

SECTION - D

Dec.-23-0446

EE-504 (High Voltage Engineering)

B.Tech. 5th (CBCS)

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question each from Sections A, B, C and D. Section E is compulsory.

SECTION - A

- 1. (a) Explain the Insulation System and its types. (5)
- (b) Explain the characteristics of gaseous insulation and processes of ionization in a gas. (5)
- 2. Explain the different mechanisms of breakdown of solids. (10)

SECTION - B

- 3. Explain how transmission lines and substations are protected against lightning. (10)
- 4. Write a few characteristics of lightning stroke. (10)

SECTION - C

- 5. What is an impulse generator? Describe the construction and application of Multistage Marx's impulse voltage generator. (10)
- 6. What is the role of front and tail resistance to produce a given wave shapes? (10)

- 7. (a) Explain the method of measurement of very high voltages using sphere gaps. Mention its merits and demerits. (5)
- (b) Explain the principle of operation of Electrostatic voltmeter. (5)
- 8. Explain the measurement of high voltages by using ammeter in series with high voltage resistors and voltage divider. (10)

SECTION - E (Compulsory)

- 9. Write brief answers. All carry equal marks.
 - (i) Define gaseous discharge.
 - (ii) Define Paschen's Law.
 - (iii) What is a switching surge?
 - (iv) What is electrical breakdown strength of dry air?
 - (v) Define rise time of standard impulse wave.
 - (vi) Write five major properties of insulation liquids.
 - (vii) What is a Lightning Arrestor?
 - (viii) Write name of five solid insulating materials. Out of five solid insulating materials which has lowest and which material has highest permittivity?
 - (ix) Describe the working of Single Stage Impulse Generator. (10x2=20)
 - (x) Define Insulation Co-ordination. (10x2=20)