PVP 14

Code: EE7T6A

IV B.Tech - I Semester – Regular Examinations – October - 2017

ELECTRICAL DISTRIBUTION SYSTEMS
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22

1.

a) Define Load factor and loss factor.
b) What are advantages of the distribution system planning?
c) What are the different types of distribution transformers?
d) Compare four and six feeder patterns.
e) What are the advantages of radial feeders?
f) What is the significance of secondary networks?
g) Compare three phase three wire and four wire distribution systems.
h) What are the advantages of series capacitive compensation?
i) What are the demerits of shunt capacitors?
j) What is the principle of operation of fuse?
k) What do you understand by automatic line sectionalizer?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.
3 x 16 = 48 M

2. a) Explain the central role of the computer in distribution planning with neat schematic. 8 M

b) The annual peak load input to a primary feeder is 2000 kW. A computer program which calculates voltage drops and I^2R losses shows that the total copper loss at the time of peak load is $\sum I^2R = 100kW$. The total annual energy supplied to the sending end of the feeder is 5.61×10^6 kWh.
i) Determine the annual loss factor
ii) Calculate the total annual copper loss energy and its values at Rs.1.50/kWh. 8 M

3. a) Describe the different types of power capacitors. Explain the effect of shunt capacitor in feeder circuit with neat schematic. 8 M

b) A 3 Φ, 500 hp, 50 Hz, 11 kV star connected induction motor has a full load efficiency of 85% at lagging p.f of 0.75 and is connected to a feeder. If it is desired to correct the p.f of 0.9 lagging load, Determine: 8 M
i) the size of the capacitor bank in kVAR
ii) the capacitance of each unit if the capacitors are connected in Y.

4. a) Write a short note on the effect of AVB/AVR. 8 M

b) Discuss in detail about Line sectionalizers and circuit breakers. 8 M

5. a) Explain the design consideration of radial type distribution feeder. 8 M

b) Discuss the factors affecting the design loading of a feeder. 8 M

6. a) Derive equations for the calculation of fault current for line to line fault and three phase fault. 8 M

b) What are the main objectives of distribution protection? Discuss. 8 M