MCA 3rd Semester (Non CBCS) Examination,

Nov./Dec.-2019

COMPUTER GRAPHICS AND MULTIMEDIA

Paper-MCA-301

Time allowed : 3 hours] _[Maximum marks : 80_

Note : **Question No. 1 is compulsory.** In addition to question no. 1 attempt **four** more questions by selecting **one** question from each unit. All questions carry equal marks.

1.   (i)   Write down any four application areas of active graphics.

    (ii)   Discuss the working of Direct View Storage Tube used for displaying the graphics image.

    (iii)   Give a brief introduction of the Image Scanner.

    (iv)   Discuss the purpose of using bundled attributes in Computer Graphics.

    (v)   Differentiate between coordinate and geometric transformations.

    (vi)   What do you understand by the fixed point in reference to transformations ?

    (vii)   Define the Viewing pipeline and its relevance in computer graphics.

    (viii)   Discuss the all or none character clipping strategy used for text clipping.

67141-P-3-Q-9(19)   [P.T.O.

Unit-I

2. (i) Why it is required to refresh the CRT displays ? Discuss. Also write down some factors responsible for deciding the refresh rate.

   (ii) Differentiate between emissive and non-emissive displays used to generate computer image.

3. (i) Define the following: interlacing, pixmap, horizontal retrace and RGB monitors.

   (ii) Explain the working of LED as a display device with the help of labeled diagram.

Unit-II

4. (i) Explain the inside outside test used for filling the polygon with the help of an example.

   (ii) Briefly define the following: Flood fill algorithm, gray scale levels and Cell array.

5. (i) Describe the midpoint circle generating algorithm with its advantages and disadvantages.

   (ii) What do you understand by aliasing problems in computer graphics ? Discuss any one method to solve this aliasing problem.

Unit-III

6. (i) What do you mean by rigid body transformations ? Explain the 2D translation and rotation in terms of their matrices with appropriate examples.

   (ii) Pen down the matrices for 2D reflection and shearing graphical operations.

7. (i) Discuss the importance of window to viewport transformations. Also write down the mathematical equation to transform a given point defined in window coordinates into viewport coordinates.

   (ii) Discuss in detail the polygon clipping algorithm specially designed for concave images.

Unit-IV

8. (i) Discuss different essential components of a multimedia. Also mention any five most desirable features of multimedia.

   (ii) Discuss the need of having analog to digital and digital to analog conversion in multimedia.

9. (i) Enumerate the criteria based on which the animation systems can be classified and briefly discuss them.

   (ii) What do you understand by authoring process ? Discuss the concept by taking your own illustration.