

B.Tech IV Year I Semester (R07) Supplementary Examinations December 2015

**ELECTRICAL DISTRIBUTION SYSTEMS**

(Electrical & Electronics Engineering)

(For 2008 regular admitted batch only)

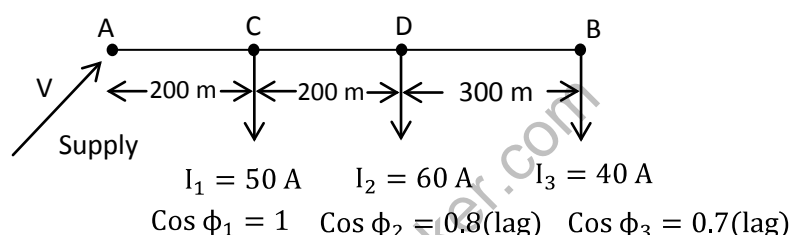
Time: 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain load modeling in distribution system with their characteristics.  
(b) Explain the various classifications of loads with their characteristics.
- 2 (a) Explain with neat sketches radial type and loop type primary feeders.  
(b) Explain feeder loading and the factors which influence the voltage levels in design and operation of the distribution systems.
- 3 (a) Derive the relationship for power loss and voltage drop for substation service area with 'n' primary feeders.  
(b) Write different parameters to be considered for location of substation.
- 4 Consider the single phase radial distributor shown below.



The magnitude of load currents, p.f.s and distances are indicated in the figure. The resistance and reactance of each wire are 0.2 ohm and 0.3 ohms per km respectively. It is required to maintain voltage at point B as 230 V, find:

- (a) Voltage drops in the three sections.
  - (b) Total voltage drop in the feeder.
  - (c) Supply voltage, current and power factor.
  - (d) KVA output of supply.
- The p.f. angles of individual loads are w.r.t. voltage at point B.
- 5 (a) Explain the principle and operation of a fuse and circuit breaker.  
(b) Write the objectives of the distribution system protection.
  - 6 (a) What are the different types of coordination? Describe the fuse to circuit breaker coordination.  
(b) Discuss about coordination procedure for protective devices.
  - 7 (a) Explain the power factor correction by installing the shunt capacitor bank in electrical distribution system.  
(b) Briefly explain the economic justification for capacitors installation.
  - 8 (a) How an AVR can control voltage? With the aid of suitable diagram explain its function.  
(b) Briefly explain about line drop compensation.

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