Module 1

VIL Self-evaluation:

Supply the statement below to assess what you learn in this module.

1. How Power Plant Works?

* A power plant is an industrial facility that generates electricity from primary energy. Most power plants use one or more generators that convert mechanical energy into electrical energy in order to supply power to the electrical grid for society's electrical needs.

2. Explain the concept of Electromagnetic Generators.

* Electric generators work on the principle of electromagnetic induction. A conductor coil (a copper coil tightly wound onto a metal core) is rotated rapidly between the poles of a horseshoe type magnet. The conductor coil along with its core is known as an armature.

3. How Fossil fuel and other energy fuels contemplate in the environment?

* When fossil fuels are burned, they release large amounts of carbon dioxide, a greenhouse gas, into the air. Greenhouse gases trap heat in our atmosphere, causing global warming. Already the average global temperature has increased by 1C.

Module 2

Self-evaluation:

TEST I FILL IN THE BLANK

Understanding the Basics on Power Distribution Systems

1. The Electricity supply is the most important components of a power distribution system

2. Electrical energy drawn to all industries and houses via electrical cables.

3.The power distribution system is needed to distribute the power property Power distributed through

4. Homes

5. Offices

6. Companies

7.A Feeder is a set of conductor that originates at a main distribution and supplies one or more secondary, branch and distribution circuits

8. Power Distribution System component throughout the building: Metering Device

9. Main and branch disconnects

10. Protective devices

11. Switching devices

12. Conductors

13. Transformer

TEST II Electric Grid

Fill in the Blank

1.Electrical Grid is a network of synchronized power providers and consumers that are connected by transmission and distribution lines and operated by one or more control centers

2. The most common turbine is Steam Turbine a such as are used in coal-fired generators

3. Electrical power starts at the power plant

4. The power that modern power plants produce is called electric power.

5. In AC, electrons flow reverse in both directions through devices that are connected to this voltage source.

6. At the transmission substation large transformer convert the power produced by the plant to a much higher voltage convert the power

7. Once the power lines have reached the city, the first step in the distribution grid is to connect to the high voltage lines, and convert to a lower voltage for distribution

8.Connection for Transformer

9.Guy wire

10. Pole

11. Ground

12. Distribution line

13. 240v to house

14. Transformer

15. Post

Module 3

1. What is the performance of long transmission lines?

* The performance of transmission line depends on the parameters of the line. The transmission line has mainly four parameters, resistance, inductance, capacitance and shunt conductance. These parameters are uniformly distributed along the line. Hence, it is also called the distributed parameter of the transmission line.

2. What is Ferranti Effect?

* The Ferranti effect is the increase in voltage occurring at the receiving end of a very long AC electric power transmission line, relative to the voltage at the sending end, when the load is very small, or no load is connected. It can be stated as a factor, or as a percent increase.

3. How power lines affect the communication circuits?

* Electromagnetic and electrostatic fields are produced by these lines having sufficient magnitude. Because of these fields, voltages and currents are induced in the neighboring communication lines. Thus, it gives rise to interference of power line with communication circuit.

4. Describe Corona power loss.

* Corona power loss is the loss of power in the transmission line due to the corona effect. This power loss will affect the efficiency of the transmission line. But it does not have an appreciable effect on the voltage regulation of the line. Here, mv is the roughness factor and is unity for smooth conductors.

Module 4

1. How effective porcelain insulator in transmission Ines?

* As it is transparent in nature the is not heated up in sunlight as porcelain. The impurities and air bubbles can be easily detected inside the glass insulator body because of its transparency.

1. In line conductors, how Aluminum and Copper became the touchstone of conductors?

* Conductors consist of materials that conduct electric current, or the flow of electrons. Nonmagnetic metals are typically considered to be ideal conductors of electricity. The wire and cable industry uses a variety of metal conductors, but the two most common are copper and aluminum.

1. What are the factors in considering a good conductor?

* For a material to be a good conductor, the electricity passed through it must be able to move the electrons; the freer electrons in a metal, the greater its conductivity. An element having free electrons can cause flow of electricity. Moreover, presence of water can also yield flow of electricity.

1. How underground cabling works?

* Underground service cables are connected to the utility company's pole and fed down a pipe into the ground. Then, they run horizontally through a bored hole in the ground and up into a ground-based transformer. The primary connection to the transformer is called the line connection.