Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: IT367

Course Name: COMPUTER GRAPHICS AND MULTIMEDIA

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Explain Digital Differential Analyzer algorithm for line drawing. Convert the line segment joining the points (5,6)and (12,15) using DDA algorithm. (8)

b) Describe about H.261 Compression Technique. (7)

2 a) Explain scan-line polygon filling algorithm. (7)

b) Explain about Entropy and Hybrid Coding. (8)

3 a) Explain how the Mid-Point Circle algorithm converts a circle cantered at the point (5,5) and having radius 10. What is the reason behind plotting points in one octant rather than one quadrant? (9)

b) Explain how MPEG distinguishes image coding for processing. (6)

PART B

Answer any two full questions, each carries 15 marks.

4 a) List the operating characteristics for E-paper displays (8)

b) Show that the composition of two rotation is additive by concatening the matrix representations for R(Θ1) and R(Θ2) to obtain R(Θ1) * R(Θ2) = R(Θ1+ Θ2) ? (7)

5 a) Explain working principle behind LED and OLED (7)

b) Consider a square with vertices A(0,0) , B(0,1),C(1,1) D(1,0). What is the new cordinate value for A,B,C,D when it sheared in x direction(Shear parameter value 1/2=0.5) and relative to line Yref= -1 (8)

6 a) Explain working principle of Cathode Ray tube. (7)

b) Explain homogeneous matrix representation of 2D transformations (8)

PART C

Answer any two full questions, each carries 20 marks.

7 a) What is visible surface detection and explain (10)
a) Back face removal b) Z buffer Method

b) What is meant by Region Labelling? Explain any one algorithm for region labelling with example. (10)

8 a) A Triangle with vertices A(0,0), B(10,0), and C(5,5) undergoes the following transformation and compute the coordinate of the vertices of the resulting object. (10)

i. Horizontal translation through 3 units and vertical translation 5 units.
ii. Rotation through angle 60 degree about pivot point(2,1).
iii. Horizontal shearing by a factor of 0.5 and vertical shearing 0.75.
iv. Reflection about the line y=x.

b) What is digital image processing and explain different steps involved in DIP (10)

9 a) Distinguish between object space method and image space methods for visible surface detection? (10)

b) Explain histogram equalization and perform histogram equalization on following 8×8 image. The gray level distribution of image is given below (10)

Gray level	0	1	2	3	4	5	6	7
No. Of pixel	8	10	10	2	12	16	4	2

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