1483

Code : 15EE52T

Register Number | | | | | | | |

V Semester Diploma Examination, April/May-2018

TRANSMISSION, DISTRIBUTION & UTILIZATION

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** questions from Part – **A**. Answer to each question carries **5** marks.

(ii) Answer any **seven** full questions from Part – **B**. Answer to each question carries **10** marks.

PART – A

1. State the advantages and limitations of high voltage transmission. **5**

2. Define Corona. List the factors affecting corona. **5**

3. List the advantages of HVDC transmission system. **5**

4. Define Substation. Classify substations according to constructional features. **5**

5. What is SCADA ? List the functions of SCADA in power system. **5**

6. Classify different methods of Electric heating in detail. **5**

7. Explain principle of Dielectric heating. **5**

8. State any five desirable properties of an ideal refrigerant. **5**

9. State the following laws of illumination : **5**
   (i) Inverse square law
   (ii) Lamberts cosine law

PART – B

10. (a) Explain briefly the constants of transmission line. **6**

    (b) A single phase overhead transmission line delivers 1100 kW at 33 kV at 0.8 pf lagging. The total resistance and inductive reactance of the line are 10 ohm and 15 ohm respectively. Determine sending end voltage. **4**

11. (a) With a neat sketch explain the general construction of a 3 core under ground cable. 6

(b) Briefly explain any four main components of an overhead line. 4

12. (a) Briefly explain the principle of operation of HVDC system with a neat block diagram. 5

(b) Write a neat sketch of single busbar system with sectionalisation and label. 5

13. (a) With a neat sketch, explain ring main distribution system and state its advantages. 5

(b) Compare overhead distribution system versus under ground distribution system. 5

14. (a) A 2 wire DC distributor cable AB is 2 km long and supplies loads of 100 A, 150 A, 200 A and 50 A situated at 500 mtr, 1000 mtr, 1600 mtr and 2000 mtr from feeding point A. Each conductor has a resistance of 0.01 Ω per 1000 m. Calculate the pd at each load point if a pd of 300 V is maintained at point A. 5

(b) Briefly explain the modes of heat transfer. 5

15. (a) With a neat sketch, explain the construction and working of indirect arc furnace. 5

(b) List the advantages of coreless induction furnace. 5

16. (a) Explain in brief the causes for failure of heating elements. 5

(b) With a neat sketch, explain seam welding process. 5

17. (a) What is Electroplating ? Mention the necessity of Electroplating. 5

(b) State and explain Faraday's laws of Electrolysis. 5

18. (a) With a neat sketch, explain the working of a vapour compression refrigerator. 6

(b) Define the following terms :

(i) Solid angle

(ii) Co-efficient of utilisation. 4

19. (a) List and explain requirements of good lighting. 5

(b) Estimate the number and wattage of lamps which would be required to illuminate a workshop space 60 mts × 15 mtr by means of lamps mounted 5 mtr above the working plane. The average illumination is about 100 lux. Assume co-efficient of utilisation = 0.4. Luminous efficiency = 16 lm/w. Space-height ratio = 1.0 (unity) and candle power depreciation of 20%. 5