

Department of Electrical Engineering
Final Assignment
Date: 27/06/2020

Course Details

Course Title: _____ Smart Grid Technologies _____ **Module:** _____ 3 _____
Instructor: _____ _____ **Total Marks:** _____ 50 _____

Student Details

Name: _____ **Student ID:** _____

INSTRUCTIONS:

1. The solution must be uploaded before the end of deadline mentioned on the Online Portal of subject.
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Question 1

(15)

What are the major factors that make it difficult to make large scale improvements in the existing conventional grid system. Also discuss that if its more feasible to update the existing conventional grid in Pakistan or smart grid will be more beneficial for Pakistan in order to meet the current energy demands of the country

Question 2

(10)

There are many causes of power failures in an electricity network. Examples of these causes include faults at power stations, damage to electric transmission lines, substations or other parts of the distribution system, a short circuit, cascading failure, fuse or circuit breaker operation.

- i. Discuss the typical sequence of steps seen in large power system blackouts. Explain with the help of example that how a self-healing grid can arrest the sequence and prevent such blackouts.
- ii. Consider the example of a disasterous blackouts in Pakistan and Explain how this typical sequence

Question 3

(10)

The communication network is backbone of a smartgridand is characterized by the coverage in smaller areas like homes and buildings, coverage over medium areas ranging from few hundred meters to about a kilometer and coverage over longer distances. Explain in details the type of networks used to create smartgrid communication network. Also discuss what type of communications can be that are necessary in smar grid environent.

Question 4

(15)

- a. Smart grid is customer oriented. What does this term mean and how does this relate to efficiency of grid?
- b. Comprehensively discuss the communication network in smart meter system by elaborating communication and electrical interfaces.
- c. through the electricity grid? How can this have monetary benefits for the customers and other stakeholders?