

Fifth Semester B.Tech Degree Examination (2013 scheme)
Engineering Material Science (Elective) 13.506.1
Model question paper

Time: 3 hrs

Max Marks : 100

PART A

Answer all questions from Part A

- 1) Explain the term electron attachment
- 2) Define Townsend's first and second ionization coefficients
- 3) Explain the difference between photo- ionization and photo-electric emission
- 4) Describe the various factors that influence breakdown in gas
- 5) Discuss the properties of transformer oil
- 6) Discuss the applications of SF₆
- 7) Define partial discharge
- 8) What is the difference between treeing and tracking
- 9) Mention the properties of copper and aluminium
- 10) What are applications of soft and hard magnetic materials? (10x2 = 20 marks)

PART B

- 11) a) State and explain Paschen's law (10 marks)
b) Explain the streamer theory of breakdown in air at atmospheric pressure (10 marks)
OR
- 12) a) Describe the current growth phenomena in a gas subjected to uniform fields (10 marks)
b) Explain the experimental set up for measurement of pre breakdown currents in a gas (10marks)
- 13) Discuss the various mechanisms of vacuum breakdown (20 marks)
OR
- 14) Explain the various theories that explain breakdown in commercial liquid dielectrics (20 marks)
- 15) Explain abc equivalent circuit of partial discharge (20 marks)
OR
- 16) Explain the mechanisms of breakdown in solid dielectrics (20 marks)
- 17) What are the different types of magnetic materials .Discuss its properties (20 marks)
OR
- 18) a) Write short notes on super conductivity (10 marks)
b) Mention the properties of non linear resistors (10 marks)

