Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS, PONDA GOA
B.C.A. (SEMESTER V) SUPPLEMENTARY EXAMINATION, JULY 2022
COMPUTER GRAPHICS

Duration: 2 hours   **Total Marks:** 60

Instructions: *i) All questions are compulsory.*
ii) Figures to the right indicate full marks.

Q.1. A) Fill in the Blanks: **(5x1=05)**
a) The region against which an object is clipped is called a _____.
b) _____ is a transformation that produces a mirror image of an object.
c) _____ provides a measure for the deviation of a curve or surface from the region bounding the control points.
d) For computer graphics applications, _____ representations are generally more convenient.
e) We can animate objects along two-dimensional motion paths using the _____ transformations.

B) State whether the following statements are **true** or **false**:   **(5x1=05)**
a) The two-dimensional viewing transformation is also referred to as the window-to-viewport transformation.
b) Bezier surfaces have the same properties as Bezier curves.
c) In geometric continuity, we require parametric derivatives of the two sections to be equal to each other at their common boundary instead of equal to each other
d) A spline surface can be described with two sets of parallel spline curves.
e) Computer animations cannot be generated by changing camera parameters, such as position, orientation, and focal length.

Q.2. Answer the following:
A) What is the difference between Interactive and Non-interactive Graphics **(02)**
B) Explain in brief any three applications of Computer Graphics.   **(03)**
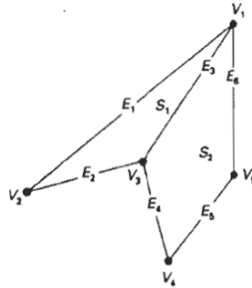C) Draw a neat diagram of Cathode Ray Tube. Explain the components.   **(05)**

Q.3. Answer the following:
A) Draw a neat diagram and explain in brief the Types of polygons.   **(02)**
B) Write the steps for Bresenham's Circle Algorithm.   **(03)**
C) Using the DDA algorithm, Calculate the points between starting point (5,6) and ending point (8,12). Plot the points   **(05)**

Q.4. Answer the following:
A) Draw a neat diagram for 2D viewing pipeline. **(02)**
B) For the given figure, draw the vertex, edge and surface tables. State the use of each table. **(03)**

C) Window size is (0,0) to (40,40). A line PQ is given having co-ordinates of P (20,20) and Q (50,10). Find the visible portion of the line using midpoint subdivision-Algorithm. **(05)**

Q.5. Answer the following:
A) Draw a neat diagram and explain in brief the Types of polygon mesh. **(02)**
B) Write a short note on Parametric Continuity. **(03)**
C) Write the equations and the corresponding matrices for the three-dimensional co-ordinate axis rotation. **(05)**

Q.6. Answer the following:
A) State the difference between Interpolation and Approximation. **(02)**
B) Explain in brief any three components of user interface. **(03)**
C) Write a short note on feedback in Graphics Systems. **(05)**