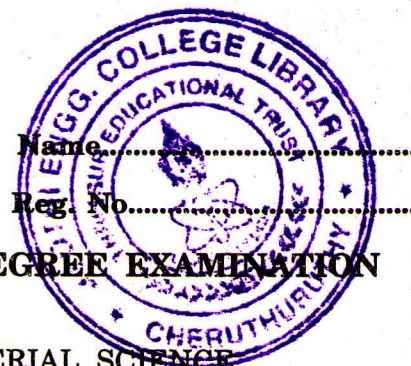


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**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
DECEMBER 2011**

EE 04 506—ELECTRICAL ENGINEERING MATERIAL SCIENCE

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

- I. (a) Explain the Ferromagnetic domain and Contact potential.
(b) Explain Compound semiconductors.
(c) Write short notes on Domain theory.
(d) Explain Clausius and Mosotti relation.
(e) Briefly explain the various inorganic materials.
(f) Classify the insulating materials based on temperature.
(g) Discuss the properties of Silicon.
(h) Explain Ferromagnetic resonance with a neat diagram. (8 × 5 = 40 marks)
- II. (a) Discuss briefly the materials used for electric resistance. (15 marks)
- Or*
- (b) (i) Explain hysteresis curve with a neat diagram. (7 marks)
(ii) Write short notes on hard and soft magnetic materials. (8 marks)
- III. (a) Explain dielectric loss and domain theory with a neat diagram. (15 marks)
- Or*
- (b) Derive an expression for electronic polarisation in monatomic gases. (15 marks)
- IV. (a) (i) Explain the various insulator materials used in electrical apparatus. (8 marks)
(ii) Explain the mechanism of breakdown in gases. (7 marks)
- Or*
- (b) (i) What are the various factors influencing dielectric strength ? (8 marks)
(ii) Explain briefly about the ageing of insulators, (7 marks)
- V. (a) Discuss the properties of Cadmium sulphide, Silicon and Gallium Arsenide. (15 marks)
- Or*
- (b) Explain magnetic resonance with a neat diagram. (15 marks)
- [4 × 15 = 60 marks]