

8. Write short notes on any *two* of the following : **10×2**

- (a) Corona
- (b) Critical voltage
- (c) Power loss.

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Roll No.

512

B. Tech. EXAMINATION, Dec. 2017

(Fifth Semester)

(Old Scheme) (Re-appear Only)

(EE)

EE-315

POWER SYSTEMS—I

Time : 3 Hours

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) What is auxiliary supply ? Explain in detail. **10**

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- (b) Explain different components of substations with neat diagrams. **10**
2. (a) Explain radial electrical power distribution system. **10**
- (b) Differentiate between AC and DC Distribution Systems. **10**
3. (a) Calculate the loop inductance per km of a single phase transmission line comprising of two parallel conductors one metre apart and 1.25 cm in dia (as shown in Fig.). Also calculate the reactance of the transmission line if frequency is 50 Hz. **10**
- A 1.25 cm D/A B
 1 m
- (b) Explain Ferranti effect. **10**
4. (a) Explain general network constants for medium lines. **10**
- (b) What is transmission line ? Explain model of long transmission line. **10**

5. Explain effect of wind and ice loading. **20**
6. (a) Explain equalizer rings in details. **10**
- (b) A string of 6 suspension insulators is to be graded to obtain uniform distribution of voltages across the string. If the pin-to-earth capacitances are all equal to C and the mutual capacitance of the top insulator is 10 C find the mutual capacitance of each unit in terms of C. **20**
7. (a) An overhead line consists of 7 strands of copper, having a cross-sectional area of 2.5 sq. cm, Calculate the vertical sag for a span of 250 metres where the other parameters are given below :
 Weight of the conductor = 1.8 kg/m,
 Ultimate strength = 8000 kg/cm²,
 Wind pressure = 40 kg/cm². **10**
- (b) Explain types of LV cables in details. **10**