

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019**

**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 the Mid-Point Circle algorithm. Explain how the algorithm scan converts a circle centred at the point (6, 8) and having radius 5. | (9)  |
|   | b) Explain the role of source encoding in multimedia data compression.   | (6)  |
| 2 | a) Explain Flood fill polygon filling algorithm with an example.   | (7)  |
|   | b) Describe about DVI Compression Technique.   | (8)  |
| 3 | a) Illustrate Bresenham line drawing and digitize the line with end points(20,10) and (30,18). The slope of line is 0.8.                     | (10) |
|   | b) Explain how MPEG distinguishes image coding for processing.   | (5)  |

**PART B**

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

- |   |   |     |
|---|---|-----|
| 4 | a) Explain working principle of OLED and AMOLED.  | (7) |
|   | b) Explain 2D rotation transformation in detail.  | (8) |
| 5 | a) What is Refresh CRT ? Explain the Focusing System and Deflection System of CRT with neat diagram.    | (7) |
|   | b) Show that composition of two transformation is additive.   | (8) |
| 6 | a) Explain the working principle of Plasma.   | (7) |
|   | b) What do you mean by homogenous coordinates? Why it is used when designing composite transformations? | (8) |

**PART C**

*Answer any two full questions, each carries 20 marks.*

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|---|---|------|
| 7 | a) Why clipping is needed for computer graphics and discuss any two clipping algorithm? | (10) |
|---|---|------|

- b) Explain different classification of visible surface detection algorithms. (10)
- 8 a) Explain 3D geometric transformation in detail. (10)
- b) Discuss steps in digital image processing. (10)
- 9 a) Explain different steps involve in histogram equalization and perform histogram equalization in the following  $4 \times 4$  image and scale/ change intensity range to 20. (10)

3	2	4	5
7	7	8	2
3	1	3	3
5	4	6	7

- b) Prove that the multiplication of 3D transformation matrices for each of following sequence of operations is cumulative (10)
- a) Any two successive translation
- b) Any two successive scaling operations

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