



UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)  
उत्तराखण्ड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

BCA 3<sup>RD</sup> YEAR 5<sup>TH</sup> SEMESTER ASSIGNMENT

*Last Date of Submission: 15-Jan-2015*

**Course Title:** Interactive Computer Graphics

**Course Code:** BCA-17

**Year:** 2014-15

**Maximum Marks:** 40 Marks

Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

1. Define pixel and aspect ratio.
2. Compare the advantages of raster graphics over video monitors.
3. Define non-zero winding number rule with its significant.
4. Write the transformation matrix for reflection and shear.
5. Describe shift vector.
6. Define image space and object space.
7. State the steps involved in painter's algorithm.
8. Describe the different types of rotation position in 3-D?

Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answers 02 questions only.

1. (a) What is clipping and what are its operations?  
(b) Explain the two P-dimensional viewing transformation pipelines?
2. (a) Draw the architecture of a simple raster graphics system?  
(b) Differentiate refresh buffer or frame buffer?
3. Discuss following:
  - i. Parallel projection
  - ii. Perspective projection
  - iii. Scalar vector

4. Explain the following transformation with the matrix representation. Also give the suitable diagram for illustration.
- Translation
  - Scaling
  - Rotation

