

Code: 9A02701

R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013

DISTRIBUTION OF ELECTRIC POWER

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

- 1 (a) Discuss the characteristics of the following categories of loads:
(i) Residential (iii) Agriculture
(ii) Commercial (iv) Industrial
(b) Assume that the annual peak load of a primary feeder is 2000 KW, at which the power is 80 KW per three phases. Assuming an annual loss factor of 0.15. Determine:
(i) The average annual power loss.
(ii) The total annual energy loss due to the copper losses of the feeder.
- 2 (a) Compare the radial and loop type primary feeders.
(b) Discuss the various loading and voltage level factors that influence the design and operation of primary feeders.
- 3 (a) Discuss the factors influencing the substation location.
(b) Show that if the voltage drops are limited, six feeders can carry only 1.25 times as much load as the four feeders.
- 4 (a) Discuss importance of voltage drop and power loss calculations in distribution system.
(b) Derive the voltage drop and power loss of non three phase distribution systems and compare with the three phase balanced system.
- 5 Briefly discuss the various faults that occurs in distribution system and their protective schemes employed.
- 6 (a) Explain the salient points in general co-ordination procedure.
(b) Discuss the co-ordination procedure between fuse and a circuit breaker.
- 7 (a) Explain the effect of shunt compensation of distribution system.
(b) A 3- ϕ : 500 H.P, 50 Hz, 11 KV star connected induction motor has a full load efficiency of 85% at a lagging p.f of 0.75 and connected to a feeder. If it is desired to correct it to a p.f of 0.9 lagging load. Determine the following"
(i) The size of the capacitor bank in KVAR.
(ii) The capacitance of each unit if the capacitors are connected in star as well as delta.
- 8 (a) How an AVB can control voltage? With the aid of suitable diagram explain its function.
(b) Explain the effect of line drop compensation on voltage control.
