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| Engineering and Technology | | | |
| Ramaiah University of Applied Sciences | | | |
| Department | Computer Science and Engineering | Programme | B. Tech. |
| Semester/Batch | 6th/2017 | | |
| Course Code | 19CSC309A | Course Title | Computer Graphics |
| Course Leader(s) | Deepak V. and Dr. Subarna Chatterjee | | |

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| Questions | Marking Scheme | | Marks | | |
| Max Marks | First Examiner Marks | Moderator |
| 1 |  | | | | |
| 1.1 | Introduction | 3 |  |  |
| 1.2 | Implementation of transformation | 5 |  |  |
| 1.3 | Results with screenshots and discussion | 2 |  |  |
| **Question 1 Max Marks** | | **10** |  |  |
| **Total Assignment Marks** | | | 10 |  |  |

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| **Course Marks Tabulation** | | | | |
| **Question** | **First Examiner** | **Remarks** | **Moderator** | **Remarks** |
| 1 |  |  |  |  |
| **Marks (Max 10 )** |  |  |  |  |
| **Signature of First Examiner Signature of Moderator** | | | | |

**Please note:**

1. Documental evidence for all the components/parts of the assessment such as the reports, photographs, laboratory exam / tool tests are required to be attached to the assignment report in a proper order.
2. The First Examiner is required to mark the comments in RED ink and the Second Examiner’s comments should be in GREEN ink.
3. The marks for all the questions of the assignment have to be written only in the **Component – CET B: Assignment** table.
4. If the variation between the marks awarded by the first examiner and the second examiner lies within +/- 3 marks, then the marks allotted by the first examiner is considered to be final. If the variation is more than +/- 3 marks then both the examiners should resolve the issue in consultation with the Chairman BoE.

**Assignment**

**Instructions to students:**

1. The assignment consists of **1** question.
2. Maximum marks is **10**.
3. The assignment has to be neatly word processed as per the prescribed format.
4. The maximum number of pages should be restricted to **5**.
5. The printed assignment must be submitted to the course leader.
6. **Submission Date: 26/03/2020**
7. **Submission after the due date is not permitted.**
8. **IMPORTANT**: It is essential that all the sources used in preparation of the assignment must be suitably referenced in the text.
9. Marks will be awarded only to the sections and subsections clearly indicated as per the problem statement/exercise/question

**Preamble**

This course is intended to teach the concepts of computer graphics and prepare students to create, manipulate and render 2D/3D graphics using graphics algorithms. Students are introduced to the graphics system, its components and applications. Graphics pipeline including 2D/3D transformation, viewing, clipping, illumination and shading are taught. Algorithms involved in different stages of the graphics pipeline as well as visible surface detection are dealt with in detail. Students are also taught representation and visualization of output primitives, curve and surfaces. Students are trained to develop graphics application using graphics algorithms with high level programming language and graphics library.

**Question 1** **(10 Marks)**

A polygon (triangle/square) has to be implemented for the upcoming RUAS graphics exhibition. The polygon is transformed by rotating ZZ ⁰ about the origin in Open GL. Thereafter translate the transformed triangle 4, 8 units in X and Y directions respectively and finally apply the scaling transformation with scaling factor Sx = 5 and Sy = 6.

**Note: Type of polygon and rotation angle will be specified by the course leader.**

**Vertices of the polygon can be carefully chosen by the student.**

Your report should include the following:

**1.1** Introduction to the problem

**1.2** Implementation of transformation

**1.3** Results with screenshots and discussion