

**B.C.A. Final Semester V**  
**Paper I**  
**COMPUTER GRAPHICS - I**

**UNIT - I :**

Introduction and Primitives

**Introduction:** Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices

**UNIT - II :**

**Output primitives :** Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms .

**UNIT - III :**

2D Transformations

**2-D geometrical transforms :** Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

**UNIT - IV :**

**2-D viewing :** The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

**Reference Books:**

1. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.
2. “Computer Graphics”, second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2nd edition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
5. Computer Graphics, Amrendra N Sinha, Arun D Udai TMH
6. Computer Graphics, Steven Harrington, TMH