

**SUBJECT CODE NO:- P-105**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**S.E. (EEP/EE) Examination MAY/JUNE-2016**  
**Electrical Engineering Materials**  
**(Revised)**

[Time:Three Hours]

[Max Marks:80]

“Please check whether you have got the right question paper.”

N.B

- i) Q.No.1 Q.No.6 are compulsory.
- ii) Solve **any two** questions from the remaining questions in each section.

Section A

- Q.1 Attempt **any five** from following: 10
- i) Define polarization.
  - ii) Define photo conductivity.
  - iii) Define dielectric break down strength with unit of measurement.
  - iv) Define magnetic susceptibility.
  - v) Define Ferri-magnetism
  - vi) List out Ferro magnetic materials.
  - vii) List out materials used for rotating machines.
- Q.2 a) Explain mechanism of oriental polarization with neat sketches. 08  
b) Explain with neat diagram the phenomenon of photo – electric emission. 07
- Q.3 a) Explain in detail concept of primary and secondary ionization of gases, with neat sketches. 08  
b) Explain the method to find out Breakdown strength of solid dielectric materials in lab with diagrams. 07
- Q.4 a) With neat diagram explain the properties of 08  
i) Para magnetism &  
ii) Diamagnetism  
b) Discuss the concept of Anti-ferromagnetism. 07
- Q.5 a) Differentiate the magnetic properties required for magnetic material used for a transformer & for a DC motor. 07  
b) Discuss the factors affecting Breakdown strength of Gaseous insulating materials. 08

Section B

- Q.6 Attempt **any five** from following 10
- a) List out the properties of a conducting material.
  - b) List out different type of fuses.
  - c) Give example of any two metals used in Thermal Bimetal Relay.
  - d) Define energy Bond.
  - e) Define Di-electric loss angle.
  - f) Define Di-electric strength.
  - g) Name two material used as an Heating element
  - h) List out various conducting mechanisms in nanostructures.

Q.7	a) With example & neat sketches, explain the use of low resistivity materials for specific application.	08
	b) Explain in details the need of Alloys for thermo couples.	07
Q.8	a) Explain in detail any one conducting mechanism in nano-structures.	08
	b) Explain with neat sketches, the concept of nano tubes.	07
Q.9	a) Write a note in brief on BN Nano tubes.	08
	b) With neat diagram explain the step by step method for measurement of Dielectric Gaseous insulating materials in Laboratory as per IS 2584.	07
Q.10	a) What do you understand by the term partial discharge? Explain in detail.	08
	b) Write short notes on characteristics id of Brass & Bronze.	07