## **Electric Utilities Fundamentals and Future**

**WEEK 1**

Question 1 2 out of 10 people worldwide do not have access to modern electricity

1. True
2. False

Ans. A

Question 2 U.S. Federal electricity regulation appeared in the 1920s as a result of the Great Depression

1. True
2. False

Ans. B

Question 3 In its most basic definition "the grid" is responsible for 3 things; select the correct 3.

1. Distribution
2. Generation
3. Regulation
4. Transmission

Ans. A, B, D

Question 4 Hydro and coal-fired plants produce electricity through similar processes. For both, a power source turns the turbine, which turns a metal shaft in an electricity generator. The generator is the motor that produces electricity.

1. True
2. False

Ans. A

Question 5 Which of the following is considered renewable? Select all that apply.

1. Nuclear
2. Geothermal
3. Wind
4. Hydroelectric
5. All the above

Ans. B, C, D

Question 6 Which of the following statement(s) are true when it comes to customer expectations about electricity?

1. Customers expect electricity to be reliable.
2. Society is increasingly demanding that their electricity is provided in a way that does not detract from future generations.
3. Reliability, sustainability, and affordability must be considered when weighing decisions in this industry.
4. Most residential customers are willing to pay a premium for reliable electricity.

Ans. A, B, C

Question 7 Which of the following statements are true regarding harnesses the wind for electricity generation?

1. There are no environmental drawbacks when it comes to wind energy.
2. Wind farms are typically located near population-dense areas, making transmission easy.
3. Worldwide, wind energy has benefitted from significant government subsidies.
4. Wind farms take up a lot of space.

Ans. C, D

Question 8 Which of the following definitions best describes electricity transmission?

1. Power lines that carry electricity directly into our homes or businesses
2. The superhighways that transport electricity over long distances
3. Producing electricity from a primary fuel source

Ans. B

Question 9 Natural gas prices have increased dramatically in recent years.

1. True
2. False

Ans. B

Question 10 Which of the following is an example of local natural resource availability shaping the large-scale generation fuel mix?

1. The extensive use of hydropower in the U.S. Pacific Northwest.
2. The decision to bury distribution lines.
3. The use of coal in China for electricity generation.
4. A utility converting its trucks from diesel to natural gas.

Ans. A, C

Question 11 Which of the following statements is true when it comes to natural gas as it pertains to electricity generation?

1. Natural gas as a generation source is relatively new.
2. Hydraulic fracturing ("fracking") and horizontal drilling made this resource more easily accessible and drove down costs.
3. Generation plants that use natural gas produce a lot of emissions during the electricity generation process.
4. There is very little natural gas available in the United States.

Ans. B

Question 12 Which of the following statements regarding thermal electricity production are true?

1. The steps to producing electricity using a primary fuel source to produce steam, turn blades in a turbine and spin magnets with coils inside a generator is a brand-new concept.
2. Most of our electricity is generated from thermal power plants.
3. Nuclear power plants are an example of thermal electricity generation.

Ans. B, C

Question 13 Which of the following terms describes the minimum level of electricity demand needed over a 24-hour period?

1. Peak load
2. Capacity
3. Demand-side management
4. Base load or continuous load

Ans. D

Question 14 Which of the following statements are true with respect to primary fuel sources and electricity generation?

1. Most electricity generation has been and continues to be produced by fossil fuels.
2. A shift away from coal could be done very quickly.
3. Coal, nuclear and natural gas are excellent choices for handling base load.
4. When we consider electricity affordability, we should only consider our monthly electricity bill.

Ans. A, C

Question 15 Geothermal energy uses heat from the earth's core to generate electricity.**1 / 1 point**

1. True
2. False

Ans. A