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Reg. No. : .....

Name : .....

Fourth Semester B.Tech. Degree Examination, February 2015
(2008 Scheme)
Branch : Electrical and Electronics
08.405 : ENGINEERING MATERIALS SCIENCE (E)
(Special Supplementary)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions. **All** questions carry **4** marks **each**.

1. What is deionizationprocess in gases ?
2. What are the desirable properties of a gaseous dielectric for high voltage applications ?
3. What is Paschen's law ?
4. What is time lag ? Differentiate between statistical and formative time lag.
5. Mention the properties and applications of paper and plastic.
6. What are the advantages of using SF_6 in power switch gears ?
7. What is Trichol pulse ?
8. Give a brief account of non-linear resistor.
9. What are ceramic materials ?
10. What are the properties of transformer oil ? **(10×4=40 Marks)**

P.T.O.

PART – B

Answer **any one** full question from **each** Module. **Each** question carries **20** marks.

Module – I

11. a) Define Townsend's first and second ionization coefficients. How is the condition for breakdown obtained in a Townsend discharge ?

    b) Explain the Streamer theory of breakdown in gases.

OR

12. a) What is Corona ? Briefly explain positive point corona.

    b) Discuss the applications of SF_6 gas and its mixtures in electrical insulation.

Module – II

13. a) Discuss the breakdown mechanisms in liquids.

    b) How does the 'internal discharge' phenomena leads to breakdown in solid dielectrics ?

OR

14. a) Discuss the properties of polyethylene, cross-linked polyethylene and polypropylene as insulator.

    b) What is treeing and tracking ? Explain the two processes in solid dielectrics.

Module – III

15. a) Distinguish between soft and hard super conductors.

    b) What is magnetic hysterisis ? Based on ferromagnetic domain explain the shape of B – H loop.

OR

16. a) Explain the properties of silicon steel. Discuss the treatment of silicon steel.

    b) What are the desirable properties of a low resistivity material ? **(20×3=60 Marks)**
