**BBDNITM**

**MECHANICAL DEPARTMENT**

**SESSION(2018-19)**

**COMPUTER AIDED DESIGN [NME-701]**

**ASSIGNMENT No. 5**

Q 1. Derive a general expression for the global stiffness matrix, taking bar

element.

Q 2. Explain general methodology of solving a design problem using FEM. Also

write the advantages and application of FEM.

Q 3. What is Discretization in FEM ?

Q 4. The 1-D element has a length of 200 mm. The temperature at nodes 1 & 2 are

1000 & 400 respectively. Evaluate the shape functions associated with nodes

1& 2, if the temperature to be estimated at point P within element, situated at

150 mm from node 1. Also calculate temperature at point p.

Q 5. Define Element Stiffness Matrix.

Q 6. Explain the concept of Finite Element Method.

Q 7. Explain 2D & 3D elements used in FEM along with their applications.

Q 8. State & explain the different co-ordinate systems used in Finite Element

Analysis.

Q 9. Why Shape Functions are used in FEA ? Explain with neat sketch.

Q 10. State the properties of Global Stiffness Matrix.