

Code No: C5606

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS, APRIL/MAY-2012
ELECTRICAL DISTRIBUTION SYSTEMS
(POWER SYSTEMS HIGH VOLTAGE)

Time: 3hours**Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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- 1.a) Write in detail about commercial and agricultural loads and their respective characteristics.
- b) The annual peak load input to a primary feeder is 2000 KW. A computer program which calculates voltage drops and copper losses shows that the total copper loss at the time of peak load is $I^2R = 100$ KW. The total annual energy supplied to sending end of feeder is 5.61×10^6 Kwh, Then
 - i) Determine the annual loss factor.
 - ii) Calculate the total annual copper loss energy and its value at \$ 0.03/ K wh.
- 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) Explain radial feeders with uniformly distributed load.
- b) What is primary feeder loading? Explain factors affecting the loading in terms of
 - i) Design and
 - ii) Decision for feeder routing.
- 4.a) Derive an expression for voltage drop and power loss for uniformly radial type distribution load.
- b) Consider three phase three wire 240V secondary system with balanced loads at A, B and C. Determine the following:
 - i) Calculate the total voltage drop
 - ii) Calculate real power per phase for each load
 - iii) Reactive power per phase
 - iv) KVA o/p and load power factor of distribution transformer.
- 5.a) What are Automatic line sectionalizers? Explain the purpose and advantages of using them?
- b) What is the main objective of Distribution system protection? Explain in detail.
- 6.a) Explain in detail how the co-ordination of various protective devices helps in improving system performance.
- b) List out the fault calculations involved in any two types of faults which occur in distribution system.
- 7.a) Explain the practical procedure to determine the Best Capacitor Location.
- b) Write short notes on comparisons of series and shunt compensation.
- 8.a) What are various ways to improve the overall voltage regulation?
- b) Briefly write the various methods adopted for voltages control.