AIR CONDITIONING AND REFRIGERATION

21.1. Vocabulary

Ex. 1. *Match the words to their definitions.*

1. refrigerator	a. a refrigerated container or room used for storing food or drinks at a low temperature.
2. refrigerant	b. energy transferred from one body to another due to a difference in temperature.
3. condenser	c. a machine that produces ice cubes or crushed ice.
4. air conditioning	d. the process of controlling the temperature, humidity, and purity of the air in a space.
5. walk-in cooler	e. a device used to condense a substance from its gaseous state to its liquid state by cooling it.
6. cooler	f. a device that cools and dehumidifies the air in a room or building.
7. refrigeration	g. a large refrigerated room or chamber used for storing perishable items.
8. ice machine	h. a substance used in a refrigeration system to absorb and release heat as it changes states.
9. evaporative	i. relating to the process of converting a liquid into a gas through evaporation.

10. heat exchanging pipes	j. an appliance used for keeping food and drinks cold and fresh.
11. heat	k. tubes or pipes used to transfer heat between two fluids without them coming into direct contact with each other.
12. air conditioner	l. the process of removing heat from an enclosed space to lower its temperature.

Ex. 2. *Translate the sentences into English.*

1. Кондиционер в моей машине сломался в самый жаркий день лета.

2. Как механик, я обладаю обширными знаниями о системах кондиционирования воздуха в автомобилях.

3. Одной из потенциальных проблем со старыми автомобилями является неисправный конденсатор, который может привести к нехватке холодного воздуха из кондиционера.

4. При сильной жаре методов испарительного охлаждения может оказаться недостаточно для поддержания комфортной температуры внутри автомобиля.

5. Если у вас более новый автомобиль, вы можете не так часто испытывать проблемы с замерзанием охладителя.

6. При движении по пустыне жара в салоне вашего автомобиля может стать невыносимой без работающего кондиционера.

7. Для поддержания надлежащей работы кондиционера важно регулярно проверять теплообменные трубки на наличие утечек или засоров.

8. Многие современные автомобили оснащены автоматом для приготовления льда, расположенным на центральной консоли для удобства.

9. Важно использовать правильный хладагент для системы кондиционирования вашего автомобиля, чтобы обеспечить оптимальную производительность и предотвратить повреждение.

10. Без надлежащего охлаждения скоропортящиеся продукты, оставленные в горячем автомобиле, могут быстро испортиться.

11. Мой брат - водитель грузовика, и у него в кабине есть небольшой холодильник для хранения продуктов в дороге.

12. Во время длительных автомобильных поездок так удобно иметь встроенный холодильник в задней части нашего фургона, чтобы напитки и закуски оставались холодными.

21.2. Reading *Ex. 1.* *Read the text.*

Air Conditioning and Refrigeration

Air conditioning and refrigeration are provided through the removal of heat. When you put ice on your skin, it feels cold because the heat is being removed from your body to melt the ice. Air conditioners and refrigerators work in much the same way.

Air conditioner

The air conditioner in a car works by blowing hot air over a set of cold pipes called an evaporator. The job of the evaporator is to absorb the heat from the inside of the car, so the air blows out cool. Another set of pipes, called the condenser, releases the heat outside the car. The cooling cycle continues until you turn off the air conditioning.

Refrigerator

A refrigerator is essentially an insulated box with a heat pump connected to it. The heat pump is the cycle of evaporation and condensation of a refrigerant (a working fluid) that absorbs heat from the contents of the refrigerator, and transfers it to the room outside.

Refrigeration

Refrigeration is not limited to space cooling. It is also used to cool liquids and foods, and for industrial processes requiring low temperatures. In

these cases, the refrigerator is often a separate unit from the main cooling system, which may be part of a larger process.

Cooler

A cooler or cold room is a walk-in refrigerator used to store fresh and frozen foods. It is usually part of a restaurant's kitchen. A large walk-in cooler might have a smaller walk-in freezer at one end. The temperature in the cooler is controlled by a thermostat.

Ice machine

An ice machine is a refrigeration appliance used to make and store ice. Ice machines can be stand-alone or built into a refrigerator or freezer. They come in different sizes, from small countertop units for home use to large machines that produce and store ice for commercial purposes, such as hotels and restaurants.

The refrigeration cycle

The refrigeration cycle has four basic steps:

1. The refrigerant absorbs heat from the contents of the refrigerator, causing it to evaporate and turn into a gas.

2. The refrigerant gas is compressed, which increases its temperature.

3. The hot refrigerant gas flows through a set of heat exchanging pipes, where it loses heat to the surrounding air.

4. The refrigerant cools down and condenses back into a liquid, ready to absorb more heat.

The refrigeration cycle repeats as long as the refrigerator is running. The thermostat controls when the cycle starts and stops, based on the desired temperature setting.

In summary, air conditioning and refrigeration work by removing heat. In an air conditioner, the heat is absorbed from the inside of the car and released outside. In a refrigerator, the heat is absorbed from the contents of the fridge and released into the room. And in a cooler, the heat is removed from the air inside the walk-in chamber and released outside.

Ex. 2. *Answer the questions.*

1. How does an air conditioner work in a car?

2. What is the purpose of the evaporator and condenser in an air conditioning system?

3. How does a refrigerator cool its contents?

4. What is the function of a heat pump in a refrigerator?

5. Besides space cooling, what are some other applications of refrigeration?

6. What is the difference between a cooler and a walk-in freezer?

7. How does an ice machine work to produce and store ice?

8. Describe the four basic steps of the refrigeration cycle.

9. What role does the thermostat play in the refrigeration cycle?

10. How do air conditioning, refrigeration, and coolers remove heat?

21.3. Communication ***Ex. 1.*** *Make sentences using the following words:*

1. air/conditioning/work

2. adjust/temperature/air

3. turn/on/car

4. prefer/air/windows

5. refrigerant/car/refilled

6. turn/off/completely

7. working/take/look

8. maintenance/requirements/air

9. proper/ventilation/air

10. optimal/temperature/car