Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 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) Differentiate between raster scan and random scan systems. Explain the concept of interlacedscanning. (5)

b) Using DDA algorithm rasterize the line from (0, 0) to (4, 6) and plot the line. (10)

2 a) Plot a Cartesian graph using Bresenham's line drawing algorithm of a line from (20, 10) and (30, 18) with slope of 0.8. (10)

b) Write a boundary fill procedure to fill an 8 connected region in filled area primitives. (5)

3 a) Explain different steps involved in JPEG compression. (7)

b) Explain how MPEG distinguishes image coding for processing. (8)

**PART B**

***Answer any two full questions, each carries 15 marks***

4 a) With neat diagram explain working principle of cathode ray tube in display devices. (10)

b) What is the working principle behind the plasma panel? (5)

5 a) Mention the new coordinates of triangle with vertices A (0, 0), B (1, 1) and C (5, 2) with respect to origin with scale factors $S_x$=1/2 and $S_y$=1.Draw the new coordinates. (7)

b) Draw a triangle A (5, 5), B (10, 5), C (5, 15) and do the following transformation on thetriangle: (8)
Translate the triangle by 3 in x-direction and 4 iny-direction, increase the size of the triangle to double of it by keeping A asfixed and rotate the triangle by 90 degree keeping A asfixed.

6 a) Explain the effect of reflection and shearing in geometrical transformation.

b) What is the purpose of homogeneous coordinates in two dimensional coordinates?

**PART C**

***Answer any two full questions, each carries20 marks***

7 a) Write the pseudo code to demonstrate Cohen-Sutherland line clipping algorithm. Illustrate with an example. (12)

b) How rotation is working in the x-axis,y-axis and z-axis in the three-dimensional transformation. (8)

8 a) Explain Sutherland–Hodgeman polygon clipping algorithm with suitable example. (10)

b) List out the different visible surface detection methods and explain any two visible surface detection methods. (10)

9 a) Derive the equation of translation and scaling in the three-dimensional transformation. (10)

b) List out the different digital image processing techniques and explain any two techniques. (10)

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