

## **AMC-10 : SOLID MECHANICS**

### **1. ANALYSIS OF STRESS**

Introduction, stress, complementary shear stress, simple shear, the state of pure shear, principal stresses and principal planes, sign convention, Mohr's circle for biaxial stresses, Mohr's circle.

### **2. ANALYSIS OF STRAIN**

Introduction, Strain On An Oblique Plane, Mohr's Circle Of Strain, Compatibility Equations

### **3. STRESS – STRAIN RELATIONS FOR LINEARLY ELASTIC SOLIDS**

Introduction, Hooke's Law, Poisson's Ratio, Differential Equation Of Equilibrium, The Stress Function-Plane Stress

### **4. THEORY OF FAILURE**

Introduction, Maximum Principal Stress Theory, Maximum Shearing Stress Theory, Maximum Strain Theory, Significance Of Theories Of Failure, Factor Of Safety

### **5. ELASTIC STABILITY**

Introduction, Failure Of A Column Or Strut , Euler's Column Theory , A Sign Conventions , Limitation Of Euler's Formula , Empirical Formula For Columns, Rankine's Formula For Columns, Euler's Formula

