

Total No. of printed pages = 2

CAI-405/EC&M/4th Sem/2016/N

**ELECTRONIC COMPONENTS  
AND MATERIALS**

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

Answer any *five* questions.

1. Write the properties of the following materials :  
Nickel, Nichrome, Constantan, Carbon, Manganese, Silicon, Tungsten. 7×2=14
  
2. Give the general comparison of metal / alloy film resistors, metal oxide resistors and carbon film resistors. 14
  
3. (a) What are self inductance and mutual inductance ? 4
  
- (b) What are the different types of losses in a transformer ? Explain each. 10

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4. (a) What is an integrated circuit ? How integrated circuits are classified ? 6
- (b) Define the terms : 8  
Dielectric strength, Dielectric constant, Dielectric loss, Loss angle.
5. (a) What are magnetostriction and hysteresis ? 6
- (b) How an antiferromagnetic material differs from ferromagnetic material ? 3
- (c) Explain the piezo-electric phenomenon. 5
6. (a) What is a super conductor ? How super conductors are classified ? 6
- (b) Explain any one method of electromagnetic shielding. 8
7. Write short notes on : 7×2=14
- (a) Ceramic materials
- (b) Paper capacitors.