



B.E. / B.Tech.(Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL /MAY, 2011  
ELECTRICAL AND ELECTRONICS ENGINEERING BRANCH  
SECOND SEMESTER

8

**PH 184 - PHYSICS FOR ELECTRICAL ENGINEERING**

(REGULATIONS 2004)

Time : 3 Hours

Max. : 100 Marks

Answer **ALL** questions

**Part-A**

(10 x 2 = 20 Marks)

1. Define electrical conductivity.
2. Distinguish between conductor and semiconductor on the basis of their electrical conductivity.
3. What are extrinsic semiconductors? Give example.
4. Define Hall effect and Hall voltage.
5. What is hysteresis in magnetic materials?
6. How are different magnetic materials classified?
7. What are dielectrics?
8. Distinguish between fluorescence and phosphorescence.
9. What are conducting polymers?
10. What are cermets?

**Part-B**

(5 x 16 = 80 Marks)

11. Based on free electron theory derive an expression for the electrical conductivity.

12. (a) Discuss in detail the mechanism of intrinsic conduction in semiconductors.

Derive an expression for conductivity of an intrinsic semiconductor in terms of carrier concentration and carrier mobility.

(or)

(b) Explain the superconducting phenomena. What are its properties? What are its applications?

Contd... 2 ...

13. (a) Describe Langevin theory for a paramagnetism material and obtain expression for the susceptibility. What are the main draw backs of the theory?

(or)

(b) Explain in detail, how data are stored in magnetic materials? What are the functions of writing and reading heads? How are they designed?

14. (a) Explain the different types of polarisation mechanism in dielectric. What is meant by local field? Derive Clausius-Mosotti equation.

(or)

(b) What is dielectric break down? Summarize the various factors contributing to break down in dielectrics.

15. (a) Discuss in detail the properties and applications of metallic glasses.

(or)

(b) Give an account on different types of fiber reinforcement in plastics.