



ID NO.	
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PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 40 %

Max Marks: 80

Max Time: 2 hrs.

10 May 2018, Thursday

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18 Course: **EEE 212 Transmission and Distribution** VI Sem. Electrical

Instructions:

- (i) *Read the question properly and answer accordingly.*
 - (ii) *Question paper consists of 3 parts.*
 - (iii) Scientific and Non-programmable calculators are permitted
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Part A

(3 Q x 8 M = 24 Marks)

1. Compare the merits and demerits of underground system versus overhead system.
2. Derive an expression for the total of flux linkages due to single current carrying conductor
3. Write briefly on the Concept of Self-GMD and Mutual-GMD

Part B

(3 Q x 10 M = 30 Marks)

4. Prove that g_{\max}/g_{\min} in a single-core cable is equal to D/d where g is the potential gradient and D denotes diameter
5. Show that in a string of suspension insulators, the disc nearest to the conductor has the highest voltage across it.

6. A single phase transmission line has two parallel conductors 3 m apart, the radius of each conductor being 1 cm. Calculate the loop inductance per km length of the line if the material of the conductor is (i) copper (ii) steel with relative permeability of 100.

Part C

(2 Q x 13 M = 26 Marks)

7. Evaluate the generalised circuit constants for medium line — nominal T method.
8. A single core cable 5 km long has an insulation resistance of 0.4 MΩ. The core diameter is 20 mm and the diameter of the cable over the insulation is 50 mm. Calculate the resistivity of the insulating material.



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Max Time: 1 hr.

26 March Monday 2018

TEST - 2

SET B

Even Semester 2017-18

Course: **EEE212 Transmission and Distribution**

VI.Sem. Electrical

Instructions:

i. Write legibly

Scientific and non-programmable calculators are permitted

Part A

(2Q x 6 M = 12 Marks)

1. Draw the Line diagram and phasor diagram of short transmission line.
2. Define Corona. What are the factors affecting it?

Part B

(1Q x 14 M = 14 Marks)

3. A 100-km long, 3-phase, 50-Hz transmission line has following line constants: Resistance/phase/km = 0.1 Reactance/phase/km = 0.5 Ω . Susceptance/phase/km = 10×10^{-6} S .If the line supplies load of 20 MW at 0.9 pf. lagging at 66 kV at the receiving end, calculate by nominal π method 'sending end voltage. Draw relevant circuit diagram & phasor diagram. Find the 'sending end voltage.'

Part C

(1Q X 14 M= 14 Marks)

4. A 3-phase line has conductors 2 cm in diameter spaced equilaterally 1 m apart. If the dielectric strength of air is 30 kV (max) per cm, find the disruptive critical voltage for the line. Take air density factor $\delta = 0.952$ and irregularity factor $m_0 = 0.9$.



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21 Feb Wednesday 2018

TEST – 1

Even Semester 2017-18 Course: **EEE212 Transmission and Distribution** VI Sem. **Electrical**

Instruction:

- (i) Read the question properly and answer accordingly.
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Part A

(2 Q x 6 M = 12 Marks)

1. What are the requirements of Satisfactory Electric Supply
2. Discuss briefly the various conductor materials used for overhead lines.

Part B

3. Discuss the advantages of high transmission voltage. (8 Marks)
4. Deduce an approximate expression for sag in overhead lines when supports are at unequal levels. (10 Marks)

Part C

(1Q x 10 M = 10 Marks)

5. An overhead line has a span of 150 m between level supports. The conductor has a cross-sectional area of 2 cm². The ultimate strength is 5000 kg/cm² and safety factor is 5. The specific gravity of the material is 8.9 gm/cc. The wind pressure is 1.5 kg/m. Calculate the height of the conductor above the ground level at which it should be supported if a minimum clearance of 7 m is to be left between the ground and the conductor.