

III- SEM-ELECT/ E&M/2019(W)/NEW
Th.4- ELECTRICAL ENGINEERING MATERIAL

Full Marks: 80

Time: 3 Hours

Answer any FIVE Questions including Q No. 1 & 2

Figures in the right hand margin indicates marks

1.	Answer ALL the Questions. (a) Define 'Resistivity'? (b) Name the materials which are used in making filament lamps? (c) What are bimetals? (d) What are advantages of using bundle conductors in EHT lines? (e) What is intrinsic semiconductor? (f) List four applications of semiconductor materials? (g) What is ageing? (h) Define permittivity. (i) What is magnetostriction? (j) Name four materials used for thermocouples.	2x10
2.	Answer any SIX Questions: (a) Why carbon material is used as brushes in electrical machine? Mention other applications of carbon in field of electrical engineering. (b) Give examples each of low resistivity and high resistivity materials and mention their application in electrical field. http://www.sctevtonline.com (c) With the help of energy band concept differentiate among semiconductor, conductors and insulators. (d) Explain about P-Type and N-type materials. (e) Write short notes on thermal properties of insulating materials. (f) What is dehydrating material and state its application? (g) What are soft and hard magnetic materials?	5x6
3.	Explain the effect of temperature, alloying and mechanical stress on resistivity of a conducting material.	10
4.	(a) Write in brief about superconductivity and their application. (b) Why glass is used as insulating material and what are its uses?	5x2
5.	(a) State the application of dielectrics. (b) Briefly explain about fuse materials.	5x2
6.	Write notes on Diamagnetism, Para magnetism and Ferromagnetism.	10
7.	Write short notes on any TWO: (a) PVC (b) Polarisation (c) Hall effect generators	5x2