# COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)
SHIVAJI NAGAR, PUNE - 411 005

## END Semester Examination

### (IT-09003)    Graphics and Multimedia

Course: B.Tech

Branch: Information Technology

Semester: Sem V

Year:   2014-2015

Max.Marks:60

Duration: 3 Hours    Time:- **2.00 pm to 5.00 pm**

Date: **2 5 NOV 2014**

**Instructions:**

MIS No.

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your MIS Number on Question Paper

**Q. 1**     **Solve the following.**

A.  Explain mid point circle generation algorithm. How do we determine the successive decision parameters using circle function?  [4]

B.  Given the triangle with co-ordinates (2,2), (2,5), (5,5), scale it by a factor 1/2, keeping the centroid of the triangle in the same location. Use separate matrix operations for the sequence.  [4]

C.  Explain boundary fill algorithm for polygon filling. Which is the drawback of four connected algorithm?  [4]

**Q. 2**     **Solve any *three*.**

A.  Show that 2-D scales and rotations do not commute in general. Under what restriction on scaling, commutation of scales and rotation is guaranteed?  [4]

B.  Discuss different steps involved in three dimensional rotation about an arbitrary axis to compute transformation matrix. Consider the rotation axis is projected onto Z axis.  [4]

C.  With help of appropriate diagrams discuss the following.
    1. Oblique projection
    2. Cavalier projection
    3. Vanishing point  [4]

D.    Write down the matrices used in three dimensional rotation about x, y and z axes. How can we make use of cyclic permutation of coordinate parameters x, y and z? [4]

## Q. 3    **Solve the following.**

A.    Differentiate between parallel and perspective projections. [4]

B.    Discuss the following two methods of transformation from world to viewing coordinates.
1. Apply a sequence of translate-rotate transformations
2. Form composite rotation matrix by calculating u, v, n vectors [4]

C.    With help of suitable diagram explain segment table, its creation and deletion. [4]

## Q. 4    **Solve any *three*.**

A.    What do you mean by multimedia authoring? Discuss the following types of authoring.
1. Icon/ Flow based
2. Frame based [4]

B.    Explain different multimedia authoring metaphors. [4]

C.    Discuss different types of messages used in MIDI standard. [4]

D.    Explain pulse code modulation and ADPCM used for audio coding. [4]

## Q. 5    **Solve the following.**

A.    Discuss different file formats used in image representation. [4]

B.    Explain Huffman coding algorithm used for image compression. [4]

C.    Discuss main steps involved in JPEG image compression. [4]