

R07

Code: R7410210

B.Tech IV Year I Semester (R07) Supplementary Examinations, May 2013

ELECTRICAL DISTRIBUTION SYSTEMS

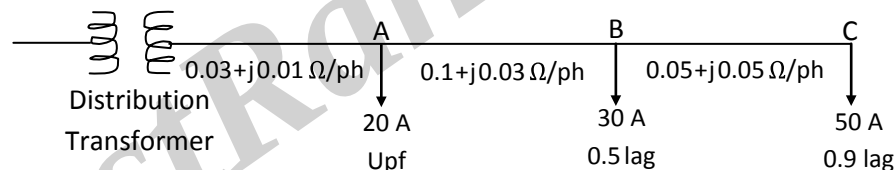
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What is meant by load modeling and give their characteristics?
(b) Define the following:
 - (i) Coincidence factor. (iii) Loss factor.
 - (ii) Contribution factor. (iv) Load factor.
- 2 (a) Explain with neat sketches radial type and loop type sub transmission systems.
(b) What are the various factors that influence the voltage levels in the design and operation of the distribution system? Explain.
- 3 (a) Compute percentage voltage drop of substation service area supplied with 'n' primary feeders. Assume load is uniformly distributed.
(b) How do you optimally locate the substations and explain the benefits derived from optimal location?
- 4 Consider the three phase, 3-wire 230 V secondary system with balanced loads at A, B and C as shown in figure:



Determine:

- (i) The voltage drop in one phase of lateral.
 - (ii) The real power per phase for each load.
 - (iii) The reactive power per phase for each load.
- 5 (a) Discuss the procedure for fault current calculation in following faults:
 - (i) 3-phase fault.
 - (ii) Single line-ground fault.
 (b) Explain about the operation of a circuit breaker.
 - 6 (a) What is the data required for the general coordination procedure?
(b) Explain fuse-fuse coordination.
 - 7 A 3-phase transformer rated 7000 KVA and has a over load capability of 125% of the rating. If the connected load is 11150 KVA with a 0.8 pf (lag). Determine the following:
 - (a) The KVAR rating of shunt capacitor bank required to decrease the KVA load of the transformer to its capability level.
 - (b) The p.f. of the corrected level.
 - (c) The KVAR rating of the shunt capacitor bank required to correct the load p.f. to unity.
 - 8 (a) Why we need to control the voltage of power system? Explain in detail.
(b) Compare and explain the role of shunt and series capacitor in voltage control.
