

## **CE 3310: Advanced Structural Analysis**

### **Review Questions : Basic Matrix Concepts (Module 3)**

1. Prove that the force response obtained by applying static equilibrium concepts in a statically determinate structure also satisfies compatibility of displacements.
2. Prove that the stiffness matrix for a linear elastic structure is symmetric. What are the other typical characteristics of the structure stiffness matrix?
3. Are the element stiffness matrix and element flexibility matrix always non-singular?
4. What is the advantage in the reduced element stiffness formulation? Will it result in the same structure stiffness matrix as the conventional element stiffness formulation?
5. Compare and contrast the stiffness and flexibility methods of matrix analysis of structures. Hence, explain why the stiffness method is preferred by softwares for structural analysis?