

Worksheet

Force, Energy & Work

MCQs

Question 1: Which of them has stored energy?

- (a) Water
- (b) Air
- (c) Log of wood
- (d) All of these

Answer :

Correct Answer is Option A.

Energy is energy stored in objects by the application of a force. Compressed springs and stretched rubber bands are examples of stored energy.

Question 2: In which case is energy required?

- (a) In moving something
- (b) Change ice to water
- (c) Change water to water vapour
- (d) All of these

Answer :

Correct Answer is Option A.

In physics, energy is the quantitative property that must be transferred to a body or physical system to perform work on the body, or to heat it.

Question 3: Walking on slippery ground is difficult because there is:

- (a) very little gravity between us and the ground
- (b) very high gravity between us and the ground
- (c) very little friction between our feet and the ground
- (d) very high friction between our feet and the ground

Answer :

Correct Answer is Option C.

It becomes very difficult to walk on slippery roads because of the fact that on slippery roads, the friction is much less and we cannot exert a backward action force on slippery ground which would produce a forward reaction force on us.

Question 4: In which of these cases is a force being applied?

- (a) Lifting a book
- (b) Stretching a string
- (c) Kicking a football
- (d) All of these

Answer :

Correct Answer is Option D.

Force is a push or a pull acting on an object. Force is used not only to move an object but also stops it. Force is used to change the direction and position of an object.

Question 5: Which of these is not a form of energy?

- (a) Heat
- (b) Light
- (c) Water
- (d) Electricity

Answer :

Correct Answer is Option A.

Temperature is the degree or intensity of heat present in a substance or object. Thus temperature is not a form of energy.

True & False

Question 6:

- (a) The energy of fuels comes from the Sun. **(True)**
- (b) Things thrown up will come down, even if there is no gravity. **(False)**
- (c) Fuels have stored energy in them. **(True)**

Tips:

- All the energy in oil, gas, and coal originally came from the sun, captured through photosynthesis.
- Gravity is a force of attraction that pulls together all matter (anything you can physically touch). The more matter something has, the greater the force of its gravity. That means really big objects like planets and stars have a stronger gravitational pull.

- Fuels contain stored energy. The stored energy in fuels can be released by combustion. Combustion is the burning of a substance. The release of energy from fuels is used to make other forms of energy.

Fill in the blanks

Question 7:

- (a) Wood, petrol, coal or LPG are called energy.
(b) Solar energy is used by plants to produce food.
(c) Oiling reduces friction between surfaces.

Tips:

- The sources of heat energy for domestic and industrial purposes are mainly wood, charcoal, petrol, kerosene, etc. These substances are called fuels.
- Plants are called producers because they make – or produce – their own food. They convert these ingredients into food by using energy from sunlight. This process is called photosynthesis, which means 'making out of light'. The foods are called glucose and starch.
- When oil is applied between the two surfaces in contact, a thin layer of oil is formed between the two surfaces. This layer separates the two surfaces a little bit due to which their interlocking is reduced to a large extent when they rub against each other.

Answer the following questions in brief

Question 8: What is the greatest source of energy on Earth?

Answer : One of the most important sources of energy is the sun. The energy of the sun is the original source of most of the energy found on earth.

Question 9: How can we reduce friction?

Answer : By polishing the surface, as polishing makes the surface smooth and friction can be reduced. Using lubricants such as oil or grease can reduce the friction between the surfaces. When objects are rolled over the surface, the friction between the rolled object and surface can be reduced by using ball bearings.

Question 10: What is the greatest source of energy on Earth?

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Answer the following questions in detail

Question 11: What are different forms of energy?

Answer : Energy comes in six basic forms: chemical, electrical, radiant, mechanical, thermal and nuclear.

Question 12: What is gravity? How is it useful?

Answer : Gravity is what holds the planets in orbit around the sun and what keeps the moon in orbit around Earth. The gravitational pull of the moon pulls the seas towards it, causing the ocean tides. Gravity creates stars and planets by pulling together the material from which they are made.

Question 13: Why is friction important?

Answer : Friction plays an important part in many everyday processes. For instance, when two objects rub together, friction causes some of the energy of motion to be converted into heat. This is why rubbing two sticks together will eventually produce a fire.

Match the following

Question 14:

1. Force which attracts iron and steel - a. Energy
2. It reduces friction - b. Hydropower
3. It can change the state of matter - c. Magnetic force
4. Energy derived from force of moving water - d. Fuel
5. Compressed Natural Gas - e. Oil

Answer :

1. Force which attracts iron and steel - c. Magnetic force
2. It reduces friction - e. Oil
3. It can change the state of matter - a. Energy
4. Energy derived from force of moving water - b. Hydropower
5. Compressed Natural Gas - d. Fuel