[Total No. of Questions - 9] [Total No. of Printed Pages - 2]

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)

SECTION - D

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.

   (x) Define Insulation Co-ordination. (10×2=20)