



KUMARAGURU
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Register Number:.....

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Fourth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

EEE107: Transmission and Distribution.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The main advantage of transmitting power over transmission lines on high voltage are
 - a) voltage drop in lines is reduced
 - b) no voltage drop
 - c) cost of conductor is increased for given power
 - d) bad efficiency
2. The main consideration in the design of a feeder is the _____.
 - a) current carrying capacity
 - b) voltage rating
 - c) no. of lines connected
 - d) All the above
3. With 100% inductive shunt compensation, the voltage profile is flat for
 - a) 100% loading of line
 - b) 50% loading of line
 - c) zero loading of line
 - d) 25% loading of line
4. By improving the power factor of the system, the kilowatts delivered by the generating station is _____.
 - a) made zero
 - b) does not vary
 - c) decreased
 - d) increased
5. _____ are used for voltages upto 11kV.
 - a) Screened cable
 - b) Belted cable
 - c) Pressure cable
 - d) Low tension cable
6. If shunt capacitance is reduced, then string efficiency is _____.
 - a) decreased
 - b) increased
 - c) no change
 - d) zero

- (b) (i) Derive the inductance of a three phase transmission line with symmetrical spacing.
- (ii) A conductor is composed of seven identical copper strands, each having a radius r . what is the self GMD of the conductor.
- 22 (a) Show how regulation and transmission efficiency are determined for medium transmission lines using nominal T method with suitable vector diagrams.

(OR)

Write short notes on:

- (b) (i) Phenomena of corona and its losses.
- (ii) Shunt and Series compensation of transmission line
- 23 (a) (i) What is string efficiency? Explain various methods to improve the string efficiency.
- (ii) A single core cable has a conductor diameter of 1 cm and internal sheath diameter of 1.8cm. If impregnated paper of relative permittivity 4 is used as the insulation, calculate the capacitance for 1 km length of the cable.

(OR)

- (b) (i) Describe with neat sketch, the construction of a 3 core belted cable.
- (ii) A three phase transmission line is being supported by three disc insulator. The potential across top unit (i.e near to the tower) and middle unit are 8 kV and 11kV respectively. Calculate the line voltage and string efficiency.
24. a) Explain the different types of substation bus schemes used in substation with neat diagram. Write its advantages and disadvantages.

(OR)

- b) Explain different methods of neutral grounding with neat diagram. Write its advantages and disadvantages.
- 25 a) A single phase distributor 1 km long has resistance and reactance per conductor of 0.1 ohm and 0.15 ohm respectively. At the far end, the voltage $V_B=200V$ and the current is 100A at a power factor of 0.8 lagging. At the mid point M of the distributor, a current of 100A is tapped at a power factor of 0.6 lagging with reference voltage V_m at mid point. Calculate (i) Voltage at midpoint (ii) Sending end voltage V_s (iii) Phase angle between V_A and V_B .

(OR)

- b) Write short notes on:
- (i) Different Types of HVDC system
 - (ii) Advantages and Limitation of HVDC.
