R09

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 looses shows that the total copper loss at the time of peak load is SI2R = 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.

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