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Roll No

EE/EX-5005(2)-CBGS

B.E. V Semester

Examination, December 2020

Choice Based Grading System (CBGS)

Electrical and Electronic Materials

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) State the factors which affect the resistivity of conducting materials. 7
b) Why is copper preferred to material for winding of electrical machines as compared to aluminum? 7
2. a) Write short note on low resistivity copper alloys. 6
b) What is meant by the term dielectric strength of an insulating material and how is it expressed? What are the factors, which affect the dielectric strength? 8
3. a) What are the varnishes? Write constituents of varnishes. Give uses and classification of varnishes. 7
b) What are rubber insulating material? Explain its various types. 7
4. a) Explain with suitable diagrams the conduction band, valence band and forbidden energy band in solids. 7
b) What do you understand by semiconductors? Write properties and applications of semiconductors. 7

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5. a) State and explain Hall effect. 7
b) What is ferromagnetism? Explain hysteresis loop for ferromagnetic materials. 7
6. a) Draw the typical B-H curve of soft and hard magnetic materials. Give reasons for their shape. 7
b) Define the terms permeability, magnetization and susceptibility and hence establish relation between magnetic field intensity H and flux density B. 7
7. a) Discuss physical and electrical properties of SF₆. 7
b) What is superconductivity? Explain the effect of magnetic field and frequency on super conductivity. 7
8. Write a short notes on any two of the following: 7 each
a) Piezo electricity and Ferro electricity
b) Nanomaterials
c) Photo transistors

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