

IV B.Tech II Semester Supplementary Examinations, April/May 2005
ELECTRICAL DISTRIBUTION SYSTEMS
(Electrical & Electronic Engineering)

Time: 3 hours**Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is the need for mathematical models to represent the system? Name the different operations research techniques used by planners, for planning a distribution system.
(b) Discuss about the three factors which affect the distribution system planning in the near future.
2. (a) Explain how the load growth in a distribution system can be obtained.
(b) A distribution substation experiences an annual peak load of 3,500 kW. The total annual energy supplied to the primary feeder circuits is 10^7 kWh. Find
 - i. the annual average power
 - ii. the annual load factor
3. (a) Compare the Radial and Loop type primary feeders.
(b) What are the various factors that influence the primary feeder loading.
4. (a) What are the various factors that are to be considered in selecting substation location.
(b) Compare the four and six feeders patterns.
5. (a) Prove the power loss due to the load currents in the conductors of single-phase lateral ungrounded neutral case is 2 times large than one in the equivalent three phase lateral.
(b) Prove 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.
6. (a) Explain the principle of operation of line sectionalizer.
(b) Explain the coordination procedure between fuse and circuit breaker.
7. (a) Compare and explain the role of shunt and series capacitors in P.F. correction.
(b) A 400V, 50 cycles three phase line delivers 207KW at 0.8p.f. (lag). It is desired to bring the line p.f. to unity by installing shunt capacitors. Calculate the capacitance if they are
 - i. star connected
 - ii. delta connected.
8. (a) Write a short notes on any two methods of voltage control?

- (b) Voltage control and p.f. correction why there are necessary in power systems?
What are the disadvantages of low voltage and low p.f. of the system?

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