2nd Term Worksheet [2018 – 19]

Subject – Physics

Class – VII

Name : **Sec. :**

Chapter – 4
[Light]

Check Point:

[A] Answer the following questions: [73]

1. What is reflection of light?

Ans. _____

2. State the laws of reflection.

Ans. _____

3. What is regular reflection?

Ans. _____

4. What is diffused reflection?

Ans. _____

5. Name four features of image formed by a plane mirror.

Ans. _____

6. Draw a ray diagram of showing the formation of image in a plane mirror.

7. Draw a ray diagram showing laws of reflection.

8. What do you mean by lateral inversion?

Ans. _____

9. Write three uses of a plane mirror.

Ans. _____

10. Write all the letters from A to Z and find out those letters whose images in the mirror appear to be the same as the original letters.

Ans. _____

[B] Answer the following questions: [76]

1. How do we see colours?

2. List the primary colours of light.

3. Define colour addition.

4. What is colour subtraction?

5. Write one equation for colour subtraction.

Ans.

Keywords: **[76]**

Angle of incidence _____

Angle of reflection _____

Exercise: **[77-79]**

[A] Multiple Choice Questions: [77]

(i) Light is a form of

(a) matter (b) energy

(c) medium (d) none of these

(ii) Light travels in a

(a) straight line (b) curved line

(c) neither straight nor curved (d) none of these

(iii) The phenomenon of light, in which light that strikes smooth surface are thrown back into the same medium, is called

(a) reflection (b) refraction

(c) scattering (d) none of these

(iv) Which one of the following is the best reflector of light?

(a) plastic plate (b) plane mirror

(c) wall (d) paper

(v) The image formed in a plane mirror is

(a) real (b) virtual

(c) large (d) none of these

(vi) In a plane mirror the distance of an image is the

(a) same as that of the object (b) grater as that of the object

(c) less as that of the object (d) none of these

(vii) If angle of incidence is 60°, then the angle of reflection will be

(a) 30° (b) 60°

(c) 120° (d) 90°

(viii) Angle of incidence is _____ equal to the angle of reflection.

(a) always (b) sometimes

(c) under special conditions (d) never

(ix) A kaleidoscope is a device used as

(a) toy for children (b) to measure intensity of light

(c) to verify laws of reflection (d) to disperse light rays

[B] Give reasons of the following: [77]

1. In a periscope the planes are inclined at 45°

2. Diffused reflection takes place on rough surfaces.

3. Images formed by plane mirrors are always erect.

4. The image formed by a plane mirror cannot be obtained on a screen.

5. If we raise our left hand in front of a plane mirror, the image will raise its right hand.

_____

_____

_____

_____

_____

[C] Fill in the blanks: [78]

1. A plane mirror _____ the light rays.
2. Shadows are formed when light is _____.
3. A _____ image is formed by the actual meeting of two or more reflected rays.
4. A _____ image is always erect.
5. A _____ image cannot be obtained on screen.
6. _____ helps us to see an object.
7. The angle formed between the incident ray and the normal is called _____.
8. A plane mirror _____ all the light that falls on it.

[D] Match the items in column I with the correct choices in column II: [78]

	Column I		**Column II**
1.	Light is a form of	a.	Inverted
2.	The image formed in a plane mirror is	b.	Real
3.	The virtual image is always	c.	Energy
4.	The image formed in a periscope	d.	Virtual and erect
5.	The image formed by a plane mirror is	e.	On screen
6.	The virtual image cannot be obtained	f.	Virtual

[E] State is the following statements are true or false: [78]

1. The angle of incidence is always equal to angle of reflection. _____
2. Real image is formed in a plane mirror. _____
3. The image of the right hand in a plane mirror looks like left hand. _____
4. A virtual image may be inverted or erect. _____
5. The image formed by a plane mirror is a real image. _____
6. In irregular reflections, we can see objects clearly. _____
7. The image formed by a plane mirror is diminished. _____
8. A ray of light obtained as a result of reflection from a surface is called an incident ray. _____
9. In reflection, the angle of incidence is always greater than the angle of reflection. _____
10. The image formed by a plane mirror is of the same size as the object. _____

[F] Differentiate between the following: [79]

1. Real image and virtual image

_____

_____

_____

_____

_____

_____

2. Transparent and opaque bodies

3. Regular and Irregular reflection

4. Simple reflection and multiple reflection

5. Colour addition and colour subtraction

[G] Answer the questions: [79]

1. What is light?

Ans-

2. Name some sources of light that are not hot.

Ans-

3. What are laws of reflection of light?

Ans-

4. The angle of between incident ray and reflected ray is 70°. What will the incident angle be?

Ans-

5. State the characteristics of the image formed by a plane mirror.

Ans-

6. State the important uses of the plane mirror.

Ans-

7. What is a periscope?

Ans-

8. How do we see colour?

Ans-

9. How does a rainbow form?

Ans-

[H] Draw a diagram showing: [79]

1. Regular reflection:

2. Diffused reflection

3. The terms related to reflection

4. An image formed by a plane mirror

Chapter – 5
[Heat]

Check Point:

[A] Answer the following questions: [85]

1. Define heat.

Ans. _____

2. What do you mean by temperature?

Ans. _____

3. State the differences between heat and temperature.

Ans. _____

4. On Celsius scale of temperature, what is the value of:

(a) Lower fixed point: _____

(b) Upper fixed point: _____

5. On Kelvin scale of temperature, what is the value of:

(a) Lower fixed point: _____

(b) Upper fixed point: _____

6. What is the value of melting point of ice?

(a) On Celsius scale: _____

(b) On Kelvin scale: _____

7. What is the SI unit of temperature?

Ans. _____

_____

8. What are the advantages for using mercury in thermometers?

Ans. _____

_____

_____

_____

_____

_____

_____

_____

_____

9. Convert 300 K in Celsius scale.

Ans. _____

_____

_____

_____

_____

_____

_____

10. Convert 0°C in Kelvin scale.

Ans. _____

_____

_____

_____

_____

[B] Answer the following questions: [89]

1. What do you mean by change of state of matter?

Ans. _____

_____

_____

_____

_____

_____

_____

2. Define melting point of a substance.

Ans. _____

3. Complete the following sentences. When a liquid change into a solid heat is

_____

4. What is evaporation? Explain by an example.

Ans. _____

5. Define condensation.

Ans. _____

6. How water cycle in nature is maintained?

Ans. _____

7. Define vapourization by giving an example.

Ans. _____

8. Define sublimation.

Ans. _____

[C] Answer the following questions: [89]

1. What are the effects of heat on solids?

Ans. _____

2. Compare the expansion of solid, liquid and gas.

Ans. _____

3. Why do overhead telephone wires sag more in summer?

Ans. _____

4. Explain, why gaps must be left between the rails when laying railway track.

Ans. _____

5. Explain, why loops are provided in long metal pipelines?

Ans. _____

[D] Answer the following questions: [98]

1. Give an example of transfer of heat in our daily life.

Ans. _____

2. What do you mean by conduction?

Ans. _____

3. Give two examples of conduction.

Ans. _____

4. Fill in the blanks:

The heat transfers from one place to another in water due to _____

5. Name the process of transfer of heat from sun to earth.

Ans. _____

6. Give some examples of conductors.

Ans. _____

7. What is radiant energy?

Ans. _____

8. Draw a well-labelled diagram of a thermos flask.

9. Give some examples of insulation.

Ans. _____

10. Why birds fluff up their feathers?

Ans. _____

Keywords: **[48]**

Thermometer: _____

Conduction: _____

Convection: _____

Radiation: _____

Insulator: _____

Exercise: **[100-102]**

[A] Multiple Choice Questions: [100-101]

(i) Heat is a form of

(a) matter (b) energy

(c) fluid (d) none of these

(ii) The SI unit of heat is

(a) calorie (b) joule

(c) celsius (d) kelvin

(iii) A device used for the measurement of temperature is

(a) thermometer (b) barometer

(c) manometer (d) none of these

(iv) The liquid used in a laboratory thermometer is

(a) mercury (b) water

(c) alcohol (d) none of these

(v) The most important naturally occurring source of heat is

(a) earth (b) sun

(c) moon (d) stars

(vi) Heat always flows from

(a) higher temperature to lower temperature

(b) lower temperature to higher temperature

(c) equal temperature

(d) none of these

(vii) To convert celsius temperature into Kelvin temperature, the formula is

(a) K = °C + 273 (b) °C = K + 273

(c) °C + K = 273 (d) none of these

(viii) We cannot use mercury thermometer at the places like

(a) London (b) New York

(c) North Pole (d) None of these

(ix) The freezing point of mercury is

(a) 42°C (b) -39°C

(c) - 12°C (d) -30°C

(x) A thermos flask prevents

(a) conduction (b) radiation

(c) convection (d) conduction, convection and radiation

[B] Fill in the blanks: [101]

1. Aluminium expands _____ than iron.
2. Solids expand _____ than liquids.
3. In a Celsius thermometer, the lower fixed point is _____ °C and the upper fixed point is _____ °C.
4. 1°C = _____°F.
5. Thermostats are used for controlling _____.
6. The normal temperature of human body is _____°C.
7. Temperature is the _____ of hotness or coldness.
8. The _____ is used in a clinical thermometer.

9. When an object is heated it _____ and when it cools it _____.

10. Liquids expands more than _____ but less than _____.

11. The vacuum between the walls in a thermos flask minimizes heat loss by _____.

[C] Write 'True' or 'False' against the following statements: [101]

1. 1°F is more than 1°C. _____
2. Thermometers are made by using the principle of expansion in matters. _____
3. Gases expand more than liquids. _____
4. Liquids expand less than solids. _____
5. Electric wires are kept loose because it is difficult to stretch them. _____

[D] Answer the following questions: [101]

1. What is heat?

Ans. _____

2. Is heat a form of energy? Give two examples where other forms of energy get converted into heat energy.

Ans. _____

3. What do you mean by temperature?

Ans. _____

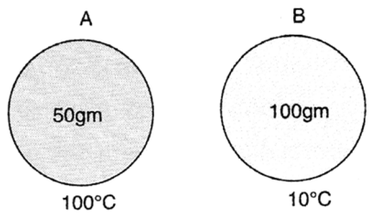
4. What are the scales used for the measurement of temperature?

Ans. _____

5. What is the relationship between heat and temperature?

Ans. _____

6. In the following figure, bodies A and B are shown. Tell the direction of flow of heat.



Ans.

7. State three effects of heat on matter.

Ans.

8. What is meant by the heat capacity of a substance? In what units is it expressed?

9 If you have to choose a material to build solar heater, which material would you choose?

10. If you have to build a water cooler, which material would you choose? (You can see the table of specific heat).

11. Write two important applications of expansion of solids in engineering.

12. Explain, why:

(i) Between railway tracks a small gap is left.

(ii) In large bridges one end is kept fixed and the other rests on roller.

13. A glass stopper, when it gets stuck to the neck of the bottle, is heated first on order to open it. Can you give the reasons?

14. A piece of paper is burnt inside a glass tumbler and the tumbler is then inverted quickly over a trough of water. Explain, why the level of water in the tumbler rises?

15. A metallic tyre is heated first before fixing it into the rim of a wheel of a cart. Explain why?

[E] Match the items of column A with the items of column B: [102]

	Column A		Column B
1.	Good conductor of hat	a.	aeroplane
2.	Bad conductor	b.	copper
3.	Convection current	c.	solar system
4.	Double walled system	d.	air
5.	Radiant heat	e.	earth
		f.	wind current

[F] Find the odd one: give reasons for your choice: [102]

1. gold, copper, cork, mercury

2. thermos flask, igloos, candle, ice-box

3. handles of kettles, cricket bat, electric press, ovens

4. wood, paper, silver, plastic

5. conduction, convection, expansion, radiation

[G] Give reasons for the following:

1. A steam burn is more severe than a hot water burn.

2. We feel cold when wear wet clothes.

3. Tea is cooled more rapidly by blowing on it.

4. After swimming, we feel colder on a windy day.

5. Mercury is used in a thermometer.

[H] Solve the following numerical: [103]

1. If the specific latent heat of ice is 340, 000 J/kg and the specific latent heat of steam is 2,300,000 J/kg. calculate.

a. the energy needed to melt 2 kg of ice at 0°C.

b. the energy needed to melt 500g of ice at 0°C.

c. the energy needed to change 3 kg of water at 100°C into steam.

2. Convert 32°F into celsius scale.

3. Convert – 40°C into °F.

4. Convert 37°C into Kelvin.

5. Convert 373 K into celsius.

6. What will be the temperature of ice in Kelvin temperature?

7. What is the human body temperature in Celsius scale?

Chapter – 6
[Sound]

Check Point:

[A] Answer the following questions: [110]

1. Give any four sources of sound around us.

Ans.

2. Identify the part which vibrates to produce sound in the following instruments:
   (i) Tabla or Dholak
   (ii) Flute
   (iii) Tuning Fork
   (iv) Sitar
   (v) Violin

3. What is meant by amplitude of vibration?

Ans.

4. What do you mean by time period of an oscillation? State its unit.

Ans.

5. What is meant by frequency of vibration? State its unit.

Ans.

6. What are the main characteristics of sound?

Ans.

7. What is meant by loudness of sound? On what factor does it depend?

Ans. _____

8. What is meant by pitch? On what factor does it depend?

Ans. _____

9. What do you mean by quality or tone of sound?

Ans. _____

[B] Answer the following questions: [117]

1. Where would sound travel faster – in air or in water?

Ans. _____

2. Why is the flash of lightening seen much before we hear the thunder?

Ans. _____

3. What is an echo?

Ans. _____

4. Name two bad reflectors of sound.

Ans. _____

_____

5. How do bats use sound to locate their prey?

Ans. _____

_____

_____

_____

_____

_____

6. Why do we hear more clearly in a furnished room than in an empty room?

Ans. _____

_____

_____

_____

_____

_____

7. State the important differences between noise and a musical sound.

Ans. _____

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8. Name three major types of musical instruments.

Ans. _____

_____

_____

_____

9. State two uses of ultrasound.

Ans. _____

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_____

10. An echo is heard from a distant cliff after an interval of 1.2 second. If the speed of sound in air is 340 m/s. Calculate the distance of the cliff.

_____

_____

_____

_____

11. Write the full form of the word 'SONAR'.

12. A man stands at a distance of 168 metres from a high wall. He produces a sound an hears the echo after 1 second. Calculate the speed of sound in air.

Keywords: **[118]**

Vibrations:

Oscillation:

Amplitude:

Time Period:

Frequency:

Decibel:

Inaudible Sound:

Audible Sound:

Noise:

Exercise: **[119-122]**

[A] Multiple Choice Questions: [119-120]

(i) Sound is produced when objects

(a) vibrate (b) accelerate

(c) displaced (d) fractionised

(ii) The sound travels fastest in

(a) solids (b) liquids

(c) gases (d) none of these

(iii) Sound cannot travel through

(a) solids (b) liquids

(c) gases (d) none of these

(iv) The unit to measure intensity of sound is

(a) decibel (b) joule

(c) candela (d) none of these

(v) The unit of frequency of sound is

(a) metre/second (b) metre/second^2

(c) hertz (d) none of these

(vi) Echo is a type of

(a) reflected sound (b) refracted sound

(c) polarised sound (d) none of these

(vii) A man can hear one of the following sound having frequency

(a) 10 hertz (b) 400 hertz

(c) 21,000 hertz (d) no frequency

(viii) Sitar is a

(a) wind instrument (b) stringed instrument

(c) percussion instrument (d) reed instrument

(ix) The characteristics of sound which distinguished a feeble sound from a louder sound of the same frequency is

(a) loudness (b) pitch

(c) music (d) timbre

(x) Which one of the following materials will reflect sound better?

(a) thermocol (b) curtain made from cloth

(c) steel (d) paper

(xi) To hear a distinct echo, the minimum distance of a reflecting surface should be

(a) 17 metre (b) 34 metres

(c) 68 metres (d) 340 metres

[B] In the following statements, write T against those which are true, and F against those which are false: [120]

1. The time taken to complete one oscillation is called frequency. _____
2. For human cars, the audible frequencies are between 20 Hz – 20, 000 Hz. _____
3. Light travels much faster than sound. _____
4. Sound can travel in vacuum. _____
5. Lower the frequency of vibration, higher is the pitch. _____
6. An echo is simply a reflected sound. _____
7. We hear echoes only in the mountains. _____
8. Larger the amplitude of vibration, louder is the sound. _____
9. Sound persists in our ears for around 1/20 second. _____
10. A big drum produces a louder sound. _____

[B] Fill in the blanks: [120]

1. The pitch or shrillness of the sound is decided by the _____ of vibration.
2. The loudness of sound is decided by the _____ of vibration.
3. We hear sound only if its frequency is greater than _____ and lower than _____.
4. A taut membrane produces sound of _____ frequency than a loose one.
5. Sound travels _____ in steel than in air.

6. Sound travels _____ in steel than in water.
7. Sound is produced when objects _____.
8. The number of oscillations per second is called _____.
9. Frequency is measured in _____.
10. Sound cannot travel in _____.

[C] Match the items in column I with the correct choices in column II: [121]

	Column I	**Column II**
1.	Sound is produced when objects	Reflected
2.	Sound can be	Vibrates
3.	Echo is a type of	Hertz
4.	Human ear can hear the sound waves of frequency	Time Period
5.	Some animal can hear sounds of frequency	between 20-20,000 hertz
6.	The frequency is the inverse of	higher than 20,000 hertz
7.	The unit of frequency is	Reflected sound

[E] Define these terms: [121]

1. Loudness: _____
2. Sound quality: _____
3. Shrill sound: _____
4. Echo: _____
5. Ultrasonic: _____
6. Infrasonic: _____
7. Vibrations: _____

[F] Differentiate between the following: [121]

1. High-pitched sound and Low-pitched sound:

2. Time period and Frequency:

3. Loudness and Pitch:

4. Musical sound and Noise:

[G] Answer the following questions: [121]

1. What do you mean by sound? How is it produced?

Ans-

2. Which object is vibrating when the following sounds are produced:

(i) The sound of a sitar or veena : _____

(ii) The sound of a tabla : _____

(iii) The sound of a school bell : _____

(iv) The buzzing of a bee or a mosquito : _____

(v) The radio : _____

3. Why do we not hear the screams of a bat?

Ans- _____

4. If you want to hear a train approaching from far away, why is it more scientific to put the ears to the track?

Ans- _____

5. One whale fish says something to its friend 175 km away. How long will it be before the friend can hear this? (speed of sound in water = 1531 m/s)

Ans- _____

6. What is the minimum distance required to produce a distinct echo?

_____

7. Which of the following materials will give a good echo and which would stifle or muffle sound striking on them:

(i) Wood (ii) Thermocol (iii) Brass (iv) Paper

(v) Asbestos

8. Where would sound travel faster – in steel or in water?

9. List some oscillations which you see around you. Do all of these produce sound?

10. Arrange the following sounds in the ascending order of frequencies:

(i) Child's voice (ii) Man's voice (iii) Female's voice

11. Why do we hear more clearly in a curtained room than in a room without curtain?

12. How does the ear help us to hear sound?

13. What are ultrasonic waves? Give their uses.

14. Describe an experiment to show that sound cannot travel in vacuum.

15. Suppose you are on a pleasure trip to the Moon. A hammer drops out of your hand on a metal plate. Will you hear the bang?

[F] Solve the following numerical problems: [122]

1. A ship sends out a sound signal straight down and receives its echo after one second. What is the depth of the sea at this spot? (speed of sound in water = 1430 m/s)

Ans-

2. Pendulum A makes 15 oscillations in 5 seconds and pendulum B makes 8 oscillations in 4 seconds. Which has higher frequency? Express the frequency of each pendulum in hertz.

Ans-

3. The frequency of a vibration is the inverse of its time period. What is the time period of pendulum which is vibrating as 10 hertz?

Ans-

4. The speed of sound in water is 1500 m/s. How far away from an under-sea rock should a deep sea diver be, so that he can hear his own echo? The diver hears echo in 3 sec.

Ans-

5. The deepest part of the oceans in our world is the Marina Tench in the Pacific Ocean which is 11,033 metres deep. If you were on a ship above this tench and send a sound signal straight down to the water, how long will it take for the echo to reach you? (Speed of sound in water 1500 m/s).

Ans-