

Code :R7410210

R7

IV B.Tech I Semester(R07) Supplementary Examinations, May/June 2011
ELECTRICAL DISTRIBUTION SYSTEMS
(Electrical & Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) Explain the classification of loads with their characteristics.
 (b) A 120 MW substation deliver 120MW for 3Hrs, 60MW for 8Hrs and shut down for rest of each day. It is also shut down for the maintenances for 15 days each year. Calculate its annual load to chr.
2. (a) Explain completely the radial type primary feeders.
 (b) List the design and operational aspects affected by the primary feeders voltage level.
3. (a) Explain how to decide the rating of distribution substation.
 (b) Explain the various factors to be considered to decide the ideal location of substation.
4. (a) Derive the approximate voltage drop and power loss equation of primary feeders of a non-uniformly distributed loads.
 (b) A single phase feeder circuit has total impedance $(0.5 + j0.2)\Omega$, $V_r = 230v$ AND $I_r = 5\angle -30^\circ A$ Determine
 - i. Power factor of load
 - ii. Load P.f for which impedance angle in maximum and
 - iii. Find and derive the expression for load p.f for which the drop in maximum.
5. (a) Discuss the common faults that occur in a distribution system.
 (b) Explain the principle of operation of
 - i. Circuit reclosure.
 - ii. Circuit breaker.
6. (a) Explain auto reclosure to fuse coordination.
 (b) What is meant by coordination? Write down the required data to coordinate the protective devices.
7. (a) Write down the procedure to determine the best capacitor location.
 (b) A single phase system supplies the following loads.
 - i. Light load of 25 kw at unity power factor.
 - ii. Induction motor load of 125 kw at p.f 0.707 lagging.
 - iii. Synchronous motor load of 75 kw at p.f 0.9 leading determine the total kw and KVA delivered system and p.f at which it works.
8. (a) Why the need to control the voltage of power system? Explain in detail.
 (b) Explain how an AVB controls the voltage with neat diagram.
