages and limitations compared to other display technologies?	
(b)	What are the characteristics and functionalities of display devices like the Refresh Cathode Ray Tube (CRT), and how do they compare to more modern technologies?	
(c)	What is aliasing, and how does it manifest in computer graphics? Additionally, what are the challenges it poses to visual quality and how can anti-aliasing techniques mitigate these issues?	
Q2	**(10 X2 = 20 Marks)**	CO2
(a)	Could you explain the role of vectors in computer graphics, including their representation, operations such as addition and multiplication, and significance in defining geometric transformations?	
(b)	How are circles and ellipses generated in computer graphics, and what algorithms are commonly used for their generation? Derivate any one algorithm.	
(c)	Discuss and derivate the Weiler Atherton polygon clipping algorithm.	
Q3	**(10 X2 = 20 Marks)**	CO3
(a)	Derivate the cohen-sutherland line clipping algorithm.	
(b)	Use liang-barsky line clipping algorithm to clip the line A(-15, -30), B(30, 60) against the window having diagonally opposite corners as (0,0) and (15, 15).	
(c)	Explain the Scan-Line Polygon Fill algorithm. How does it divide the filling process into manageable steps, and what are its computational advantages?	
Q4	**(10 X2 = 20 Marks)**	CO4
(a)	Differentiate between parallel projection and perspective projection in 3D graphics. Provide examples to illustrate each.	
(b)	What are the basic transformations in 2D graphics? Provide examples of each.	
(c)	Apply 3D geometric transformation to make the given tetrahedron ABCD rotate about the x-axis, making it erect with its base ABC resting on the x-z plane. Next magnify it four times about a fixed point A[1, 1, 2].	
Q5	**(10 X2 = 20 Marks)**	CO5
(a)	Discuss the historical evolution of animation from traditional techniques to modern computer-generated animation.	
(b)	Discuss the characteristics and applications of each type of animation, highlighting their strengths and limitations.	
(c)	What are GKS (Graphical Kernel System) standards, and how do they facilitate graphics programming?	