

ICSE Board
Class VI Physics
Sample Paper – 1

Time: 2 hrs

Total Marks: 75

General Instructions:

1. *All questions are compulsory.*
 2. *Questions 1 to 15 carry one mark each.*
 3. *Questions in 2 A and B carry one mark each.*
 4. *Questions in 3 A carry one mark each and 3 B carries 5 marks.*
 5. *Question 4 carries 5 marks each.*
 6. *Questions in 5 A and B carry one mark each.*
 7. *Questions in 6 A and B carry five mark each.*
 8. *Question 7 A and 7 B carry five marks.*
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Question 1

Choose the correct answer out of the four available choices given under each question. [15]

1. 1 J is the energy required to do ___ of work.
 - (a) 1 N
 - (b) 1 J
 - (c) 9.8 N
 - (d) 98 J

2. When you stop pedalling a bicycle, it eventually comes to a stop. Which type of force is involved in this process?
 - (a) Magnetic force
 - (b) Electric force
 - (c) Frictional force
 - (d) All of the above

3. Which out of the following is the biggest unit of measuring time?
 - (a) Second
 - (b) Year
 - (c) Day
 - (d) Hour

4. The Earth behaves like a huge bar magnet with its Magnetic North Pole situated near the
 - (a) Geographical North Pole
 - (b) Geographical South Pole
 - (c) Geographical West Pole
 - (d) Geographical East Pole

5. Name the machine which is used to change the direction of force applied.
 - (a) A movable pulley
 - (b) Gear system or class III lever
 - (c) Single fixed pulley
 - (d) Inclined plane

6. When the force remains constant and the area is less, the pressure will
 - (a) Increase
 - (b) Decrease
 - (c) First increase then decrease
 - (d) First decrease then increase

7. Work is said to be done if
 - (a) A body moves
 - (b) A force is applied which brings about motion
 - (c) A force is applied but no motion is produced
 - (d) None of the above

8. Wheels reduce friction by
 - (a) reducing the amount of sliding by rolling
 - (b) reducing the amount of sliding friction through lubrication
 - (c) reducing the amount of unevenness of the surface
 - (d) increasing the surface area

9. Which of the following is not a function of a machine?
 - (a) To make our work convenient
 - (b) To enable us to lift more load with less force
 - (c) To enable us to make measurements correctly
 - (d) To make our work faster

10. Which of the following is the best estimate in metres of the height of a mountain?
 - (a) 1 m
 - (b) 1 km
 - (c) 100 m
 - (d) 1 mm

- 11.** The ultimate source of all energy is
- (a) Petroleum
 - (b) Coal
 - (c) Sun
 - (d) Wind
- 12.** The proper care and maintenance of machines required
- (a) To make them good looking
 - (b) To preserve them for the future
 - (c) For their efficient and longer use
 - (d) None of the above
- 13.** Which of the following is not an example of the force of gravity?
- (a) A leaf falling from a tree
 - (b) A boy pushing a cart on a level plane
 - (c) A diver jumping into a swimming pool
 - (d) A stone falling from the top of the tower
- 14.** Magnetic poles always exist as
- (a) Dipoles
 - (b) Monopole
 - (c) No-pole
 - (d) None of the above
- 15.** The unit of weight in the S.I. system is
- (a) kilogram
 - (b) Newton
 - (c) gram
 - (d) metre/second

Question 2

(A) Name the following. [5]

1. The load between the effort and the fulcrum.
2. A fixed quantity which is accepted as a standard by people all over the world.
3. Unit of force.
4. The frictional force that comes into action when a roller rolls over a surface.
5. Force applied to a machine to do mechanical work.

(B) Fill in the blanks. [5]

1. Length of a curved line can be measured with the help of a _____ or a _____.
2. _____ is the force of one Newton exerted over an area of one square metre.
3. The pulley changes the _____ of force.
4. Magnetic force is _____ in the middle of a magnet.
5. The upper fixed point of a Celsius thermometer is _____.

Question 3

(A) Match the following. [5]

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

(B) Correct the following sentences. [5]

1. A beam balance is a lever of the second type.
2. The device used to measure the temperature of a body is called a barometer.
3. A loudspeaker converts sound energy to electrical energy.
4. Area is the amount of space occupied by an object.
5. Magnetic force always causes attraction.

Question 4

(A) Write a short note on wedge and pulley. [5]

(B) [5]

1. Is force a scalar or a vector quantity?
2. What is the S.I. unit of work? Define it.
3. What conditions determine the class of a lever?
4. What do you understand by the term estimation?
5. What is static electric force? How is it created?

Question 5

(A) Answer in one sentence: [5]

1. Define: Area
2. Give one practical use of a lever.
3. What would cause more friction—a rough surface or a smooth surface?
4. What is pressure?
5. Give three names of devices developed by man to use solar energy.

(B) Find the odd one out. [5]

1. Measuring tape, measuring flask, measuring cylinder, burette
2. Loudspeaker, microphone, electric bell, stereo system
3. Ramp, revolving staircase, wheel, wooden plane
4. Wound-up spring, stretched bow, stone lying on the roof, moving car
5. Square metre, hectare, square kilometre and litre

Question 6

(A) With the help of diagrams, demonstrate the differences between I, II and III classes of levers.

[5]

(B) Define the following.

[5]

1. Properties of friction
2. Wedge
3. Physical quantity
4. Magnetic field
5. Output or output energy

Question 7

(A) Answer the following.

1. If you jerk a piece of paper from under a book quickly enough, the book does not move. Why? [1]
2. State the effects which a force can produce. [4]

(B) Differentiate between temporary magnet and permanent magnet? [5]

Solution

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)

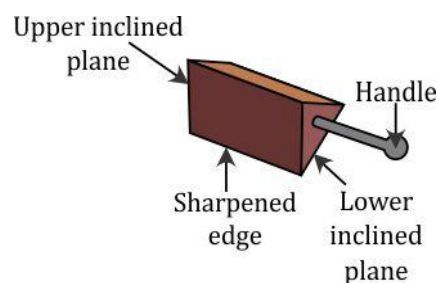
Column A	Column B
1. Electrical cell	a. Chemical energy
2. Energy possessed by a stretched spring	b. Mechanical energy
3. Detection of charge	c. Electroscope
4. Rubbing your palms together quickly	d. Heat energy
5. Soft iron	e. Temporary magnet

(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

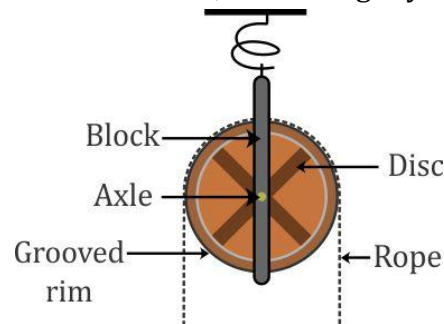
(A) **Wedge:** A wedge is a type of simple machine with two inclined planes put together to form a sharpened edge.



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).
 $1 \text{ Joule} = 1 \text{ N} \times 1 \text{ m}$
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°C to 110°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.