

**Code No: C1509**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**M.Tech I - Semester Examinations, March/April-2011**

**MECHANICS OF COMPOSITE MATERIALS**

**(MACHINE DESIGN)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) Differentiate between thermo sets and thermo plastics.
- b) What are important characteristics of boron carbide fibers? How they are produced. [12]
- 2.a) What are metal – matrix composites? Discuss their important properties and applications.
- b) Differentiate between natural and non – made composites. [12]
- 3.a) What are unidirectional composites? Explain their constituent materials and properties.
- b) Discuss about coordinate transformations in composite materials. [12]
4. Derive the stiffness matrix Q for orthotropic lamina. [12]
5. What is Tsai – Hill criterion? Explain. [12]
6. What are the advantages of composites in structural design? Explain. [12]
7. Explain the Ritz method of finite elements analysis. [12]
- 8.a) Explain the characteristics of the composite materials.
- b) What are thermoplastics? Explain their applications with examples. [12]

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