

Code No: R4102A

R10**Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February/March - 2018

ELECTRICAL DISTRIBUTION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 hours**Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) What is meant by the term load? How loads can be classified? How is load modeling done in distribution networks? [8]
b) A distribution substation experiences an annual peak load of 4,500 kW. The total annual energy supplied to the primary feeder circuits is 207 kWh. Find
(i) the annual average power (ii) the annual load factor [7]
- 2 a) Enumerate the various factors that influence the voltage levels in the design and operation of the distribution system. [10]
b) List out any five factors that are to be considered in selecting a primary feeder rating. [5]
- 3 a) Explain a methodology for optimal location of substations and indicate the benefits derived through this approach. [8]
b) How do you fix the rating of a distribution substation? Explain. [7]
- 4 a) Prove that the power loss due to load currents in the conductors of the single phase two-wire ungrounded lateral with full capacity neutral is 6 times larger than the one in the equivalent three phase 4-wire lateral. [8]
b) Explain the difference between a 3-phase balanced and non 3-phase primary line. [7]
- 5 a) What are the types of common faults that occur in a distribution system? [5]
b) Discuss the principle of operation of line sectionalizer and also explain the difference between a fuse and circuit breaker. [10]
- 6 a) What is residual current circuit breaker and its types? Explain the working of RCCB with neat sketch. [10]
b) What data to be required to coordinate protective devices? Explain coordination techniques. [5]
- 7 a) What are the different types of capacitors? Explain the effect of shunt capacitor. [6]
b) How do you found the best location of capacitors for optimizing power loss and voltage regulation? [9]
- 8 a) Where voltage control equipment is used? What are the various equipment for voltage control? And also explain the effect of series capacitors. [9]
b) How an AVR can control voltage? With the aid of suitable diagram explain its function. [6]