

**B.Tech. - VIEP - ELECTRICAL ENGINEERING
(BTELVI)**

00525

**Term-End Examination
June, 2019**

BIEE-003 : POWER SYSTEM - I

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks. Use of scientific calculator is allowed.

1. (a) List the advantages and disadvantages of high voltage transmission. Give a comparative study between dc high voltage transmission and ac high voltage transmission. 8
- (b) What is the use of bundled conductor ? What are the main parameters of overhead transmission line ? 6
2. (a) Explain "Corona". How can "Corona" loss be minimised ? 7
- (b) Explain the modified Kelvin's law with graphical representation. Also describe its limitations. 7

3. (a) What is Sag ? How does sag vary with load and temperature ? 7
- (b) What is string efficiency ? How can string efficiency be improved ? 7
4. (a) A 132 kV transmission line has the following data : 7
- Weight of conductor = 680 kg/km
- Length of span = 260 m
- Ultimate strength = 3100 kg
- Safety factor = 2
- Calculate the height above ground at which the conductor should be supported.
- Ground clearance required is 10 metres.
- (b) Explain the general effect of positive and negative polarities as well as of ac and dc supplies on Corona. 7
5. (a) Find the inductance per km of a three-phase transmission line using 1.24 cm conductor diameter, when these are placed at the corners of an equilateral triangle of each side 2 metres. 7
- (b) Briefly explain the various types of distribution systems and their applications. 7

6. (a) Give classification of cable. Explain the various sections of a single core cable with the help of labelled diagram. 7
- (b) Compare underground and overhead distribution lines. 7
7. Write short notes on any *two* of the following: $2 \times 7 = 14$
- (a) Grading of cables
- (b) Surge impedance loading of transmission line
- (c) Ferranti effect
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