Chapter 11: Work and Energy

EXERCISE [PAGE 83]

Exercise | Q 1.1 | Page 83
Fill in the blanks with the appropriate term from the brackets.
A bucketful of water is to be drawn from a well _____ will be done when a _____ is applied to do this because there will be a _____ of water.
(displacement, work, force)

SOLUTION

A bucketful of water is to be drawn from a well. **Work** will be done when a **force** is applied to do this because there will be a **displacement** of water.

Exercise | Q 1.2 | Page 83
Fill in the blanks with the appropriate term from the brackets.
If a ball is dropped on the sloping roof of a house, it acquires _____ and falls on the ground. That is the transformation of _____ energy into _____ energy takes place.
(kinetic, potential, motion)

SOLUTION

If a ball is dropped on the sloping roof of a house, it acquires **motion** and falls on the ground. That is, the transformation of **potential** energy into **kinetic** energy takes place.

Exercise | Q 1.3 | Page 83
Fill in the blanks with the appropriate term from the brackets.
You might have seen some beautiful fireworks during Diwali. It is an example of the transformation of _____ energy into _____ energy.
(light, atom, chemical, solar)

SOLUTION

You might have seen some beautiful fireworks during Diwali. It is an example of the transformation of **chemical** energy into **light** energy.

Exercise | Q 1.4 | Page 83
Fill in the blanks with the appropriate term from the brackets.
The solar cooker is an application of the _____ energy of the sun, while solar cells, solar lamps are applications of the _____ energy of the sun.
(light, chemical, heat)

SOLUTION

The solar cooker is an application of the **heat** energy of the sun, while solar cells, solar lamps are applications of the **light** energy of the sun.

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Exercise | Q 1.5 | Page 83
Fill in the blank with the appropriate term from the brackets.
One labourer carried four pans of road metal through a distance of 100 metres. If he carries two pans of road metal through a 200-metre distance _____ work will be done.
(equal, more, less)

SOLUTION

One labourer carried four pans of road metal through a distance of 100 metres. If he carries two pans of road metal through a 200-metre distance **equal** work will be done.

Exercise | Q 1.6 | Page 83
Fill in the blank with the appropriate term from the brackets.
The capacity that an object has for doing work is called _____.
(energy, displacement, force)

SOLUTION

The capacity that an object has for doing work is called **energy**.

Exercise | Q 2 | Page 83
Match the pairs.

Group 'A'	Group 'B'
(1) Rolling object	(a) Heat energy
(2) Food	(b) Atomic energy
(3) Stretched bow	(c) Kinetic energy
(4) Sunlight	(d) Potential energy
(5) Uranium	(e) Chemical energy

SOLUTION

Group 'A'	Group 'B'
(1) Rolling object	(c) Kinetic energy
(2) Food	(e) Chemical energy
(3) Stretched bow	(d) Potential energy
(4) Sunlight	(a) Heat energy
(5) Uranium	(b) Atomic energy

Exercise | Q 3.1 | Page 83

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Can you tell when can we say that displacement has taken place?

SOLUTION

We can say that displacement has taken place when the initial and final position of an object is different i.e. there is some distance between the initial and final position of an object.

Exercise | Q 3.2 | Page 83
Can you tell what should be taken into account for measuring work?

SOLUTION

While measuring work, the magnitude of force applied on an object and the displacement of an object should be taken into account.

Exercise | Q 3.3 | Page 83
Can you tell what are the various forms of energy?

SOLUTION

Various forms of energy are:

- **Mechanical:** Kinetic and potential energy are two types of mechanical energy.
- Light
- Heat
- Muscular
- Sound
- Magnetic
- Electrical
- Chemical
- Nuclear

Exercise | Q 3.4 | Page 83

Can you tell describe one natural chain of transformation of energy?

SOLUTION

When a candle is lit, the chemical energy stored in its wax gets converted to heat and light energy.

Exercise | Q 3.5 | Page 83
Can you tell why should we save energy?

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SOLUTION

We should save energy because of the following:

- **To save money:** Wasting energy is the same as wasting money. We all know that the electricity we use in our homes isn't free but it costs us a lot. So, saving energy will save money too.

- **To preserve conventional sources:** Most of the energy we use in our daily life is generated using conventional energy resources, such as coal, petroleum, etc. These energy resources are non-renewable in nature. So, if we waste energy, we are indirectly wasting these resources and hence a day will come when these resources will get extinct. So to preserve these non-renewable resources, we should save energy.

- **To keep the environment clean:** Energy saving will help us keep the environment clean. Less energy usage will result in less energy production using coal, petroleum, and other conventional sources which pollutes the environment when burnt.

Exercise | Q 3.6 | Page 83

Can you tell what is 'green energy'?

SOLUTION

The forms of energy which do not produce smoke and carbon gases such as carbon dioxide or carbon monoxide are known as green energy.

Exercise | Q 3.7 | Page 83

Can you tell what are the non-conventional energy resources?

SOLUTION

Non-conventional energy resources are inexhaustible in nature and can be used in various forms again and again. For example, wind energy, tidal energy, solar energy, etc. are non-conventional energy resources.

Exercise | Q 3.8 | Page 83

Can you tell which forms of energy from the sun are used in solar energy devices?

SOLUTION

Heat and light energy of Sun is used in solar energy devices.

Exercise | Q 3.9 | Page 83

Can you tell why should we maximise the use of non-conventional energy resources?

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SOLUTION

Because of the increase in population and usage of energy resources, there is a potential danger of limited reserves of conventional energy resources, such as coal, petrol, diesel, crude oil, and natural gas, getting exhausted in the future. Therefore, it will be better to maximise the use of non-conventional energy resources to remove the danger of extinction of conventional energy resources.

Exercise | Q 4.1 | Page 83
Who is the odd-one-out?
Diesel, crude oil, natural gas, wind

SOLUTION

Wind is the odd one out as it is a non-conventional energy resource. The rest are conventional energy resources.

Exercise | Q 4.2 | Page 83
Who is the odd-one-out?
A running car, hauling a log, a book kept on a table, picking up the school bag.

SOLUTION

A book kept on a table is the odd one out as no work is being done in this case. In the rest of the cases, work is being done.

Exercise | Q 4.3 | Page 83
Who is the odd-one-out?
Sunlight, wind, waves, petrol

SOLUTION

Petrol is the odd one out as it is a conventional energy resource. The rest are non-conventional energy resources.

Exercise | Q 4.4 | Page 83
Who is the odd-one-out?
Leaving the fan on in a vacant room, leaving the TV on while working, using AC during winter, putting off the light when going out.

SOLUTION

Putting off the light when going out is the odd one out as it is one of the measures of saving energy. The rest involves wastage of energy.

Exercise | Q 5 | Page 83
Find out the types of energy from the following puzzle.

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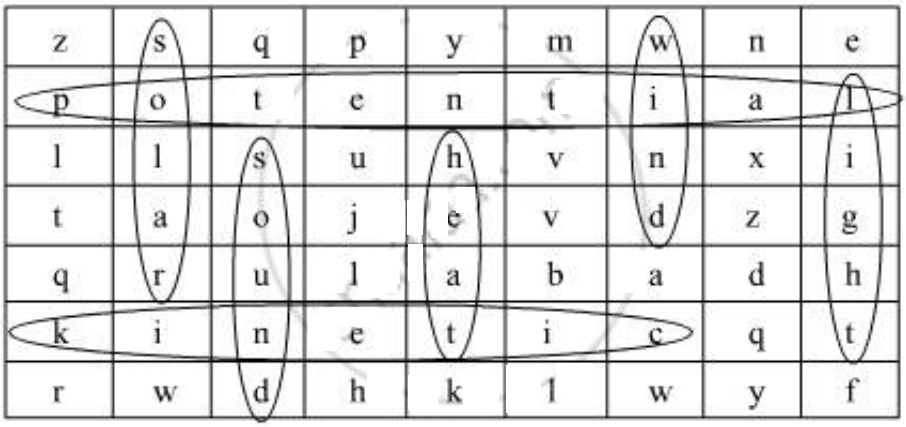
z	s	q	p	y	m	w	n	e
p	o	t	e	n	t	i	a	l
l	l	s	u	h	v	n	x	i
t	a	o	j	e	v	d	z	g
q	r	u	l	a	b	a	d	h
k	i	n	e	t	i	c	q	t
r	w	d	h	k	l	w	y	f

SOLUTION



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