

Code No: 135CC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, May/June - 2019

ELECTRICAL ENGINEERING MATERIALS

(Common to ECE, CSE)

Time: 3 hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A****(25 Marks)**

- 1.a) Give and explain in brief the broad classification of materials. [2]
- b) Explain the term Dielectric Constant. [3]
- c) List the classification of magnetic materials. [2]
- d) What do you mean by Curie point and give its significance? [3]
- e) What are majority carriers and minority carriers? [2]
- f) Distinguish between conductors, Insulators and Semiconductors. [3]
- g) Distinguish between Linear and non linear conductors. [2]
- h) List the different materials used for resistors. [3]
- i) List the applications of mineral oils. [2]
- j) What do you mean by impregnation of materials? [3]

**PART - B****(50 Marks)**

2. What do you mean by Dielectric loss and explain it's Significance along with the factors affecting it? [10]

**OR**

- 3.a) Explain the electric conductivity of gaseous Dielectric and their break down mechanism.
- b) List the applications of Dielectric materials in detail. [5+5]
- 4.a) What do you mean by ageing of magnets?
- b) Which materials are called as Special purpose materials and why they are called So? [5+5]

**OR**

5. Explain the significance of magnetization curve and what information can be retrieved from its Characteristics. [10]
- 6.a) Explain about Electron Energy and Energy band Theory.
- b) Distinguish between Intrinsic Semiconductors and Extrinsic Semiconductors. [5+5]

**OR**

- 7.a) List and explain the different applications of Semiconductors in detail.
- b) Explain the basic operation of a PNP Transistor. [5+5]

- 8.a) Explain the requirements of materials of high conductivity.  
b) Distinguish between hard and Soft Solders in detail. [5+5]

**OR**

- 9.a) List and explain the factors that depend on the Fusing Current.  
b) Explain about Solid, liquid and gaseous insulating materials and give an example and application of each type. [5+5]

- 10.a) What are Refractory materials and give its applications?  
b) List the properties of mineral oils. [5+5]

**OR**

- 11.a) Explain the procedure for testing of transformer oil as per the ISI Standards.  
b) What do you mean by galvanization and what for it is used in materials? [5+5]

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11-06-2019 PM