

**ICSE Board**  
**Class VI Physics**  
**Sample Paper – 5 Solution**

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**Question 1**

1. (b) Energy is the capacity to do work, so both have the same value. Thus, 1 J energy = 1 J work.
2. (c) The bicycle stops due to friction between its tyres and the road.
3. (b) A year is the biggest unit used to measure time.
4. (b) The Earth behaves like a huge bar magnet with its Magnetic North Pole situated near the Geographical South Pole.
5. (c) The machine which is used to change the direction of force applied is a single fixed pulley.
6. (d) When the force remains constant and the area is less, the pressure will increase.
7. (b) Work is said to be done when a force applied, brings about motion.
8. (a) Wheels reduce friction by reducing the amount of sliding by rolling.
9. (c) Machines are devices which make our work easier and faster as more work can be done with the help of the machines by applying less force.
10. (b) 1 km is the best estimate in metres of the height of a mountain.
11. (c) The ultimate source of all energy is the Sun. It provides us with light and heat energy, free of cost.
12. (c) All machines require proper care and maintenance for their efficient and longer use.
13. (b) A boy pushing a cart on a level plane is not an example of the force of gravity.
14. (a) Magnetic poles always exist as dipoles.
15. (d) The unit of weight in the SI system is Newton.

### Question 2

(A)

1. Class II levers
2. Unit
3. Newton
4. Rolling friction
5. Effort

(B)

1. Thread, divider
2. One Pascal
3. Direction
4. Least
5. 100°C

### Question 3

(A)

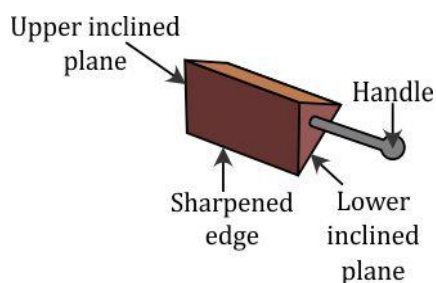
Column A	Column B
1. Electrical cell	a. Chemical energy
2. Energy possessed by a stretched spring	b. Mechanical energy
3. Detection of charge	c. Electroscope
4. Rubbing your palms together quickly	d. Heat energy
5. Soft iron	e. Temporary magnet

(B)

1. A beam balance is a lever of the first type.
2. The device used to measure the temperature of a body is called a thermometer.
3. A loudspeaker converts electrical energy to sound energy.
4. Volume is the amount of space occupied by an object.
5. Magnetic force causes both attraction and repulsion.

### Question 4

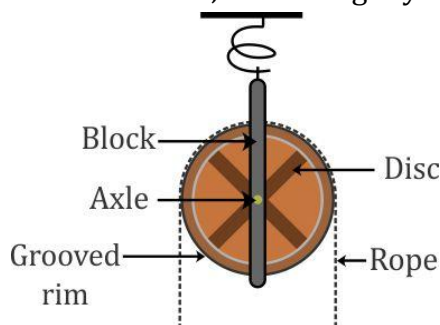
**(A) Wedge:** A wedge is a type of simple machine with two inclined planes put together to form a sharpened edge.



The upper part of the wedge has a large area and the lower sharpened edge has very less area. On hammering, a large pressure on the sharp edge is created than on the upper part. A wedge is used for splitting logs. The thinner the wedge, the easier it is to drive it into a log. A speed boat has its leading edge shaped like a wedge to cut through water easily.

**Examples:** Knives, axes, ploughs, nails, saw, needles, etc.

**Pulley:** A pulley is a metallic (or wooden) disc with a grooved rim. A string is passed around the groove at the rim. The disc rotates about an axle passing through its centre. The axle, which is mostly made of a metal, is fixed rigidly to a frame by means of nails.



On pulling one end of the rope down, the object tied to the other end of the rope is lifted. Thus, the direction of force can be changed.

**Example:** Pulleys are used at workshops and factories to lift heavy loads and also to draw water from the well.

(B)

1. Force has direction. Hence it is a vector quantity.
2. The S.I. unit of work is Joule (J).  
1 Joule = 1 N × 1 m  
1 joule of work is said to be done by a force of 1 N if it displaces a body by 1 m in the direction of force.
3. The position of the effort, load and fulcrum determine the class of a lever.
4. Estimation is a quick judgment about a measurement of some particular quantity.
5. Static electric force is the electricity produced due to friction. It is created by rubbing specific substances against each other.

### Question 5

(A)

1. The space occupied by any object on the surface is called the area of that object.
2. A nutcracker is used to cut betel nut.
3. If the surfaces are rough, then the friction will be more. If the surfaces are smooth, then the friction will be less.
4. The amount of force acting per unit area is called pressure.
5. The devices developed by man to use solar energy are solar cooker, solar water heater and solar cell.

**(B)**

1. Measuring tape—A measuring tape is a device used for measuring length. Others are vessels for measuring the volume of liquids.
2. Microphone—A microphone converts sound energy to electrical energy. Others convert electrical energy to sound energy.
3. Wheel—Wheel is not an example of inclined plane. The others are inclined planes.
4. Moving car—A moving car possesses kinetic energy while the others possess potential energy.
5. Litre—Only litre is the unit for volume of liquids while the rest are units for area.

**Question 6****(A)** Levers are of three kinds: Class I, Class II and Class III levers.**(B)**

1. The properties of friction are:
  - (i) Friction is a force which opposes motion i.e. it slows down and stops a moving object.
  - (ii) It produces heat.
  - (iii) It causes wear and tear.
2. A wedge is a simple machine with two inclined planes put together forming a sharpened edge. Examples: knife, axe and chisel.
3. A quantity which can be measured is called a physical quantity. Example: Length, time, volume, etc.
4. The space around a magnet where a magnetic field is experienced is called the magnetic field.
5. The work done by a machine or the energy obtained from a machine is called the output or the output energy.

**Question 7****(A)**

2. The book remains in its place due to its inertia of rest.
3. A force can produce the following effects:
  - (i) It can bring about a change in the dimension of a body.
  - (ii) Force can start or stop the motion of a body.
  - (iii) It can change the speed of a body.
  - (iv) Force can change the direction of motion of a body.

**(B)**

1.
  - i. Clinical thermometer: It is used for measuring the temperature of the human body and the temperature range marked on the clinical thermometer is from 35°C to 42°C.

- ii. Laboratory thermometer: It is used in laboratories for measuring the temperature and the temperature range marked is from  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ .

2.

Temporary magnet	Permanent magnet
These magnets lose their magnetic properties as soon as the magnetising force is removed.	These magnets do not lose their magnetic properties when the magnetising force is removed.
It cannot convert an ordinary piece of iron into a magnet because of its weak power.	It converts an ordinary piece of iron into a temporary magnet.
It is made of soft (pure) iron.	It is made of steel, cobalt and nickel.