Question 1. (Single Select)

For a given period of time, what is the ratio ofthe average enerv consumption in a facility divided by the peak demand in the facility called?

A: Demand charge
B: Energy Use Index
C: Load factor
D: Energy balance

Correct Answer: D

Explanation:

A building's load factor is an indicator of the shape of the daily demand profile. A high load factor indicates a relatively high base load compared to the peak; whereas a low load factor indicates that there is a period with a high peak load relative to other times in the day.

Question 2. (Single Select)

During the past 12 months a 150,000 square foot facility used 1,350,000 kWh of electricity and 7,500 MMBtu of natural gas. The cost of electricity is SO.085/kWh and the cost of natural gas is S7.50/Mcf. What is the Energy Cost Index of the facility? (Assume 1 Mcf = 1.037 MMBtu).

A: Sl.11/ft2
B: Sl.13/ft2
C: Sl.15/ft2
D: Sl.17/ft2

Correct Answer: B

Explanation:

The cost of electricity is kWh x $0.085/kWh

is: $114,750.The cost of natural gas.

$$\frac{7{,}500\ \text{MMBtu}}{1.037\ \frac{\text{MMBtu}}{\text{Mcf}}} \times \frac{\$7.50}{\text{Mcf}} = \$54{,}243$$

So the total cost is $168,993. The Energy Cost Index is:

$$\frac{\$168{,}993}{150{,}000\ \text{ft}^2} = \frac{\$1.13}{\text{ft}^2}$$

Question 3. (Single Select)

Which of the following is a potential application for an infrared camera?

A: Finding faulty electrical connections or overloaded circuits.
B: Determining areas of heat loss from a building.
C: All of the above
D: Identifying mechanical faults such as excessive bearing friction

Correct Answer: D

Explanation:

Infrared thermography can be utilized to find excessively hot or cold areas in electrical systems, mechanical equipment, and the building fabric.

Question 4. (Single Select)

An office building uses 1,200,000 kWh of electricity each year and 4,000 Mcf of natural gas. A lighting retrofit will save 80,000 kWh each year by reducing the power demand when the lights are switched on. Which measurement and verification method would be most appropriate?

A: Spot measurement
B: Continuous measurement
C: Utility bill comparison
D: Calibrated simulation

Correct Answer: A

Explanation:

A spot measurement of the reduction in lighting power would be the best method since the power will not vary over time and the hours of operation are not being changed. The expected savings are only about 7% of the total electricity demand so utility bill comparison is not suitable.

Question 5. (Single Select)

What is the maximum contract term a federal agency may have for an Energy Saving Performance Contract?

A: 15 years
B: 10 years
C: 25 years
D: 40 years

Correct Answer:

Explanation:

The Federal Acquisition Regulations (FAR Part 23.205) state that an ESPC cannot exceed 25 years.