C16-**EE-503**

6635

BOARD DIPLOMA EXAMINATIONS

OCT/NOV-2019

DEEE – FIFTH SEMESTER

POWER SYSTEMS- II

Time: 3 hours Max. Marks: 80

PART – A **3 X 10 = 30**

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed five simple sentences.

1. Compare solid and stranded Conductors in any three aspects.
2. List the advantages of A.C transmission system.
3. What are effects of Corona.
4. State any three locations of HVDC projects in India.
5. List any six requirements of line supports.
6. Classify cables based on voltage rating.
7. Compare Indoor and Outdoor Substations in any three aspects.
8. Classify the distribution systems based on scheme of connection.
9. List the advantages of Ring distribution system.
10. Write short notes on Pilot-Wire protection system.

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PART – B 5 X 10 = 50

Instructions: *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and a criterion for valuation is the content but not the length of the answer.

11. a) Classify overhead transmission lines and explain them briefly.

    b) Derive an equation for percentage regulation of a short transmission line.

12. A 50Hz, 3 phase transmission line 30km has a total series impedance of (40+j125) ohms and shunt admittance of 10^{-3} mho. The load is 50MW at 220 KV with 0.8 lagging power factor. Find the sending end voltage, current and power factor (Use nominal – π representation.)

13. a) Compare PIN and Suspension Insulators in five aspects.

    b) An Insulator string consists of 3-units, each having a safe working voltage of 15KV. The ratio of self capacitance to shunt capacitance of each unit is 8:1. Find the maximum safe working voltage of string. Find the string efficiency.

14. a) List any five causes of failure of Insulators in transmission and distribution lines.

    b) Define SAG and derive the equation for SAG when the supports are at the same level.

15. a) List the specifications of a cable.

    b) A single core cable has a conductor diameter of 1 cm and insulation thickness of 0.4 cm. If the specific resistance of insulation is 5x 10^{14} ohm-cm, calculate the insulation resistance for a 2 km length of the cable.

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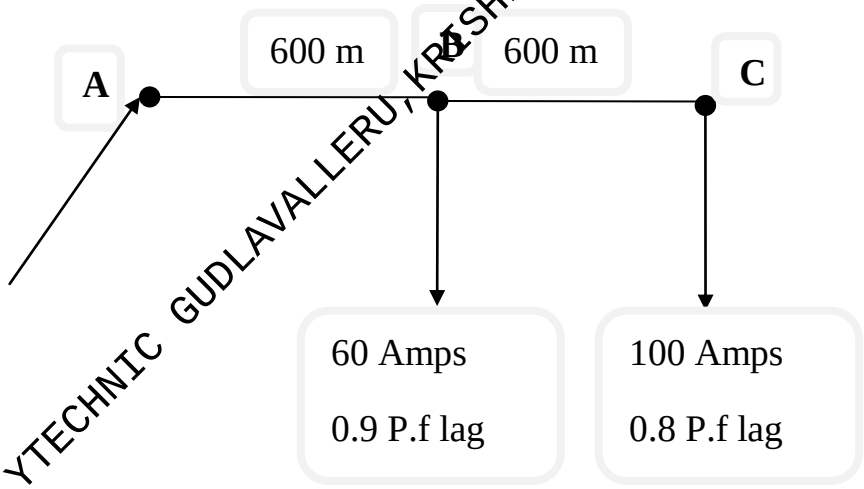
16. Write short notes on a) bus bars b) Insulators c) Protective relays d) Lightning arresters e) Firefighting equipment in a substation.

17. A two wire distributor 1200 meters long is loaded as shown in figure below. B-is the midpoint. The power factors at the two load points refer to the voltage at 'C'. The impedance of each line is (0.15+j0.2) ohm for 1200 m. calculate the sending end voltage and current. The voltage at point C is 220 volts.



18. Explain protection of radial feeders using time graded fuses with neat diagram.

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