

KEY:

Unit 5: Heat Transfer

In this unit your students will practise:

- Noting details from a spoken text
- Noting details from a written text
- Describing the function of transferring heat.
- Describing block diagrams in writing.

Task 1

There are three mechanisms by which thermal energy is transported. They are Radiation; Conduction; Convection.

Some examples deal with the first law of thermodynamics:

- Kinetic energy from the turbines convert into electric energy.
- An electric furnace changes electric energy into heat.
- A burning fire changes chemical energy in its fuel into heat energy.

Task 2

1/ Answer the questions:

1/ Thermodynamics is that branch of science dealing with the mechanical action of heat. There are fundamental principles of nature, often called laws of thermodynamics, which govern the existence on Earth, several of which are basic in the study of refrigeration.

2/ Energy can neither be created or destroyed, but can be converted from one type to another.

3/ Heat always travels from a warm object to a colder one.

4/ Radiation, Conduction, Convection.

2/ True or false:

1/ T, 2/ F 3/ F 4/ F 5/ T 6/ F 7/ T 8/ T 9/ F

Task 4

Fig.3.5 C Convection

Fig.3.6 A Convection

Fig.3.7 D Convection

Fig.3.8 B Convection

Fig.3.9 J Conduction

Fig:3.10 E Convection

Fig.3.11 F Conduction

Fig.3.12 I Radiation

Fig.3.13 G Radiation - Convection

Fig .3.14 H Radiation

3.7. Exercise

1/ Rewrite the passive sentences into active sentences

1/ In the United States, temperature is normally measured in degrees Fahrenheit.

⇒ *In the United States, they normally measure temperature in degrees Fahrenheit.*

2/ Air may be heated by a furnace.

⇒ *A furnace may heat air.*

3/ The sun's energy is transferred to the Earth by radiation.

⇒ *Radiation transfers the sun's energy to the Earth.*

4/ The relation between Fahrenheit and Centigrade scales can always be established by the following formulas.

⇒ *The following formulas can always establish the relation between Fahrenheit and Centigrade scales.*

5/ Ice was harvested in the winter to be used in the summer.

⇒ *They harvested ice in the winter to use in the summer.*

II/ Rewrite the sentences in passive voice.

1/ I confirm the reservation.

→ *The reservation is confirmed.*

2/ We will deliver the goods immediately.

→ *The goods will be delivered immediately.*

3/ We arranged a meeting.

→ *A meeting was arranged.*

4/ You can cancel the contract within five business days.

→ *The contract can be cancelled within five business days.*

5/ They execute all orders carefully.

→ *All orders are executed carefully*

6/ You have made a mistake.

→ *A mistake has been made.*

7/ We are processing your order.

→ *Your order is being processed.*

8/ Jane had booked a flight.

→ *A flight had been booked by Jane.*

9/ He has not answered our letter.

→ *Our letter has not been answered.*

10/ She did not sign the contract.

→ *The contract was not signed.*

III/ Decide whether to use simple present, simple past, present perfect, conjunctive or passive voice. Use the long forms.

The Fellowship of the Ring is the first book of J.R.R. Tolkien's The Lord of the Rings trilogy, which is set in a fictive world, Middle Earth. It tells the story of Frodo, a hobbit, and a magic ring.

As the story begins, Frodo is given a magic ring. The wizard Gandalf then tells him of the Rings of Power and of Sauron, the Dark Lord, who made the Master Ring to rule all other Rings. Gandalf advises Frodo to leave home and keep the ring out of Sauron's hands who already has sent his Black Riders in search for it. Frodo's ring would give Sauron the power to enslave Middle Earth.