Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91488

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Fourth Semester

Electrical and Electronics Engineering

EE 6402 – TRANSMISSION AND DISTRIBUTION

(Regulations 2013)

(Common to PTEE 6402 – Transmission and Distribution for B.E. (Part-Time) – Fourth Semester – Electrical and Electronics Engineering – (Regulations 2014))

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A (10×2=20 Marks)

1. List out the advantages of high voltage AC transmission.
2. Mention the demerits of HVDC transmission.
3. What is skin effect ?
4. What is proximity effect ?
5. Define transmission efficiency.
6. Define corona.
7. What is the necessity of grading an underground cable and write the methods of grading cables ?
8. List the four main insulating materials used in cables.
9. What is meant by Sag ?
10. What are the major equipments of a substation ?

PART – B (5×13=65 Marks)

11. a) In a.c. distribution calculations, calculate the power factor referred to receiving end voltage and power factors referred to respective load voltages.

(OR)

b) Find the voltage drop on a DC distributor having concentrated loads and uniform loads, supplied to both ends with i) equal voltages ii) unequal voltages.

12. a) Find the inductance of single phase two wire line and unsymmetrical spacing three phases overhead line.

(OR)

b) Derive the capacitance of a 3-phase overhead line for symmetrical spacing and unsymmetrical spacing.

13. a) Derive sending end current using end condenser method, Nominal T method and Nominal π method for medium transmission line.

(OR)

b) Derive the sending end current and voltage for a long transmission line with necessary diagram.

14. a) What is grading of cables ? Explain the following methods of grading of cables :

i) Capacitance grading.

ii) Intersheath grading. **(2+6+5)**

(OR)

b) Derive the equation for string efficiency 3-disc string and explain the methods to improve string efficiency.

15. a) Calculate sag and tension of a conductor when

i) supports are at equal levels. **(7)**

ii) supports are at unequal levels. **(6)**

Analyze with, without the effect of ice loading and wind.

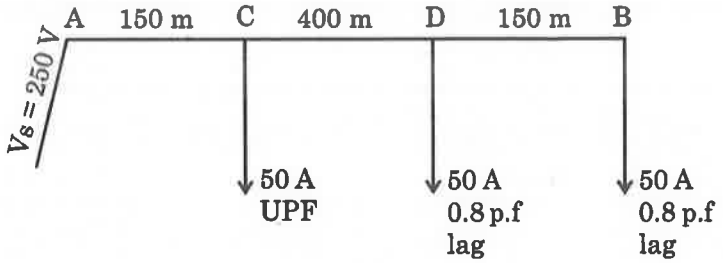
(OR)

b) i) Explain the AIS and GIS Substation Layout. **(7)**

ii) Tabulate the types of tower S/C and D/C for 132 Kv lines with their typical uses. **(6)**

PART – C **(1×15=15 Marks)**

16. a) A single phase AC distributor of 700 m length has total impedance $(0.022 + j0.42)\Omega$. It is fed at one end at 250 V. If the load distribution is as shown in following figure, calculate voltage at far end.



(OR)

b) i) 'A feeder is designed based on its current carrying capacity rather than voltage drop in it' – Justify. **(8)**

ii) A string of 4 insulators unit has the self capacitance equal to 5 times the pin-earth capacitance. Neglating of leakage, find (A) Voltage distribution from top to bottom insulator in percentage of the total voltage. (B) String efficiency. **(7)**