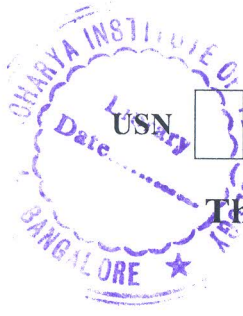


CBCS SCHEME



18MPD333

Third Semester M.Tech. Degree Examination, Dec.2019/Jan.2020 Computer Application in Design

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Indicate the various stages of product life cycle. (10 Marks)
b. Name the various input devices of a graphic workstation. Explain the working principle of any one of the input device. (10 Marks)

OR

- 2 a. List the various activities that constitute Computer Aided Design (CAD) Computer Aided Manufacturing (CAM) and Computer Aided Engineering (CAE). (10 Marks)
b. List the software that are of interest to CAD/CAM/CIM engineers. (10 Marks)

Module-2

- 3 a. List the steps that need to be followed in reflecting an object through an arbitrary plane given by points P_0 , P_1 and P_2 . Also write down the associated transformation matrices. (10 Marks)
b. What is shading? Explain the shading model with ambient light, specular reflection and diffusion. (10 Marks)

OR

- 4 a. Obtain a viewing transformation matrix from a window with extents: (x_{wmin}, y_{wmin}) to (x_{wmax}, y_{wmax}) to a view port with extents (x_{vmin}, y_{vmin}) to (x_{vmax}, y_{vmax}) . (10 Marks)
b. Explain the principle of Z-buffer algorithm to remove a hidden line. (10 Marks)

Module-3

- 5 a. The coordinates of four control points are
$$P_0 = \begin{bmatrix} 2 \\ 2 \\ 0 \end{bmatrix}, P_1 = \begin{bmatrix} 2 \\ 3 \\ 0 \end{bmatrix}, P_2 = \begin{bmatrix} 3 \\ 3 \\ 0 \end{bmatrix}, P_3 = \begin{bmatrix} 3 \\ 2 \\ 0 \end{bmatrix}$$

Find the equation of the resulting Bezier curve. Also, find $P(0.25)$, $P(0.75)$. (10 Marks)
b. Give the mathematical representation of:
(i) Plane surface in parametric form
(ii) Bilinear surface
(iii) Coons patch
(iv) Bezier surface (10 Marks)

OR

- 6 a. Generate 10 points on a parabolic segment in the first quadrant $1 \leq x \leq 4$ given $a = 1$. (10 Marks)
b. List the properties of Bezier surface (any five). (10 Marks)

Module-4

- 7 a. Name the activities that constitute a process plan. (10 Marks)
b. What activities (attributes) constitute a Group Technology? (10 Marks)

OR

- 8 a. What are the benefits of using or implementing a CAPP system? (10 Marks)
b. Name the benefits of adopting PDM system. (10 Marks)

Module-5

- 9 a. Name the various sections that constitute IGES format. (10 Marks)
b. List the output primitives of geometric modeling. (10 Marks)

OR

- 10 Explain the methodology and core structure of PDES for product data in automation. (20 Marks)
