Worksheet 14.1

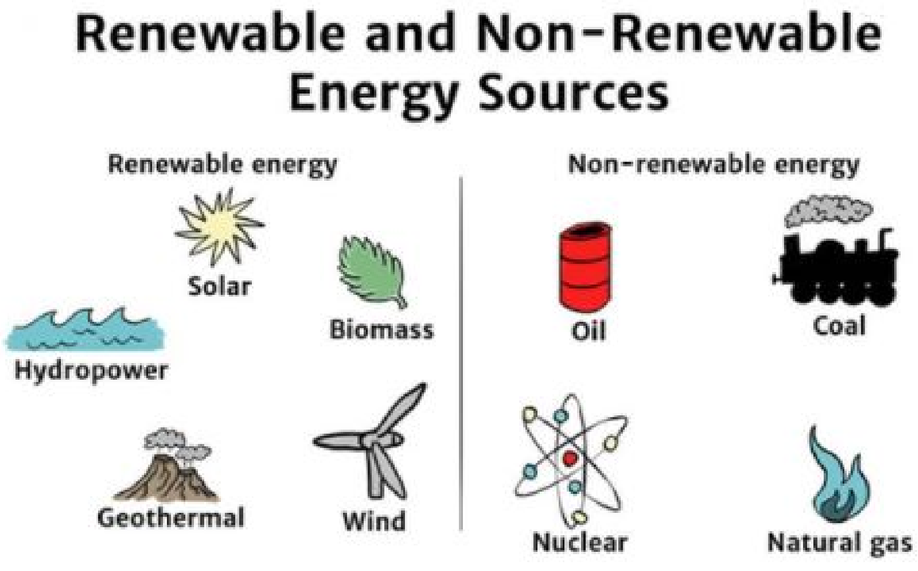
Marks - 25

Case study based questions

10th Science

Sources Of Energy

Passage - 1 **5 Marks**



Those sources of energy which have accumulated in nature over a very, very long time and cannot be quickly replaced when exhausted are called non-renewable sources of energy. For example, coal is a non renewable source of energy because coal has accumulated in the earth over a very, very long time, and if all the coal gets exhausted, it cannot be produced quickly in nature (see above figure). The non-renewable sources of energy are : Fossil fuels (Coal, Petroleum and Natural gas), and Nuclear fuels (such as Uranium). Non-renewable sources of energy are dug out from the earth.

Q 1. The sources of energy which can not be quickly replaced when exhausted are called

(1) Renewable
(2) Non-renewable

Q 2. Which of the following is not a non-renewable source of energy?

(1) Solar energy
(2) Coal

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(3) Petroleum
(4) Natural gas

Q 3. Which of the following is a non-renewable source of energy?

(1) Wind
(2) Uranium
(3) Solar energy
(4) Tidal energy

Q 4. The sources of energy which can be dug out from the earth are

(1) Non-renewable
(2) Renewable
(3) Both of these
(4) None of these

Q 5. Non-renewable source of energy are:

(1) Quickly replacable
(2) Slowly replacable
(3) Irreplaceable
(4) None of these

Passage - 2 **5 Marks**

Worksheet 14.1

Marks - 25

Those sources of energy which are being produced continuously in nature and are inexhaustible, are called renewable sources of energy. The renewable sources of energy are also called non-conventional sources of energy. These sources of energy can be used again and again, endlessly. They will never get exhausted. Since renewable sources of energy will never get exhausted, so they are also known as inexhaustible sources of energy. A yet another name for renewable sources of energy is the alternative sources of energy. Examples : Hydroenergy; Wind energy; Solar energy; Tidal energy, Geothermal energy ; Biomass energy.

Q 1. The sources of energy which are being produced continuously in nature and are inexhaustible are called

(1) Non-renewable
(2) Renewable
(3) Both of these
(4) None of these

Q 2. The renewable sources of energy are also called

(1) Conventional
(2) Non-conventional

Q 3. Inexhaustible sources of energy are

(1) Non-conventional
(2) Conventional

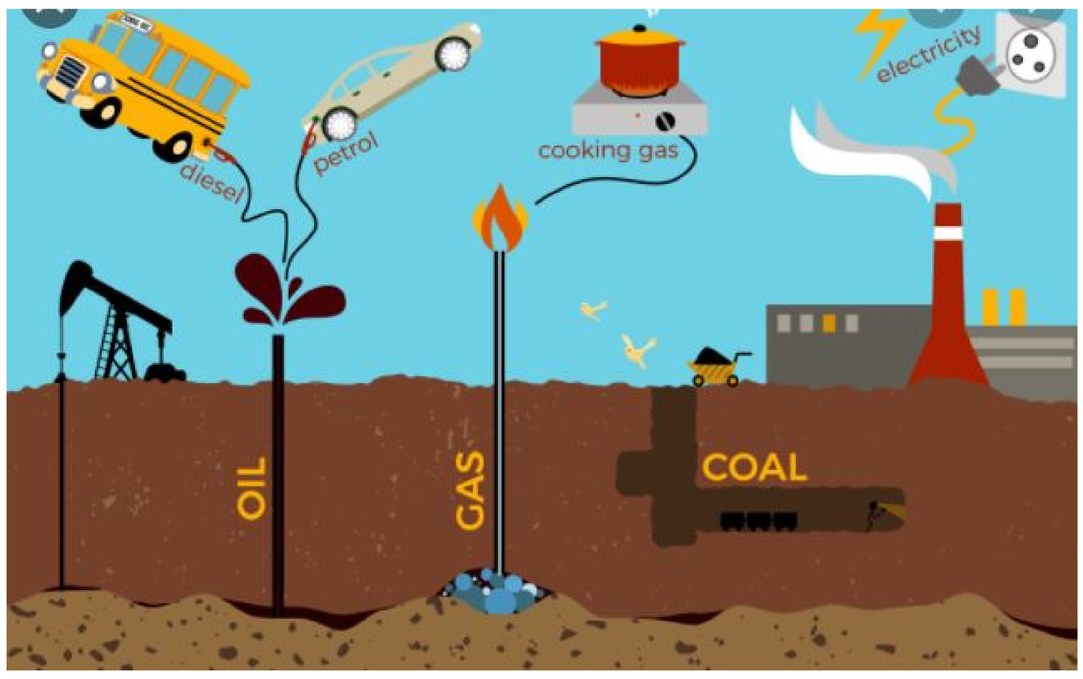
Q 4. The sources of energy which will never get exhaust are

(1) Non-renewable
(2) Renewable

Q 5. Which of the following is not a renewable source of energy?

(1) Wind energy
(2) Solar energy
(3) Nuclear energy
(4) Tidal energy

Passage - 3 **5 Marks**



The materials which are burnt to produce heat energy are known as fuels. Examples of fuels are : Wood, Coal, Cooking gas (LPG), Kerosene, Diesel and Petrol (see above figure). In our day to day life, the most important sources of energy are fuels. The usefulness of a fuel is measured in terms of its calorific value. Higher the calorific value, better the fuel will be. The amount of heat produced by burning a unit mass of the fuel completely is known as its calorific value. The unit of mass usually taken for measuring the calorific value of a fuel is “gram”.

Worksheet 14.1

Marks - 25

Q 1. The materials which are burnt to produce heat energy are called

(1) Non-renewable
(2) Renewable
(3) Fuels
(4) None of these

Q 2. In our daily life, most important sources of energy are

(1) Fuels
(2) Oceans
(3) Biomass energy
(4) None of these

Q 3. Which of the following are fuels?

(1) Coal
(2) Petroleum
(3) Wood
(4) All of the above

Q 4. The usefulness of a fuel is measured in terms of its ....

(1) Amount
(2) Colour
(3) Calorific value
(4) None of these

Q 5. The unit of mass usually taken for measuring the calorific value of a fuel is

(1) Kg

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(2) Litre
(3) Gram
(4) Metre

Passage - 4

5 Marks

Since joule is a very small unit of heat energy, so the calorific value is usually expressed as kilojoules per gram (kJ/g). hydrogen gas has the highest calorific value of 150 kilojoules per gram. Thus, because of its high calorific value, hydrogen is an extremely good fuel. Most of the common fuels are the compounds of hydrogen and carbon called 'hydrocarbons'. LPG has a higher percentage of hydrogen than coal, so LPG has a higher calorific value than coal.

Q 1. The calorific value of fuels is usually expressed as

(1) J/gm
(2) gm
(3) KJ/gm
(4) None of these

Q 2. Which element has the highest calorific value

(1) Methane
(2) Coal
(3) Hydrogen gas
(4) None of these

Q 3. Calorific value of hydrogen gas is

(1) 150 KJ/g
(2) 55 KJ/g
(3) 50 KJ/g
(4) None of these

Q 4. The compounds of hydrogen and carbon are called

(1) Hydrocarbons
(2) Carbonates
(3) Hydroxides
(4) None of these

Q 5. Which of the following has higher percentage of hydrogen?

(1) Coal
(2) LPG
(3) Wood
(4) Cow dung cakes

Passage - 5 **5 Marks**

Worksheet 14.1

Marks - 25

The fuel which we choose for our domestic or industrial use should have a high calorific value. Carbon dioxide and water vapour are the harmless products produced by the burning of fuels. But some fuels produce poisonous gases like carbon monoxide (CO) and sulphur dioxide (SO_2), etc., which pollute the air around us. The fuel should have a proper ignition temperature which should be well above the normal room temperature.

Q 1. The calorific value of the fuel which we chosse for our domestic or industrial use should be

(1) High
(2) Low
(3) Moderate
(4) Zero

Q 2. The harmless product produced by the burning of fuels are

(1) Sulphur dioxide
(2) Carbon dioxide
(3) Carbon monoxide
(4) None of these

Worksheet 14.1

Marks - 25

Q 3. ..... and ..... are the poisonous gases produced by burning of some fuels

(1) Carbon monoxide and carbon dioxide
(2) Carbon monoxide and Sulphur monoxide
(3) Carbon monoxide and sulphur dioxide
(4) None of these

Q 4. The ignition temperature of fuel should be ..... the room temperature

(1) Below
(2) Above
(3) Same
(4) Can not be determined

Q 5. Chemical formula of Carbon monoxide and Sulphur dioxide are:

(1) (CO) and (SO) respectively
(2) (CO_2) and (SO) respectively
(3) (CO_2) and (SO_2) respectively
(4) (CO) and (SO_2) respectively

Worksheet 14.2

Marks - 25

Case study based questions

10th Science

Sources Of Energy

Passage - 1 **5 Marks**

The fuel which we choose should be cheap and easily available. Another point which we have to keep in mind is that the fuel should be easy to handle, safe to transport and convenient to store. The fuel should have low percentage of non-combustible materials. This means that the residue left behind after the burning of a fuel should be as low as possible.

Q 1. Which of the following is the qualities of good fuel?

(1) Cheap and easily available
(2) Easy to handle and safe to transport
(3) Both A and B
(4) Neither A nor B

Worksheet 14.2

Marks - 25

Q 2. Which of the following is not the qualities of good fuel?

(1) Convenient to store
(2) High price
(3) Easily available
(4) None of these

Q 3. The percentage of non-combustible materials in a fuel should be

(1) High
(2) Low
(3) Moderate
(4) Can not be determined

Q 4. The residue left behind after burning of a fuel should be as low as possible. State true or false.

(1) TRUE
(2) FALSE

Q 5. The cost of a good fuel is always high. State true or false.

(1) TRUE
(2) FALSE

Passage - 2 **5 Marks**

Worksheet 14.2

Marks - 25

Coal is a fuel which leaves behind a lot of ash after burning. The fuel should burn smoothly and at a steady rate. This is because if a fuel burns too fast, then most of the heat produced by it will be wasted. And if the fuel burns too slowly, then the heat produced may not serve our purpose. The fuels should have a low rate of evaporation at room temperature.

Q 1. Which of the following leaves behind a lot of ashes after burning?

(1) Coal
(2) Petrol
(3) CNG
(4) None of these

Q 2. The fuel should burn ..... and at a ..... rate.

(1) smoothly, steady
(2) rapidly, violently
(3) smoothly, violently
(4) None of these

Q 3. If a fuel burns too fast, then most of the heat produced by it will be .....

(1) Preserved
(2) Wasted

(3) May not serve our purpose
(4) All of the above

Q 4. If a fuel burns too slow, then most of the heat produced by it will .....

(1) be preserved
(2) be wasted
(3) not serve our purpose
(4) All of the above

Q 5. The fuels hould have ..... rate of evaporation at room temperature.

(1) Low
(2) High
(3) Moderate
(4) None of these

Passage - 3

5 Marks

Worksheet 14.2

Marks - 25

While choosing the most appropriate fuel for our domestic use or for use in industry, we should keep in mind the following characteristics of an ideal fuel or good fuel.

1. It should have a high calorific value.
2. It should burn without giving out any smoke or harmful gases.
3. It should have a proper ignition temperature.
4. It should be cheap and easily available.

Q 1. An ideal fuel should have ..... calorific value.

(1) High
(2) Low
(3) Moderate
(4) None of these

Q 2. An ideal fuel should not

(1) produce smoke
(2) produce poisonous gases
(3) pollute air
(4) All of the above

Q 3. An ideal fuel should not be

(1) expensive
(2) rare
(3) unsafe to use
(4) All of the above

Q 4. The ignition temperature of an ideal fuel should be

(1) Very high

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(2) Very low
(3) Moderate (neither too high, nor too low)
(4) None of these

Q 5. An ideal fuel should have

(1) High calorific value
(2) Proper ignition temperature
(3) Both A and B
(4) None of these

Passage - 4 **5 Marks**

The traditional sources of energy which are familiar to most people are called conventional sources of energy. The main conventional sources of energy are wood and fossil fuels (like coal, petroleum and natural gas). The fuels derived

from wood, coal and petroleum such as charcoal, coke, coal gas, petrol, diesel, kerosene, fuel oil and liquefied petroleum gas (LPG) are also known as conventional sources of energy (or conventional fuels). Even dung cakes (uple) is a conventional source of energy in our country.

Q 1. The traditional sources of energy which are familiar to most people are called .....

(1) Conventional
(2) Non-conventional
(3) Non-renewable
(4) Renewable

Q 2. The main conventional sources of energy are

(1) Wood and fossil fuels
(2) Electricity
(3) Both of these
(4) None of these

Q 3. Which of the following are conventional sources of energy?

(1) Coal
(2) Petroleum
(3) LPG
(4) All of the above

Q 4. Expand LPG

(1) Liquid Petrol Gas
(2) Lemon Purple Grass
(3) Liquefied Petroleum Gas

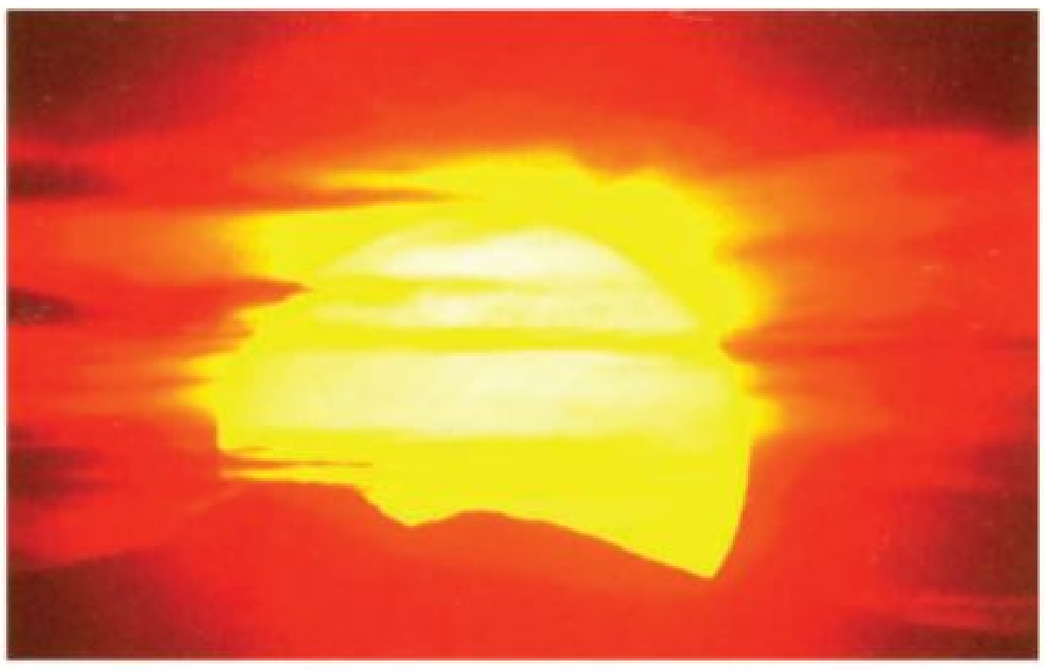
(4) None of these

Q 5. Dung cakes is a ..... source of energy in our country.

(1) Conventional
(2) Latest
(3) Main
(4) Pollution causing

Passage - 5

5 Marks



Sun is the ultimate source of fossil fuels. It was the sunlight of long ago that made plants grow, which were then converted into fossil fuels. Fossil fuels are energy-rich compounds of carbon which were originally made by the plants with the help of sun's energy (solar energy). Today when we burn coal, petroleum or natural gas, we are actually making use of the sunlight energy that was stored by the plants millions of years ago.

Q 1. ..... is the ultimate source of fossil fuels.

(1) Moon
(2) Sun
(3) Stars
(4) Wind

Worksheet 14.2

Marks - 25

Q 2. Fossil fuels are energy rich compounds of .....

(1) Carbon
(2) Oxygen
(3) Nitrogen
(4) None of these

Q 3. Today, when we burn fossil fuels, we are actually using ..... energy.

(1) Wind
(2) Tidal
(3) Solar
(4) None of these

Q 4. It was the sunlight of long ago that made plants grow, which were then converted into .....

(1) Fossil fuels
(2) Dung cakes
(3) Marshy lands
(4) None of these

Q 5. We are making use of sunlight energy that was stored by the plants ..... years ago

(1) Millions
(2) Hundreds
(3) Thousands
(4) None of these
