



**Tribhuvan University**  
**Faculty of Humanities & Social Sciences**  
**OFFICE OF THE DEAN**  
**2024**

Bachelor in Computer Applications  
Course Title: Computer Graphics and Animation  
Code No: CACS 305  
Semester: V

Full Marks: 60  
Pass Marks: 24  
Time: 3 hours

Candidates are required to answer the questions in their own words as far as possible.

**Group B**

Attempt any SIX questions.

[6×5 = 30]

2. How raster scan display is different from vector scan display? What is the role of video controller in raster scan display system? [3+2]
3. Define Pixel and resolution. Explain in brief about Back face detection algorithm. [1+4]
4. How flood fill algorithm can be used to fill a polygon? Explain. [5]
5. What is window to viewport transformation? Explain how mapping from window to viewport is achieved. [5]
6. Use the Midpoint Circle drawing Algorithm to draw a circle with a radius of 7 units, centered at (5,5).
7. What is I3 in virtual reality? How immersive virtual reality is different from non-immersive virtual reality? [3+2]
8. Write short notes on (Any two): [2.5+2.5]
  - a) Polygon clipping
  - b) RGV vs. CMY
  - c) Designing animation sequences

**Group C**

Attempt any TWO questions.

[2×10 = 20]

9. What is scan conversion? Derive the decision parameter for Bresenham's line drawing algorithm for  $m < 1$ . [2+8]
10. Write transformation matrices for 3D scaling and shearing. If a triangle with vertices  $P(2, 3)$ ,  $Q(5,3)$  and  $R(6,8)$  is rotated clockwise  $90^\circ$  about the origin and then scaled by 2, what will be the transformed image? [5+5]
11. What is image space method for visible surface detection? Write the algorithm for depth buffer method and also explain how depth is used to find the visible surface. [2+4+4]