BCACAC 281

Choice Based Credit System Fourth Semester B.C.A. Degree Examination, September 2022
(2020-21 Batch Onwards)
COMPUTER GRAPHICS AND ANIMATION

Time : 3 Hours   Max. Marks : 80

Note : Answer **any ten** questions from Part – **A** and **one full** question from **each** Unit of Part – **B**.

PART – A

1. a) Define horizontal and vertical retrace.

   b) Define 8-way symmetry.

   c) List different line types.

   d) What is transformation ?

   e) Write matrix to represent rotation in Homogeneous coordinate system.

   f) What is clipping ? List any 2 types of clipping.

   g) Define procedural animation.

   h) Define morphing.

   i) Define story line and key frame.

   j) What are gesture interfaces ?

   k) How virtual classroom can be implemented using telepresence ?

   l) Expand HMD and HSD.   **(10×2=20)**

PART – B

Unit – I

2. a) Write DDA Line Generation algorithm.

   b) With a neat diagram explain the working of CRT.

   c) Explain the following built in functions :

   i) drawpoly()

   ii) line().   **(5+5+5)**

3. a) Explain flood fill technique with algorithm.

   b) Derive the Mid-point circle generating algorithm.

   c) Explain Raster and vector-based Graphics. **(5+5+5)**

Unit – II

4. a) What is translation ? Explain with example.

   b) What is reflection ? Explain reflection about X and Y axis with its matrix and diagram.

   c) Write a note on line attributes. **(5+5+5)**

5. a) Explain the procedure of Sutherland-Hodgeman polygon clipping.

   b) Explain the text attributes.

   c) Write a note on scaling a 2D object. **(5+5+5)**

Unit – III

6. a) Explain the different motion control methods.

   b) Write a note on classical components and design of a VR system.

   c) What is Virtual reality ? Write the different advantages of it. **(5+5+5)**

7. a) Explain the different types of virtual reality systems.

   b) Explain how construction of an animation sequence is done.

   c) List and explain the important factors of virtual reality system. **(5+5+5)**

Unit – IV

8. a) Write a note on three-dimensional position trackers.

   b) List the input devices used for virtual reality. Explain any two.

   c) Write a note on Graphical rendering pipeline. **(5+5+5)**

9. a) Explain navigation and manipulation interfaces.

   b) Write a note on sound display and interface.

   c) Explain the applications of virtual reality. **(5+5+5)**

_____