Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Electronics & Electrical)/(EE) (2012 Onwards)
B.Tech. (Electrical & Electronics)/ (Electrical Engineering) (Sem.–7)

HIGH VOLTAGE ENGINEERING

Subject Code : BTEE-802
M.Code : 71931

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1. Define the insulation co-ordination.
2. Define the critical HVDC voltage for corona.
3. Explain the causes of RI generation in transmission line.
4. Write any four disadvantage of HVDC transmission.
5. Define the streamer theory of breakdown.
6. Write any four name of insulating liquid used in high voltage equipments.
7. Explain the term electron attachment in gases.
8. What do you understand by intrinsic strength of a solid dielectric?
9. Define the front and tail times of an impulse wave.
10. What is trigatron gap?

SECTION-B

11. Explain why certain corona is inherent in new EHVAC lines and HVDC lines? Why corona-loss lines are not practically possible?

12. Explain any two theories that explain breakdown in commercial liquid dielectrics.

13. Indicate the solid insulation application in a) cable b) power capacitor.

14. Explain the phenomenon treeing and tracking in solid insulating materials under electrical stress. How does it lead to breakdown?

15. Discuss any methods of measuring high dc voltages and also discuss its limitations.

SECTION-C

16. Why is a Cock-Craft Walton circuit preferred for voltage multiplier circuits? Explain its working with a schematic diagram.

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

    b. What will be the breakdown strength of air be for small gaps (1 mm) and large gaps (20 cm) under uniform field conditions and standard atmospheric conditions?

18 Write short notes on the following :

    a. Series and shunt compensation in EHV lines.

    b. Measurement of impulse voltage.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.