

ICSE Board
Class VII Physics
Sample Paper – 5

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 2A and 2B carry one mark each.
 4. Questions in 3A and 3B carry one mark each.
 5. Question in 4A and 4B carries one mark each.
 6. Questions in 5A carry one mark each and 5B carry five marks.
 7. Questions in 6 carry two marks each.
 8. Question 7A and 7B carry ten marks in total.
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Question 1

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

1. Materials which allow current to pass through them are called
 - (a) Insulators
 - (b) Conductors
 - (c) Sockets
 - (d) Fuse

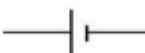
2. A body is said to be in uniform motion when it travels an
 - (a) unequal distance in an equal interval of time
 - (b) unequal distance in an unequal interval of time
 - (c) equal distance in an unequal interval of time
 - (d) equal distance in an equal interval of time

3. What colour shadow will you see for a red coloured flower?
 - (a) Blue
 - (b) Black
 - (c) White
 - (d) Red

4. The S.I. unit of mass is
 - (a) Quintal
 - (b) Newton
 - (c) Kilogram
 - (d) Metre

5. Heat from the Sun reaches to us due to
 - (a) Radiation
 - (b) Convection
 - (c) Conduction
 - (d) None of the above
6. Audible range of sound for humans is
 - (a) 20 Hz to 2000 Hz
 - (b) 20 Hz to 20,000 Hz
 - (c) 10 Hz to 20,000 Hz
 - (d) 20 Hz to 10,000 Hz
7. The nature of the image formed by a convex mirror is always
 - (a) Real and inverted
 - (b) Real and erect
 - (c) Virtual and erect
 - (d) Virtual and inverted
8. Relative density of a substance is expressed by comparing the density of that substance with the density of
 - (a) Water
 - (b) Iron
 - (c) Mercury
 - (d) Air
9. The loudness of sound is normal between
 - (a) 120 dB - 130 dB
 - (b) 90 dB - 105 dB
 - (c) 10 dB - 25 dB
 - (d) 50 dB - 60 dB

10. Which of the following is the symbol for a closed switch?

- (a) 
- (b) 
- (c) 
- (d) 

11.The mirror used in the construction of shaving glass is

- (a) Convex
- (b) Concave
- (c) Plano-convex
- (d) Plano-concave

12.Which of the following is a transparent object?

- (a) Paper
- (b) Wood
- (c) Water
- (d) Stone

13.Electric current is the flow of

- (a) Neutrons
- (b) Electrons
- (c) Protons
- (d) None of these

14.For what purpose is a beam balance used?

- (a) To measure mass
- (b) To measure height
- (c) To measure weight
- (d) To measure length

15.The unit of speed is

- (a) metre/second²
- (b) second/metre
- (c) meter second
- (d) meter/second

Question 2

(A) Answer the following questions in one word or one sentence.

[5]

1. What is meant by rectilinear motion?
2. State the relationship between focal length and radius of curvature of a spherical mirror.
3. Define amplitude.
4. Give the relationship between temperature in Celsius scale and Fahrenheit scale.
5. What is an electric fuse?

(B) Fill up the blanks and rewrite the sentences: [5]

1. The transfer of heat by the process of conduction takes place only in _____.
2. The weight of an object on the moon is about _____ of that on the Earth.
3. When a short-circuit takes place, the fuse wire melts and breaks the _____.
4. Sound waves cannot travel in _____.
5. A ray of light which bounces back from the surface of an object is called a _____ of light.

Question 3

(A) Match the item in column I with the appropriate item in column II. [5]

Column A	Column B
Vocal cord	Mass
Primary cell	Bad conductor
Quantity of matter	Heat
Plastic	Non-rechargeable
Joule	Human voice

(B) Define the following: [5]

1. Electric cell
2. Density
3. Evaporation
4. Opaque objects
5. Frequency

Question 4

- (A) Identify and classify the following types of motions as circular, periodic, vibratory or random motion: [5]

The motion of the Earth around the Sun	
The motion of a plucked string of a guitar	
Motion of a flying bird	
Giant wheel	
Heart beat	

- (B) Give one word for the following [5]

1. Devices which produce electric energy from mechanical energy.
2. Measurement of hotness or coldness of a body.
3. Unpleasant and unwanted sound.
4. Rate of change of velocity.
5. Shadow region of total darkness in front of an opaque objects where no light enters.

Question 5

- (A) State whether the following statements are True or False [5]

1. A spring balance is used to measure the weight of a body.
2. The transfer of heat by radiation is through a definite medium.
3. The unit of speed is metre/second².
4. Moon has no light of its own.
5. The images which cannot be captured on a screen are called real images.

(B)

1. Draw ray diagrams to show the image formation by a concave mirror, when it is placed (i) beyond C (ii) at C [3]
2. Give two measures to reduce noise pollution. [2]

Question 6

Answer the following questions in short:

1. How do heat and temperature differ from each other? [2]
2. On what factors does the time period of a simple pendulum depend? [2]
3. State the laws of reflection. [2]
4. What do you mean by electroplating? [2]
5. Sound cannot reach us from space. Give reasons. [2]

Question 7

(A)

1. Give the characteristics of the image formed by a plane mirror. [4]
2. Explain the formation of sea breeze. [3]

(B)

1. Distinguish between: [3]
 - i. Loudness and pitch
 - ii. High pitch sound and low pitch sound

Solution

Question 1

1. **(b)** Conductors

Materials which allow current to pass through them are called conductors.

2. **(d)** Equal distance in an equal interval of time

A body is said to be in uniform motion when it travels an equal distance in an equal interval of time

3. **(b)** Black

Colour of the shadow is black.

4. **(c)** Kilogram

The S.I. unit of mass is kilogram.

5. **(a)** Radiation

Heat from the Sun reaches us due to radiation.

6. **(b)** 20 Hz to 20,000 Hz

Audible range of sound for humans is 20 Hz to 20,000 Hz.

7. **(c)** Virtual and erect

The image formed by a convex mirror is always virtual and erect.

8. **(a)** Water

Relative density of a substance is expressed by comparing the density of that substance with the density of water.

9. **(d)** 50 dB - 60 dB

The loudness of sound is normal between 50 dB - 60 dB.

10. **(a)**

The symbol for a closed switch is 

11. **(b)** Concave

A concave mirror is used in the construction of a shaving glass.

12.(c) Water

Water is a transparent object.

13.(b) Electrons

Electric current is the flow of electrons.

14.(a) To measure mass

Beam balance is used to measure mass.

15.(d) metre/second

The unit of speed is metre/second.

Question 2

(A)

1. Motion of a body along a straight line is called rectilinear motion. For example, the motion of a train on a straight track.
2. Focal length = Radius of curvature/2
3. The amplitude of an oscillating body is the maximum displacement of the vibrating body from its mean or normal position.
4. $^{\circ}\text{F} = \frac{9}{5} \times ^{\circ}\text{C} + 32$
5. Electric fuse is a safety device which is used to protect electric devices by breaking the electric circuit in case of flow of excess current in it.

(B)

1. The transfer of heat by the process of conduction takes place only in solids.
2. The weight of an object on the Moon is about one-sixth of that on the Earth.
3. When a short circuit occurs, the fuse wire melts and breaks the circuit.
4. Sound waves cannot travel in vacuum.
5. A ray of light which bounces back from the surface of an object is called a reflected ray of light.

Question 3

(A)

Column A	Column B
Vocal cord	Human voice
Primary cell	Non-rechargable
Quantity of matter	Mass
Plastic	Bad conductor
Joule	Heat

(B)

1. Electric cell: An electric cell is a device which converts chemical energy into electrical energy.
2. Density: Density of an object is defined as the mass per unit volume of that object.
3. Evaporation: The change of liquid state into its vapour state at any temperature below its boiling point is known as evaporation.
4. Opaque objects: Objects which do not allow light to pass through them are called opaque objects.
5. Frequency: Frequency of a sound wave is the number of complete back and forth vibrations of the particle of the medium in one second.

Question 4

(A)

The motion of the Earth around the Sun	Periodic motion
The motion of plucked string of a guitar	Vibratory motion
Motion of a flying bird	Random motion
Giant wheel	Circular motion
Heart beat	Periodic motion

(B)

1. Electric generator
2. Temperature
3. Noise
4. Acceleration
5. Umbra

Question 5

(A)

1. True.
2. False. No medium is required for transfer of heat by radiation.
3. False. The unit of speed is ms^{-1} .
4. True.
5. False. The images which cannot be taken on a screen are called virtual images.

(B)

1. Image formation by a concave mirror when the object is placed beyond C.

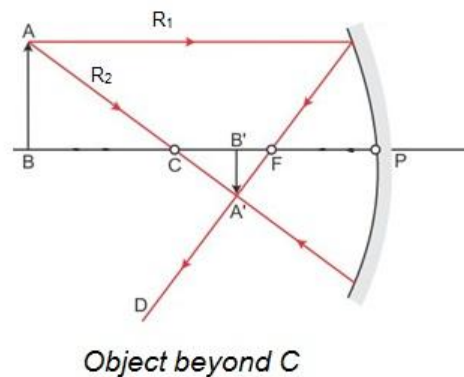
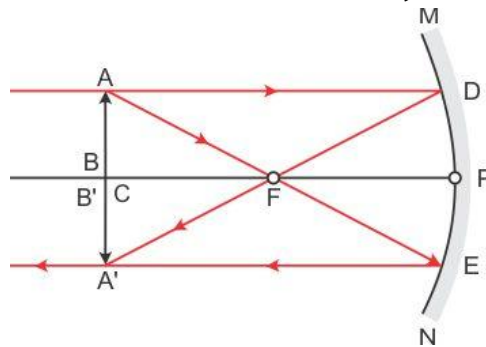


Image formation by a concave mirror when the object is placed at C



2. Two measures to reduce noise pollution are
 - i. Automobiles should be fitted with silencers and soft horns.
 - ii. Airports and noise making factories should be shifted away from the residential area of the city.

Question 6

1. Heat is the form of energy which makes a body hot, while temperature is the degree of hotness or coldness of a body.
2. The time period of a simple pendulum depends on
 - i. The length of the pendulum
 - ii. Acceleration due to gravity
3. The laws of reflection are:
 - i. The incident ray, the reflected ray and the normal all lie in the same plane.
 - ii. During reflection of light, the angle of incidence is equal to angle of reflection.
4. Electroplating is the process of coating a metal by putting it in an electrolyte and passing electricity through it. Electroplating makes the surfaces of various objects clean, smooth and shiny.
5. Sound requires a medium to propagate. It cannot travel in vacuum (region without any medium). Since, there is a vacuum in the space; sound cannot reach us from space.

Question 7

(A)

1. Characteristics of an image formed by a plane mirror are:
 1. The image formed by a plane mirror is virtual (or unreal). It cannot be obtained on a screen.
 2. The image formed by a plane mirror is at the same distance behind the mirror as the distance of the object in front of it.
 3. The image formed by a plane mirror is of the same size as the object. It is neither enlarged nor diminished.
 4. The image formed by a plane mirror is erect. It is always upright like the object.
 5. The image formed by a plane mirror is laterally inverted with respect to the object.
2. During the day, when the Sun shines, solid land gets heated to a higher temperature much more quickly than liquid sea-water. The hot air over the land rises upwards and cooler air from over the sea moves towards the land in the form of a cool breeze. The breeze blowing from the sea towards the land is called sea-breeze.

(B)

1.

i.

Loudness	Pitch
It is an amplitude dependent property	It is a frequency dependent property
It determines the heaviness of sound	It determines the shrillness of sound
Men have voices with large amplitude and thus have loud voices.	Women have voices of high frequency and thus have sharp voices.
Bass in music does not depend on loudness of sound	Bass in music depends on pitch of sound

ii.

High pitch sound	Low pitch sound
It is produced by high frequency vibrations	It is produced by low frequency vibrations
It is a shrill sound	It is a shallow sound
Female voices have a higher pitch	Male voices have a lower pitch