JIS College of Engineering
B. Tech (Information Technology)-5th Semester
Computer Graphics Assignment for Laboratory

Paper Code: **IT-505C/595C**   Assignment ID: **Soham/OSem/2015/IT505C/0005**

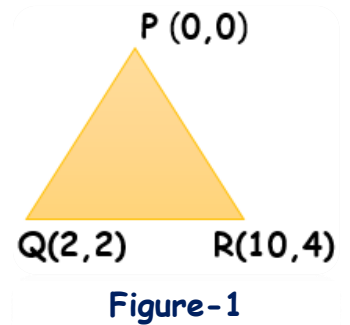## *Computer Graphics is no separate from Mathematics!*

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My Full Signature:

1. Represent Transformation of a straight line using Matrix Representation

2. If two parallel straight lines undergo any arbitrary Transformation(s), will they still remain parallel? Justify your answer with proper mathematical analysis.

3. Derive a generic expression where a point (**x, y**) is scaled with factors **S_x** and **S_y** about an arbitrary point (**a, b**)

4. If a straight line segment joining two given points undergoes any Transformation, the midpoint of the segment undergoes the same Transformation… Justify your answer with proper mathematical analysis.

5. What do you mean by Orthogonal Transformation? Exemplify.

6. **ΔPQR** in **[Fig. 1]** is magnified 4 times its size keeping the point R fixed. Find the other two vertices.

P (0,0)

Q(2,2)   R(10,4)

Figure-1

7. Transform a square **PQRS**, such that it becomes half its size and its center of mass becomes **(-1, -1)**. Refer to **[Fig. 2]** for numerical values.
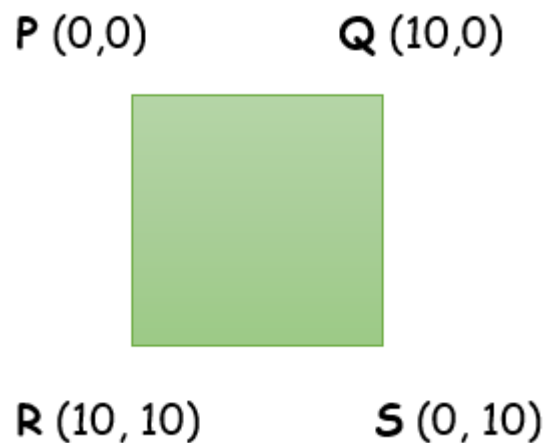
P (0,0)   Q (10,0)

R (10, 10)   S (0, 10)

Figure-2