**P-5381**

**[6186]-507**

# S.E. (Electrical Engineering) (Insem.)
# MATERIAL SCIENCE
## (2019 Pattern) (Semester - III) (203142)

*Time : 1 Hour]*          *[Max. Marks : 30*

*Instructions to the candidates:*

1) *Answer Q1 or Q2, Q3 or Q4.*
2) *Figures to the right indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Assume suitable data, if necessary.*
5) *Use of non-programmable calculator is allowed.*

*Q1)* a) Write short note on Polar and Non-Polar dielectric materials with examples. **[7]**

b) Define the following terms : **[8]**

    i) Electric flux density

    ii) Polarizability

    iii) Susceptibility

    iv) Polarization

### OR

*Q2)* a) What are different mechanisms of polarization? Explain any two with diagram. **[7]**

b) State the assumptions of Clausius Mosotti relation from the first principle applied to dielectric materials. **[8]**

*Q3)* a) Explain with factors affecting on the following terms : **[7]**

    i) Breakdown Strength

    ii) Breakdown Voltage

b) With circuit diagram explain a method for determining dielectric strength of a PVC sheath as per relevant IS 2584 code of practice. **[8]**

*P.T.O.*

OR

*Q4)* a) Explain various factors affecting breakdown strength of liquid dielectric materials. **[7]**

b) With neat sketch explain how to measure (tanδ) loss tangent with the help of schering bridge. **[8]**

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