Unit 3 - Week 2

Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-21, 23:59 IST.

Data for Q. 1 and Q. 2: Consider a 6.4 kV, three phase overhead feeder having impedance of 0.4 + *j*0.8 Ω/km. The average power factor of the load connected to the feeder is 0.85.

1) The K_{drop} factor of the feeder is **2 points**

- 0.01073 % drop / kVA-km
- 0.00185 % drop / kVA-km
- 0.00107 % drop / kVA-km
- 0.01855 % drop / kVA-km

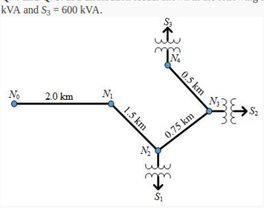
No, the answer is incorrect.
Score: 0
Accepted Answers:
0.00185 % drop / kVA-km

2) The K_{rise} factor of the feeder is **2 points**

- 0. 00112 % rise / kVAr-km
- 0.01954 % rise / kVAr-km
- 0.00195 % rise / kVAr-km
- 0.01128 % rise / kVAr-km

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.00195 % rise / kVAr-km

Data for Q. 3, Q. 4 and Q. 5: In a distribution feeder shown in the following figure, the loads are S_1 = 400 kVA, S_2 = 500 kVA and S_3 = 600 kVA.



3) If the K_{drop} factor of the feeder is 0.000147 %drop / kVA-km, the total percent drop from N_0 to N_3 is. **2 points**

- 0.89 %
- 0.30 %
- 0.93 %
- 0.63 %

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.89 %

4) If the total percentage drop from N_0 to N_4 is 2.5%, then the K_{drop} factor of the feeder is **4 points**

- 0.001960 % drop / kVA-km
- 0.003922 % drop / kVA-km
- 0.000196 % drop / kVA-km
- 0.000392 % drop / kVA-km

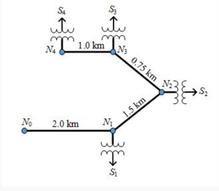
No, the answer is incorrect.
Score: 0
Accepted Answers:
0.000392 % drop / kVA-km

5) A capacitor of 200 kVAr is connected at the node N_4. If the voltage drop is improved from 2.5 % to 2 % due to capacitor for the given loading, then the K_{rise} factor (% rise / kVAr-km) of the feeder is **4 points**

- 0.005263 % rise / kVAr-km
- 0.000526 % rise / kVAr-km
- 0.002630 % rise / kVAr-km
- 0.000263 % rise / kVAr-km

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.000526 % rise / kVAr-km

Data for Q. 6 and Q. 7: A distribution feeder is shown in the following figure. The substation is at node N_0.



6) The loads S_1, S_2, S_3 and S_4 are in proportion of 1:3:2:2 and the K_{drop} factor is 0.000254 % drop / kVA-km. If the percentage voltage drop from N_0 to N_4 is 3%, then the total load of the feeder at the substation is. **4 points**

- 3000 kVA
- 1500 kVA
- 3750 kVA
- 2250 kVA

No, the answer is incorrect.
Score: 0
Accepted Answers:
3000 kVA

7) To limit the voltage drop up to 2.5%, a capacitor is connected at the terminal N_4. If the K_{rise} factor is 0.0004 % rise / kVAr-km, the kVAr rating of the capacitor is **2 points**

- 312.5 kVAr
- 263.2 kVAr
- 238.1 kVAr
- 357.1 kVAr

No, the answer is incorrect.
Score: 0
Accepted Answers:
238.1 kVAr

8) As shown in the following figure, a uniformly distributed load is lumped at two locations such that the calculated drop and power loss are correct. If length of the line is *l* then the value of d_1 and d_2, respectively are **2 points**

- 0.25*l* and 0.75*l*
- 0.33*l* and 0.67*l*
- 0.5*l* and 0.5*l*
- 0.75*l* and 0.25*l*

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.25l and 0.75l

9) A three phase, 12.47 kV feeder is supplying a distribution area of rectangular in shape. The length (*l*) and width (*w*) of the rectangular area is 5 km and 3 km respectively. The impedance of the feeder is 0.4 + *j*0.8 Ω/km. If the load desnsity of the area is 1500 kVA/km^2 at unity pf, then the total voltage drop at the end of the feeder will be. **4 points**

- 2083.462 V
- 3608.660 V
- 1804.330 V
- 1041.731 V

No, the answer is incorrect.
Score: 0
Accepted Answers:
1041.731 V

10)A three phase, 11 kV feeder with impedance of 0.31 + *j*0.75 is supplying a uniformly distributed load of 6000 kVA at 0.9 lagging pf. If the voltage drop at the end of the feeder is 110 V, the total power loss in the feeder will be. **4 points**

- 61.40 kW
- 28.71 kW
- 6.735 kW
- 35.45 kW

No, the answer is incorrect.
Score: 0
Accepted Answers:
35.45 kW