

# Unit 2 - Week 1

## Course outline

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#### Week 1

- Introduction to Electrical Distribution System
- Components of Distribution System Substation and Busbar Layouts
- Components of Distribution System and Feeder Configurations
- Nature of Loads in a Distribution System
- Load Allocation in a Distribution System
- Quiz : Assignment 1
- Solution for Assignment 1

#### Week 2

#### Week 3

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#### Week 5

#### Week 6

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#### Week 8

#### WEEKLY FEEDBACK

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## Assignment 1

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

**Due on 2019-08-14, 23:59 IST.**

1) Which of the following is not true in the case of a radial distribution system 2 points

- The cost of a radial system is lower.
- The protection of a radial system is easier.
- The reliability of a radial system is higher.
- The planning and design of a radial system is simple.

No, the answer is incorrect. Score: 0

Accepted Answers: *The reliability of a radial system is higher.*

2) The ratio of maximum non-coincident demand and maximum diversified demand is known as 2 points

- diversity factor
- load factor
- demand factor
- utilization factor

No, the answer is incorrect. Score: 0

Accepted Answers: *diversity factor*

3) The ratio of average demand and maximum demand is known as 2 points

- diversity factor
- load factor
- demand factor
- utilization factor

No, the answer is incorrect. Score: 0

Accepted Answers: *load factor*

4) The daily energy consumption data of four consumers is given in the following table. All the four consumers are connected to transformer  $T_1$ . If the maximum diversified demand is 20 kW the diversity factor is 4 points

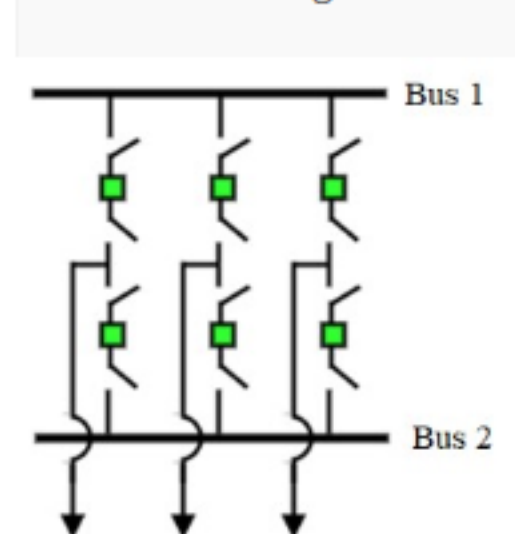
	Consumer #1	Consumer #2	Consumer #3	Consumer #4
Energy usage (kWh)	68	88	72	96
Load Factor	0.75	0.3	0.8	0.6

- 0.76
- 1.32
- 0.66
- 1.48

No, the answer is incorrect. Score: 0

Accepted Answers: *1.32*

5) The following bus bar arrangement is known as 2 points

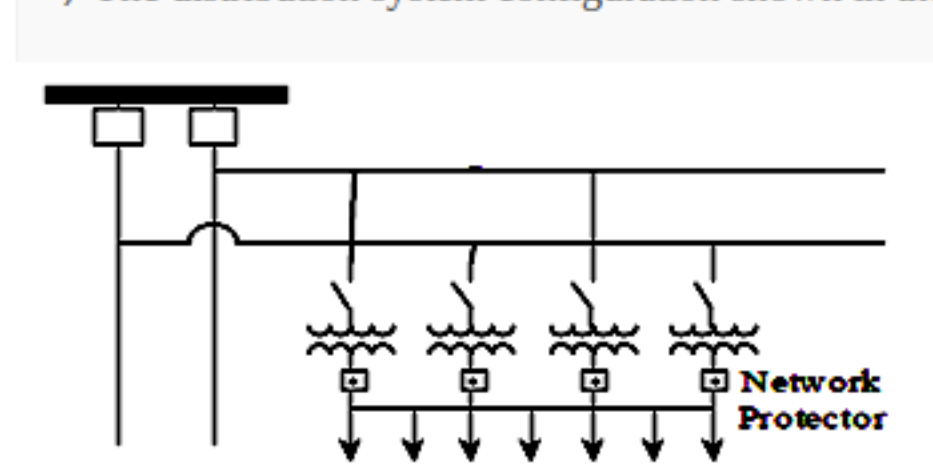


- Main and transfer Bus
- Double bus Single Breaker
- Double bus Double Breaker
- Breaker and a half scheme

No, the answer is incorrect. Score: 0

Accepted Answers: *Double bus Double Breaker*

6) The distribution system configuration shown in the following figure is 2 points



- Spot network
- Grid network
- Primary selective
- Secondary selective

No, the answer is incorrect. Score: 0

Accepted Answers: *Spot network*

7) Which of the following bus layout has lowest cost? 2 points

- Double-bus and double breaker
- Double-bus and single breaker
- Breaker and half scheme
- Single-bus single breaker

No, the answer is incorrect. Score: 0

Accepted Answers: *Single-bus single breaker*

8) A load survey was conducted by utility to get the relationship between energy consumption and maximum demand. The 15-minute maximum demand is given by. 4 points

$$\text{Maximum kW demand} = 0.3 + 0.012 \text{ kWh}$$

The following five consumers are connected to the transformer. If the maximum diversified demand of the consumer at the transformer is 54.30, the diversity factor is.

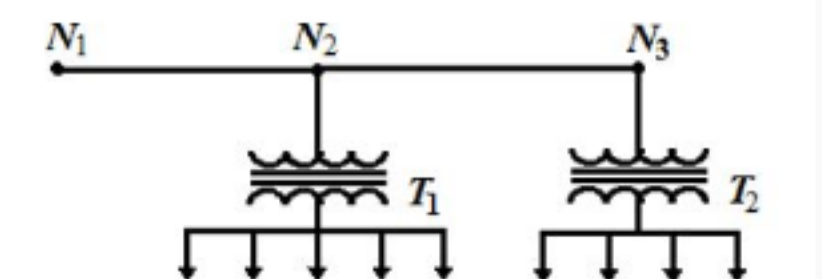
Consumer	#1	#2	#3	#4	#5
kWh	1324	2115	1765	2289	1433

- 1.5
- 2.0
- 2.5
- 3.5

No, the answer is incorrect. Score: 0

Accepted Answers: *2.0*

9) Two transformers  $T_1$  and  $T_2$  are connected to the feeder as shown in the following figure. The maximum diversified demands on  $T_1$  and  $T_2$  are 60 kW and 40 kW respectively. 4 points



For the load allocation based on surveys, the diversity factors corresponding various number of consumers is given in the following table.

Number of Consumers	4	5	9
diversity factor	2.25	2.5	3

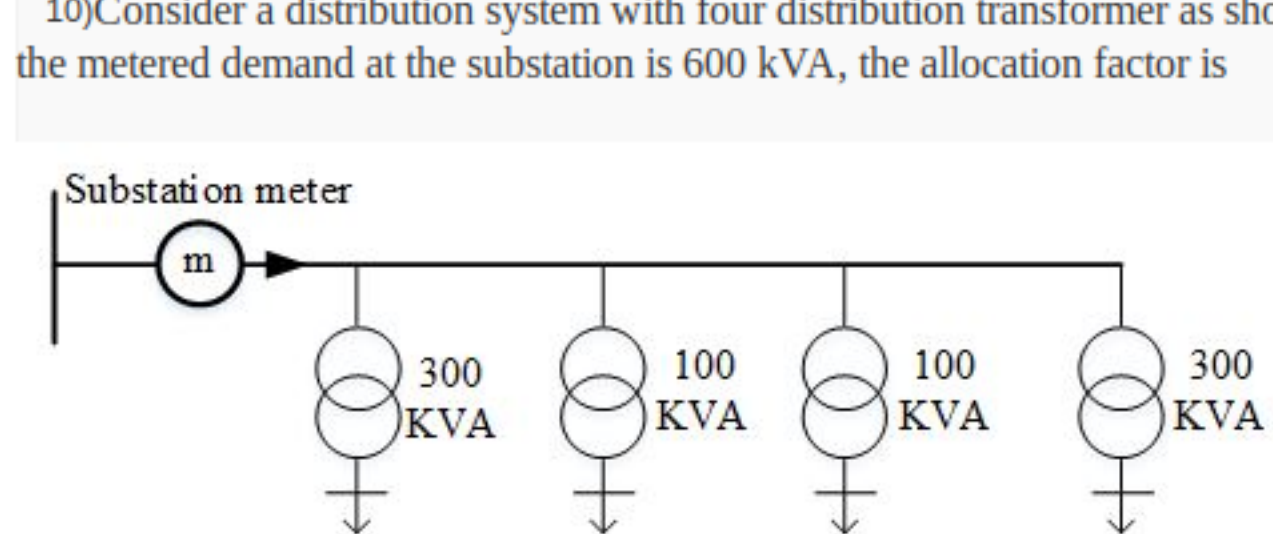
The total diversified maximum demand on the feeder section from  $N_1$  to  $N_2$  is

- 100.0 kW
- 96.0 kW
- 88.0 kW
- 80.0 kW

No, the answer is incorrect. Score: 0

Accepted Answers: *80.0 kW*

10) Consider a distribution system with four distribution transformer as shown in the following figure. If the metered demand at the substation is 600 kVA, the allocation factor is 4 points



- 1.00
- 0.80
- 0.75
- 0.60

No, the answer is incorrect. Score: 0

Accepted Answers: *0.75*

11) Which of the following sentences is true in the case of ring bus configuration? 2 points

- I The switching operations are carried out through breaker.
  - II The reliability and operational flexibility is higher.
  - III Relaying is relatively simple.
- I and II
  - I and III
  - II and III
  - I, II, and III

No, the answer is incorrect. Score: 0

Accepted Answers: *I and II*