

5E5045

Roll No. :

Total Printed Pages : 3

5E5045

B. Tech. (Sem. V) (Mercy Back) Examination, November 2018  
Electrical & Electronics Engg.

5EX5A Transmission & Distribution of Electrical Power (EE, EX)

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)*

1. NIL 2. NIL

### UNIT - I

- 1 (a) Describe basic network of power system. Also explain effect of system voltage of conductor and losses. 8
- (b) Compare the volume of conductor material required for a d.c. two wire system and A.c. three-phase three-wire system on the basis of equal maximum difference between conductor and earth. 8

### OR

- 1 (a) Explain Kelvin's law for determination of conductor size. Discuss its practical limitations. 8
- (b) Write short note on Radial, Ring Main and Interconnected system. 8

5E5045 ]

1

[ P.T.O.

## UNIT - II

- 2 (a) Explain method of calculating sag and tension of conductor in a power system. 8
- (b) A transmission line has a span of 240 meters. Find the weight of the conductor per meter length if the sag ultimate tensile strength and factor of safety are 1.6 meters, 5200 kg and 2 respectively. 8

OR

- 2 (a) Describe the various types of conductor material used transmission and distribution system. 8
- (b) What are the causes of vibrations in overhead transmission lines ? How can these vibration be damped out ? 8

## UNIT - III

- 3 (a) How is the inductance of a single phase two wire line calculated ? Describe the process how you will calculate the inductance of each conductor here due to internal and external flux linkage. 12
- (b) Explain briefly the skin effect in a transmission line. 4

OR

- 3 (a) Draw phasor diagram of a short transmission lines and derive an expression for voltage regulation. 8
- (b) Explain the capacitance of three phase line with symmetrical spacing. 8

**UNIT - IV**

- 4 (a) Derive the expression for A, B, C and D constants of a long transmission line in term of line parameters. 10
- (b) Write short note on Ferranti effect. 6

**OR**

- 4 (a) Explain the phenomenon of Corona. What are the factors affecting corona? 8
- (b) Write short note on interference of power line with communication circuits. 8

**UNIT - V**

- 5 (a) Name the different types of insulators used in power system along with the use of each insulator and explain pin type insulator in detail. 8
- (b) What is string efficiency ? Define the method of improving string efficiency. 8

**OR**

- 5 (a) Derive a formula for electric stress in single core cable. Where is stress maximum ? Where is it minimum ? 8
- (b) Describe general construction of underground cable. What are the necessary requirement of a cable ? 8