SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR Total number of pages:[2] ROLL No: Total number of questions: 06 B.Tech. || EE || 4th Sem ELECTRICAL ENGINEERING MATERIAL M/18 Subject Code: BTEE-401A (RG)RP) Paper ID: (2015 onwards) Max Marks: 60 Time allowed: 3 Hrs **Important Instructions:** All questions are compulsory Assume any missing data PART A (10x 2marks) All COs Short-Answer Questions: Q. 1. (a) Define Dielectric Strength. (b) Name the types of polarization which occur in the dielectrics. (c) What is the difference between an insulator and a dielectric? (d) Give the expression for Curie Weiss law and explain. (e) What are the factors that affect insulation resistance? (f) Write an expression for the current through the capacitor considering complex dielectric. (g) What are the parameters of resistivity of a metal? State the relation for resistivity. (h) Define Curie Point. (i) State the properties required by the materials for permanent magnet. (j) Write down the characteristics of a good conductor material. PART B (5×8marks)

OR

between copper and aluminum on the basis of their properties and also give

Q. 2.

their applications.

Enumerate some properties of good conducting materials. Differentiate CO

Explain Para magnetism. Derive an expression for magnetic susceptibility.

Q. 3. Describe the electrical & thermal properties that are required of a good CO2 insulator. Explain in detail the various types of insulating materials used for capacitors, line insulators and switchgear.

OR

What is photo-conductivity? Explain the construction and principle of operation of a Photo-Voltaic cell with equivalent circuit diagram.

Q. 4. Explain the characteristics of magnetic materials used for electrical apparatus. CO3

Draw arrangement of dipole moments in different magnetic materials.

OR

What is magnetization? Explain spontaneous and saturation magnetization. What are soft and hard magnetic materials and also give the applications of ferromagnetic materials?

Q. 5. What are dielectrics? Write the various factors affecting the dielectrics. Also CO2 explain the breakdown process in solid, liquids and gases.

OR

Derive the Clausius Mosotti equation for dielectric materials.

- Q. 6. Write short notes on following:
 - (a) Dielectric loss and loss tangent.
 - (b) Ferromagnetism & ferri-magnetism,

OR

- (a) lonic polarization.
- (b) Superconductivity and Super conductors.

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