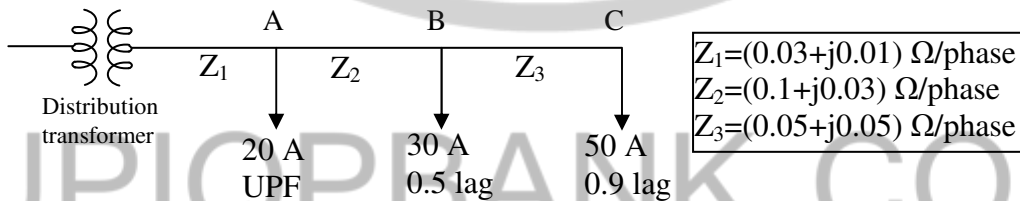


Answer any FIVE questions

All questions carry EQUAL marks

1. (a) Explain the following terms:
 - (i) Utilization Factor
 - (ii) Contribution factor
 - (iii) Diversity Factor
 (b) Discuss in detail about residential, commercial and agricultural loads and their respective characteristics.
2. Draw a block diagram in flow chart form for a typical distribution system planning process and explain the techniques for distribution planning.
3. (a) How do you optimally locate the substations and explain the benefits derived from optimal location.
(b) Explain how to decide the rating of a distribution substation.
4. (a) Explain the design aspects of secondary distribution systems.
(b) Explain various types of radial primary feeders with diagrams.
5. (a) Derive an expression for voltage drop and power loss for uniformly radial type distribution load.
(b) Consider a three phase, 3 wire 240V secondary system with balanced loads at A, B and C as shown in Figure (1) 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.



6. (a) Derive equations for the calculation of fault current for line to line fault and three phase fault.
(b) What are the main objectives of distribution protection? Discuss.
7. (a) Explain the coordination procedure between fuse and circuit breaker.
(b) Explain the principle of operation of line sectionalizer.
8. (a) How do you determine the best capacitor location? Explain.
(b) How an AVB can control voltage? With the aid of suitable diagram explain its function.