1st Term Worksheet

Subject – Physics

Class – VII

Name : **Sec. :**

Chapter – 2
[Motion]

Check Point:

[A] Answer the following questions: [34]

1. What is motion?

Ans. _____

2. State three different types of motion.

Ans. _____

3. State the type of motion exhibited by the bullet fired from a gun.

Ans. _____

4. Give two examples of periodic motion.

Ans. _____

5. Classify the following as linear, circular, vibratory or oscillatory motion.

(i) The motion of a swing.

(ii) The motion of earth around the sun.

(iii) The motion of a cyclist on a plain road.

(iv) The motion of a falling stone.

(v) The motion of a plucked string of a sitar.

Ans. _____

6. If you are sitting in a moving bus, are you at rest or in motion?

Ans.

7. Is your classroom at rest or in motion?

Ans.

8. Is the hour's hand of a wall clock at rest or in motion?

Ans.

9. What type of motion do the vehicles on a straight road perform?

Ans.

10. What type of motion does the wheel of a bicycle perform?

Ans.

11. An object is hung from a spring, pulled down and left.

What type of motion does the object perform?

Ans.

12. Give two examples of periodic motion.

Ans.

[B] Answer the following questions: [38]

1. What is a simple pendulum?

Ans.

2. Define the following for a simple pendulum:

(i) amplitude (ii) frequency (iii) oscillation

Ans.

3. What is time-period of a pendulum?

Ans.

4. State the expression for the time-period of a pendulum. Does it depend on the amplitude of the bob?

Ans.

5. On which of the following factors, the time-period of a pendulum does not depend?

(i) length of the pendulum (ii) mass of the bob

(iii) acceleration due to gravity (iv) amplitude of oscillations

(v) material of bob

Ans.

[C] Answer the following questions: [48]

1. Define ‘distance’ and ‘displacement’.

Ans.

2. What is speed? Write its SI unit.

Ans.

3. Define velocity. What is difference between ‘speed’ and ‘velocity’?

Ans.

4. What is acceleration? Write its SI unit.

Ans.

5. A scooterist starting from rest attains a velocity of 10 m/s after 10 seconds. Calculate the acceleration of the scooter.

Ans. _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Keywords: **[48]**

Displacement: _____

Time-period: _____

Oscillatory motion: _____

Circular motion: _____

Exercise: **[49-51]**

[A] Multiple Choice Questions: [49-50]

(i) A bird flying in the sky possesses the motion called

(a) oscillatory (b) periodic

(c) random (d) linear

(ii) Speed equals to

(a) distance/time (b) time/distance

(c) distance × time (d) none of these

(iii) Displacement is a

(a) scalar quantity (b) vector quantity

(c) mathematical quantity (d) none of these

(iv) The distance equals to

(a) speed × time (b) $\frac{\text{speed}}{\text{time}}$

(c) $\frac{\text{time}}{\text{speed}}$ (d) none of these

(v) The distance travelled in a unit time in a specified direction is called

(a) speed (b) velocity

(c) displacement (d) none of these

(vi) A body moving with a constant velocity will have

(a) Constant acceleration (b) zero acceleration

(c) variable acceleration (d) none of these

(vii) The kind of motion that a pendulum shows:

(a) circular motion (b) rectilinear motion

(c) oscillatory motion (d) random motion

(viii) The time-period of a simple pendulum does depend on

(a) length of the pendulum (b) acceleration due to gravity

(c) mass of the bob (d) none of these

[B] Fill in the blanks: [50]

1. The motion of a stone falling on the earth is _____.
2. The rate of change of velocity is called _____.
3. The velocity is a _____ quantity.
4. The SI unit of speed is _____.
5. The _____ of a simple pendulum is directly proportional to the square root of its length.
6. The motion of the Earth is _____.

[C] Write T for true and F for false statements: [50]

1. Rate of change of velocity is called acceleration. _____
2. The unit of acceleration is metre/sec^2. _____
3. The unit of speed is metre/sec. _____
4. The velocity has magnitude and direction. _____
5. All objects have inertia. _____

[D] Differentiate between the following: [50]

1. Vibratory motion and periodic motion

2. Scalar quantity and vector quantity

3. Distance and displacement

4. Speed and velocity

[E] Classify the following into different types of motion: [50]

1. The motion of a cyclist on a straight-levelled road.

Ans-

2. The motion of a plucked string of a violin or sitar.

Ans-

3. The motion of the wheels of a bullock-cart.

Ans-

4. The motion of a falling stone.

Ans-

5. The motion of a top (lattu).

Ans-

[F] Answer these questions: [51]

1. Name the three types of motion.

Ans.

2. What do you mean by translatory motion? Give two examples.

Ans.

3. Give two examples of rectilinear motion.

Ans.

4. Which type of motion does the feet of a tailor perform while sewing clothes on sewing machine?

Ans.

5. Give two examples of rotational motion.

Ans.

6. What is a simple pendulum? What are the factors affecting the time-period of a pendulum?

Ans.

7. What is the effective length of a second's pendulum? What it its frequency?

Ans.

8. What happens to the time-period of a simple pendulum if:

(i) the mass of the bob is increased

(ii) the length of the pendulum is increased

(iii) the amplitude is doubled

(iv) the gravity at a place is decreased?

[G] Solve the following numerical: [51]

1. A man riding a scooter travels a distance of 50 metres in 20 seconds. What is the speed of the scooter?

2. The train 'A' travelled a distance of 120 km in 3 hours whereas another train 'B' travelled a distance of 180 km in 4 hours. Which train travelled faster?

3. A car travelling at a speed of 45 km/h takes 3 hours to reach its destination. What distance has the car travelled?

4. A car starting from rest, picks up the velocity of 20 m/s in 20 seconds. Find the acceleration of the car.

Chapter – 3
[Energy]

Check Point:

[A] Answer the following questions: [56]

1. Define the term ‘work’. What is its unit?

Ans. _____

2. Fill up the blanks with suitable words in the following:

Work is measured as a product of _____ and _____.

3. What is the standard (SI) unit of work?

Ans. _____

4. What is the condition for a force to do work on a body?

Ans. _____

5. State two examples in which no work is done on a body when a force acts on it.

Ans. _____

[B] Answer the following questions: [62]

1. What is energy? How work and energy are related? State its SI unit.

Ans. _____

2. Define kinetic energy. Give an example.

Ans.

3. Define potential energy. Give an example.

Ans.

4. Name five forms of energy. Give examples of each.

Ans.

5. Name two devices which work on the solar energy.

Ans.

6. Name the source of energy in a hydel power station and a thermal power station.

Ans.

7. What is meant by renewable sources of energy?

Ans.

8. What is meant by non-renewable sources of energy?

Ans.

9. Why should we prefer the renewable sources of energy to the non-renewable sources?

Ans. _____

Keywords: **[64]**

Energy: _____

Kinetic Energy: _____

Potential Energy: _____

Mechanical Energy: _____

Exercise: **[65-67]**

[A] Multiple Choice Questions: [65]

(i) The unit of work is

(a) newton (b) joule

(c) metre (d) second

(ii) The SI unit of energy is

(a) joule (b) newton

(c) metre/second (d) newton-metre

(iii) Burning of coal is an example of conversion of

(a) chemical energy into light and heat energy

(b) mechanical energy to heat energy

(c) heat energy to light energy

(d) light energy to heat energy

(iv) Splitting of Uranium nucleus releases

(a) kinetic energy (b) potential energy

(c) nuclear energy (d) chemical energy

(v) The ultimate source of all energy is

(a) petroleum (b) coal

(c) sun (d) wind

(vi) The 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 these

(vii) A fast wind can turn the blades of a windmill because it possesses

(a) potential energy (b) kinetic energy

(c) chemical energy (d) heat energy

(viii) When a stone is thrown upward to a certain height, it possesses

(a) potential energy (b) kinetic energy

(c) wind energy (d) sound energy

(ix) A bullet fired from a gun possesses

(a) potential energy (b) kinetic energy

(c) wind energy (d) solar energy

(x) Solar cookers are used

(a) to cook our food

(b) an artificial satellites

(c) converting light into technical energy

(d) in drying clothes and other materials

[B] Fill in the blanks: [66]

1. Wind is a _____ fuel.
2. Cooking gas is a _____ fuel.
3. The torch cell is source of _____ energy.
4. In hydel power stations, the energy of _____ is used.
5. A kite flying in air has _____ energy.
6. Energy is the _____ of a body to do work.
7. The electric bulb converts _____ energy into _____ energy.
8. Global gas is obtained from the waste _____.
9. Wood has _____ energy stored in it.
10. The SI unit of energy is _____.

[C] Write T for true and F for false statements: [66]

1. Whenever a force is applied on a body, mechanical work is done on it. _____
2. Work done is independent of the magnitude of the force. _____
3. If a body is lifted above the ground, its energy increases. _____
4. A body possessing energy is capable of doing work. _____
5. The water of flowing river has potential energy. _____

[D] Match the items in column I with the correct choices in column II: [66]

Column I	**Column II**
1. To switch on/off an electric fan	a. chemical energy
2. The launching of a rocket	b. potential energy
3. Rubbing your palms together quickly	c. kinetic energy
4. A tin-can filled with water	d. heat energy
5. The ringing of your school bell	e. electric energy
	f. sound energy

[E] Answer the following questions: [66]

1. Name the type of energy possessed by the following objects:

a. A suitcase kept on the head b. A football moving on the playground

c. A stretched spring d. A compressed spring

e. A bird flying in the sky

Ans-

2. Name two devices which work on the solar energy.

Ans-

3. How can we solve energy problem?

Ans-

4. Name at least two devices which work with electric energy.

Ans-

5. Which kind of energy is

   a. stored in the cracker

   b. required to ignite when the cracker explodes.

Ans-

[F] Solve the following numerical problems: [67]

1. A man lifts a brick of mass 5 kg from the floor to a shelf 2 metres high. How much work is done?

Ans-

2. A toy car of mass 2 kg is moving with a velocity 4 m/s. Calculate the kinetic energy of the toy car.

Ans-

3. The Learning Tower of Pisa is 45 m high. A mass of 4 kg is dropped from the top. Calculate its potential energy at the top.

Ans-