ITM (SLS) BARODA UNIVERSITY
"Think Big... Think Beyond"

STUDENT'S ENROLMENT NUMBER_____

ITM (SLS) BARODA UNIVERSITY
SCHOOL OF COMPUTER SCIENCE, ENGINEERING AND TECHNOLOGY
(SOCSET) B.TECH EVEN SEMESTER 2023-24 CONTINUOUS EVALUATION TEST (CET)-2
SEMESTER: 2nd COURSE-CODE:C2210C3 COURSE-NAME: Computer Graphics
DATE:18/04/2024 MARKS: 30 TIME:12:45 PM TO 02:15 PM

Instructions:

- All questions are mandatory. There are no external options.
- Make suitable assumptions, wherever necessary, and state them clearly.
- Use of Non-Programmable Calculator is allowed
- Figures to the right indicate maximum marks.

Q1. Multiple Choice Question: [6]

1. Positive value for the rotation angle **θ** defines:
   i) Counterclockwise rotation by the pivot point
   ii) Counterclockwise rotation by the end points
   iii) Clockwise rotation by the pivot point
   iv)Clockwise rotation by the end point
2. The composite transformation matrix can be made by determining the _____ of the matrix of the individual transformation
   i) Addition ii) Subtraction
   iii) Product iv) None of the above
3. Which of the following is used to adjust the shape of the bezier curve
   i) Control Points ii) End Points
   iii) Knots iv) Convex hull
4. A rectangular space in which the world definition of region is displayed is known as:
   i. Screen coordinate system ii. World coordinate system
   iii. View Window iv. World window
5. The method that speeds up the processing of line segments by performing initial tests that reduce the number of interaction is Clipping:
   i. Cohen — Sutherland line ii. Liang Barsky line
   iii. Nicholl — Lee—Nicholl line iv. none
6. Shearing operation results into:-
   i. Extension of shape ii. Distortion of shape
   iii. Reflection of shape iv. None of the above.

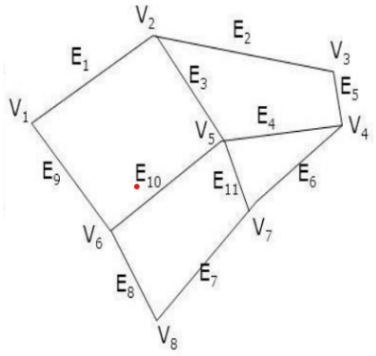
Q2. Answer any Two (out of Four) [6]

i) List the 3-d display models & explain any 3 of them.

ii) Write the liang-barsky line clipping algorithm
iii) What is shearing? Explain shearing in x-direction
iv) Explain pivot point rotation.

Q3. Answer any Two (out of Four) [6]

i) Explain Sutherland-Hodgeman polygon clipping algorithm.
ii) Explain Parametric continuity Conditions.
iii) What is transformation? Explain 2-d translation.
iv) Explain the polygon table with the polygon shown below.



Q4. Answer any Two (out of Four) [6]

i) Explain approximation continuity Conditions
ii) Explain window to viewport coordinate transformation
iii) Explain Hermite Spline interpolation.
iv) Using Cohen-Sutherland clipping algorithm, clip the line having points A(-1,5) & B(3,8). The clipping window consists of (-3,1) at lower left & (2,6) at upper right.

Q5. Answer any Two (out of Four) [6]

i) What do you understand by Composite Transformations?
ii) Consider a rectangle with vertices A(0,0), B(3,0), C(3,2), D(0,2). Translate it 2 units to the right & 1 unit up and then Shear the translated rectangle horizontally with a shearing factor of 0.5.
iii) Explain the parallel and perspective projection.
iv) Explain Viewing Pipeline.

-x-x-x-x-x-x-x-