**Printed Pages : 1** **Roll No.** | | | | | | | | | | | **NEE801**

# B. TECH.

## THEORY EXAMINATION (SEM–VIII) 2016-17

## ELECTRICAL AND ELECTRONICS ENGG. MATERIALS

***Time : 3 Hours*** ***Max. Marks : 100***

***Note :*** *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

### SECTION – A

**1. Attempt all parts of the following questions:** **10 x 2 = 20**

**(a)** Define fatigue in materials.

**(b)** What are unit cells?

**(c)** Define polymorphism and allotropy in crystal.

**(d)** Classify different solid materials based on conductivity.

**(e)** Define Fermi energy.

**(f)** What do you mean by doping?

**(g)** Write few applications of superconductivity

**(h)** What do you mean by ionic bonds .Give example.

***(i)*** Define magnetic induction, or magnetic flux density.

**(j)** What are intrinsic and extrinsic semiconductors?



### SECTION – B

**2. Attempt any five of the following questions:** **5 x 10 = 50**

**(a)** Explain superconductivity phenomenon in detail.

**(b)** Explain X-RAY diffraction phenomenon.

**(c)** Explain piezoelectricity in materials.

**(d)** Explain transistors and their phenomenon of operation**.**

**(e)** Explain types of polarization**.**

**(f)** Explain Hall Effect in detail.

**(g)** Determine atomic packing fraction and volume of FCC crystal structure.

**(h)** Explain stress strain concept in solids.

### SECTION – C

**Attempt any two of the following questions:** **2 x 15 = 30**

**3.** Explain defects in crystals**.**

**4.** Draw table for Lattice Parameter Relationships and Figures Showing Unit Cell Geometries for the Seven Crystal Systems**.**

**5.** Classify different magnetic materials.