

Code No: 135CC**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, October - 2020****ELECTRICAL ENGINEERING MATERIALS****(Common to ME, ECE, CSE)****Time: 2 hours****Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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- 1.a) What is polarization? Explain about different types of polarization.
b) Distinguish between pyro- electric and piezo – electric materials, give example of each. [7+8]
- 2.a) What is dielectric loss? Explain loss tangent and its significance.
b) Explain the concept of anti-ferromagnetism and use of such materials. [8+7]
- 3.a) Give the classification of magnetic materials in detail with properties and applications of each class.
b) List the differences between hard and soft magnetic materials. [8+7]
- 4.a) Draw a typical loop for a ferromagnetic materials and explain. Show the residual magnetism and coercive force on a loop and define them.
b) Write a short notes on ageing of magnets. [9+6]
- 5.a) What is Intrinsic Semiconductor and Extrinsic Semiconductor? What is the effect of temperature on an extrinsic semiconductor material? Explain.
b) What is meant by doping and doping agent? Explain. [9+6]
6. Explain different VLSI techniques. [15]
- 7.a) Explain about the materials used for electric contacts emphasizing on their properties.
b) Explain the effect of moisture on insulation in detail. [8+7]
- 8.a) Describe the various applications of Radioactive Materials in Electrical Engineering.
b) State the properties and applications of mineral oils in electrical engineering. [7+8]

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