Roll No. .....

Total Pages : 3

434103

December, 2019

B.Sc. (Animation and Multimedia) - I SEMESTER

Mathematics (BSC-AM-19-103)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Differentiate between cartesian coordinate and polar coordinate. (1.5)

(b) What is scalar? (1.5)

(c) What is matrix and what is it used for? (1.5)

(d) What are the attributes of the area fill? (1.5)

(e) In which quadrant, would you find the point (3, –2)? (1.5)

(f) If A = (2, 5), B = (2, –1), C = (–6, –1) and D = (–6, 5). If A is joined to B, B to C, C to D and D to A with straight lines. What shape is ABCDA? (1.5)

(g) What are the polar coordinates of the point P = (3, 8). (1.5)

(h) For the straight line x = 2y – 3, find the slope and intercept? (1.5)

(i) A circle has center (3, –5) and the point (–1, –8) lies on the circumference of the circle. What is the equation of the circle in standard form? (1.5)

(j) If $A=\begin{bmatrix}1 & 2 & 3\\ 2 & 3 & 1\end{bmatrix}$ and $B=\begin{bmatrix}3 & -1 & 3\\ -1 & 0 & 2\end{bmatrix}$. Then find 2A + B. (1.5)

PART - B

2. (a) The distance between the points (2, –y) and (3, –7) is 13 units. What are the possible values of y? (5)

(b) What are the characters Attributes? Explain them. (10)

3. (a) What is a vector? Discuss different types of vector by with the help suitable examples. (10)

(b) A vector's magnitude and direction are 8 and 125°. What is its x and y lengths correct to 2 decimal places? (5)

4. What do you mean by transformation? Explain the different types of transformation in 3D by giving suitable example. (15)

5. What are the parallel projection and perspective projection? Explain them with the help of suitable examples. (15)

6. (a) Compute C = A × B for given matrices A and B

$$A=\begin{bmatrix}1 & 3 & 3\\ 1 & 4 & 3\\ 2 & 7 & 7\end{bmatrix} \quad B=\begin{bmatrix}1 & 1 & 1\\ 0 & 1 & 1\\ 0 & 0 & 1\end{bmatrix}$$ (8)

(b) Vector **a** has magnitude 3, vector **b** has magnitude 4, the angle between **a** and **b** is 30° and n is the unit vector at right angles to both **a** and **b**. What is **a** × **b**? (7)

7. Write short notes on the following :

(a) Colour and Greyscale level.

(b) Ellipsoid.

(c) Anti-Aliasing. (15)

INDEX