

II. What is Your KAEM (Knowledge About Energy Management)

--In Relation to Using Equipment and Appliances?

Instructions:

Listed below are 16 problem situations concerning energy management in relation to using equipment and appliances. After reading the problem situation, check the alternative you consider to be correct.

When you have finished answering all of the problem situations, check your answers beginning on page 5.

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1. 1a. A cold draft coming from a window or door that faces against the direction of a winter wind is an indication of warm air escaping from the housing unit or cold air entering the housing unit.
- 1b. A remedy for this is:
 - a. repainting the house a warm color
 - b. installing a large furnace
 - c. caulking and weatherstripping,
2. 2a. Needless loss of heat through windows of the house can also be prevented through the installation of storm windows or double glass.
- 2b. Amount of heat that is needlessly lost through the windows of your house as well as difference in room air and window surface temperatures can be reduced by storm windows (or double glass) by as much as:
 - a. 20%
 - b. 50%
 - c. 80%
3. 3a. How you operate the temperature controls of your heating and air conditioning systems has a significant effect on energy management.
- 3b. Which of the following practices is not recommended in operating the thermostat?
 - a. In winter, lower the thermostat setting at night
 - b. In summer, don't try to keep the inside temperature more than 15 degrees cooler than the outside temperature
 - c. All year, adjust the thermostat frequently during the day.
4. 4a. Improperly functioning heating and air conditioning systems contribute to wasting energy.
- 4b. A practice which will improve the efficiency of your heating and air conditioning systems is to:
 - a. clean or replace furnace and air conditioning filters frequently
 - b. run the air conditioner every day even in mild weather
 - c. if you have radiators, paint them with heavy coats of paint.
5. 5a. When excessive outdoor air enters your house, energy is wasted and operating cost for air conditioning is needlessly high.
- 5b. Which of the following practices will help prevent excessive entry of outdoor air?
 - a. Keeping openings and passages to the attic open
 - b. Keeping windows and doors shut and using storm windows and doors during the air conditioning season
 - c. If you have a fireplace, keeping the damper open.
6. 6a. Circulation of inside air is important for effective use of energy in heating and air conditioning the house.
- 6b. Which of the following practices helps encourage circulation of inside air?
 - a. Placing furniture and draperies so that they don't block radiators and registers
 - b. Leaving all the doors in your house closed
 - c. Running the kitchen and bathroom exhaust fans frequently.

7. 7a. Adequate thermal insulation above the top floor ceiling can help reduce heat loss in winter and entry of heat in summer, and thus avoid needless consumption of energy.
- 7b. The "All-Weather Comfort Standard" recommended "R" value rating for ceiling insulation is:
 - a. R-12
 - b. R-19
 - c. R-8
8. 8a. The use of draperies and curtains contribute to wise energy management.
- 8b. Which of the following practices help prevent needless use of energy?
 - a. Leaving draperies closed every day throughout the year
 - b. Opening draperies on sunny days in winter; closing on sunny days in summer
 - c. Using unlined draperies.
9. 9a. Heating water for various household and personal uses accounts for a large portion of the energy used in the home.
- 9b. One way to help reduce the energy for heating water is to:
 - a. take long showers
 - b. locate the water heater as far away as possible from the point where most hot water is used
 - c. fix leaking faucets promptly
10. 10a. Wise use of hot water in various household tasks also helps conserve energy.
- 10b. One practice which will help conserve energy for water heating is to:
 - a. wash full loads in both dishwasher and clothes washers, unless machine has a partial load setting
 - b. let the hot water run constantly while washing dishes by hand
 - c. use only hot water in laundering.
11. 11a. Effective use of your range in cooking contributes to conserving energy.
- 11b. Which of the following practices helps get full benefits from energy when cooking on surface units or burners?
 - a. cooking foods uncovered
 - b. fitting the size pan to the size surface burner or unit.
 - c. not changing the setting when foods begin to boil.
12. 12a. Another way to get the most value from energy is to use the oven in your range effectively.
- 12b. One way to do this is to:
 - a. cook complete oven meals
 - b. open the door frequently to check on cooking
 - c. always pre-heat the oven.
13. 13a. Refrigerators and freezers are major energy users in the home. Using these appliances effectively helps reduce energy consumption.
- 13b. One way to reduce unnecessary use of energy in operating refrigerators and freezers is to:
 - a. avoid frequent opening of the door
 - b. let the ice get at least an inch thick before defrosting
 - c. keep the freezer only partly full.
14. 14a. The clothes dryer is another main energy user in the home.
- 14b. One practice which helps prevent wasting energy in using your clothes dryer is to:
 - a. put as many clothes as possible into the dryer for each load
 - b. clean lint trap after each load
 - c. dry clothes for the longest time possible.

15. 15a. There are two major light sources for home use, incandescent bulbs and fluorescent tubes.
- 15b. Which of the following light sources is more efficient? (Gives more light output per watt used).
- a. a 40 watt incandescent bulb
 - b. three 15 watt incandescent bulbs
 - c. a 40 watt fluorescent tube.
16. 16a. It is important to provide adequate light for studying. A well-designed study lamp should provide well diffused light over the entire work surface.
- 16b. For comfortable, easy reading the work area should be provided with:
- a. 10 foot candles
 - b. 70 foot candles
 - c. 140 foot candles

Answers

1. C. is the correct answer. Installing weatherstripping at movable joints and caulking the frames of all windows and doors can be done at low cost.
2. B. is right. Storm windows or double glass will cut in half the heat that is needlessly lost through windows of your house. In addition, they will cut in half the difference between room air and window surface temperature which produces a cold feeling when you are near a window in the winter and causes cold drafts across the floor.
3. C. is the answer. Changing your thermostat back and forth frequently wastes energy and money.
4. A. is correct. Dirty filters restrict the flow of air resulting in inefficient operation of heating and air conditioning systems.
5. B. is correct. Keeping windows and doors shut and using storm windows and doors helps keep heated air out of the house.
6. A. is correct. Blocked radiators and registers result in inefficient operation of the heating and air conditioning systems.
7. B. is the right answer. If your ceiling presently has less than 4 inches of insulation (rating less than R-12), add extra insulation to bring the rating to R-19.
8. B. is correct. Opening draperies on sunny days in winter and closing them on sunny days in summer takes advantage of heat from the sun in winter and reduces solar heat in the summer.
9. C. is correct. One drop per second can waste as much as 200 gallons per month. This can be costly use of energy and money, especially if hot water faucets leak.
10. A. is correct. Washing less than full loads increases the use of hot water.
11. B. is correct. Heat is wasted if pans are smaller than the burners or units, so use large-size pans on large burners or units and small size pans on small burners or units.
12. A. is correct. You can use your oven more effectively if you cook several foods at one time, rather than cooking only one dish at a time.

Preheating the oven is recommended for baking but is not necessary for broiling and roasting. And remember, place foods into preheated ovens promptly.

13. A. is correct. Opening the door of your refrigerator or freezer as few times as possible keeps heated air from getting inside, so saves energy.

If your refrigerator isn't frostless, make sure you defrost it when the ice is 1/4 inch thick. More ice than that adds to the energy used during operation. Another practice for good energy management is to keep the freezer as full as possible but not overcrowded.

14. B. is correct. Clogged lint filters cut down the rate of air which increases drying time.

15. C. is the correct answer. Fluorescent light sources provide more light for wattage used than incandescent light sources. Also incandescent light sources are more effective in higher wattages. The 40 watt fluorescent tube will produce an average of 2050 lumens while the 40 watt incandescent bulb will produce only 470 lumens. Even though the 3-15 watt bulbs will use more electricity than either of the other sources, they will provide only about 345 lumens.

16. B. is the correct answer. A Better-Light-Better-Sight study lamp will provide an adequate amount of well diffused light over the study area. To get the most efficient use from any study lamp place it as shown in the illustration--12" from the edge of the table and about 15" to the left side, if you're right-handed.