

8. Explain the followi

(a) Hume Rothery's laws for alloys. (10)

(b) Polymerization (10)

Roll No. ....

**23397**

**M. Tech. 1st Sem. Civil Engg.  
(Specialisation in Structural  
Design) Examination-  
December, 2016**

**MATERIAL SCIENCE**

**Paper : MTSD-110**

***Time : 3 hours***

***Max. Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

**Note:** Attempt any **five** questions. All questions carry equal marks.

1. (a) Define material science. Give the classification of material. (10)

- (b) Discuss the difference between the mechanism of solid solution and its application. (10)
2. What is the role of heat treatment in material science? Discuss various heat treatment processes in detail. (20)
3. Explain the following (20)
- (i) Crystalline, non-crystalline structure of material.
- (ii) Effect of alloying elements on steel.
4. What is the role of ceramic material? Discuss the general structure and properties of ceramic in detail. (20)

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5. (a) Define the composite material. What are various types of composite material? (10)
- (b) What is the role of plastic material? Discuss the structure and properties of plastic. (10)
6. What is the role of Cement and Concrete? What is hydration mechanism. Also discuss the microstructure and related properties. (20)
7. Write short note on the following :
- (a) Corrosion and Oxidation (10)
- (b) Radiation Damages (10)