

ICSE Board
Class VII Physics
Sample Paper – 3 Solution

Question 1

1. **(c)** 245 N

$$W = mg = 25 \times 9.8 = 245 \text{ N}$$

2. **(C)** Mixing of salts

Mixing of salts causes the density of sea water to increase.

3. **(b)** 80 km

As the distance does not depend on direction, total distance = $(20 + 60) \text{ km} = 80 \text{ km}$

4. **(c)** 25 KHz

Children below 5 years can hear sounds having a frequency up to 25 KHz.

5. **(a)** transparent

Glass allows light to pass through it because it is transparent.

6. **(b)** increases

When heat is absorbed, the temperature increases.

7. **(c)** Highly enlarged

A highly enlarged image is formed at infinity if the object is at the focus of a concave mirror.

8. **(b)** Temperature

The degree of hotness or coldness of a body or environment is called temperature.

9. **(a)** 90°

The angle between the incident and reflected rays, when a ray of light is incident normally on a plane mirror, is 90° because the normal is perpendicular to the surface and thus creates an angle of 90° .

10. **(b)** mid-day

Shadow of an object is shortest during mid-day when the Sun is exactly above the horizon.

11. (a) 17.26 cm

Since, $R = 34.52$ cm and $R = 2f$

$$f = \frac{34.52}{2} = 17.26 \text{ cm}$$

12. (b) Cathode

A metal released in the electrolysis of a salt gets deposited on the cathode.

13. (d) solids, liquids and gases

Sound can travel through solids, liquids and gases as it requires a medium to travel.
Sound cannot travel through vacuum.

14. (c) Plane mirror

Plane mirror is used to make a periscope.

15. (d) $T = 2\pi\sqrt{\frac{l}{g}}$

Time period of a simple pendulum is $T = 2\pi\sqrt{\frac{l}{g}}$

Question 2

(A)

1. Water cooler and air conditioner are two electric household appliances which cool the surroundings.
2. A common use of a pinhole camera is to capture the movement of the Sun over a long period of time. This type of photography is called solargraphy.
3. Sound travels through water at a speed of 1440 m/s.
4. Focal length = Radius of curvature/2
5. A kilogram-force is the force with which a mass of one kilogram is attracted by the Earth.

(B)

1. To test the purity of a sample of milk, we use a device called a hydrometer.
2. Light takes about 8 minutes to travel from the Sun to the Earth.
3. Pitch increases with an increase in the frequency of a vibrating body.
4. Non-uniform motion is also called accelerated motion.
5. Dry cell was invented by Leclanche.

Question 3

(A)

Column A	Column B
Velocity	Vector
Noise	Irregular vibration
Gas condenses into solid	Solidification
Opaque medium	wood
1 N	10^5 dyne

(B)

1. Uniform Motion: If an object covers equal distances in equal intervals of time, we say that the object is in uniform motion.
2. Amplitude: The maximum displacement of a wave on either side of its mean position is known as the amplitude.
3. Freezing: The process in which a liquid changes into the solid state at a constant temperature by releasing heat is called freezing.
4. Virtual Image: The image which cannot be obtained on a screen is called a virtual image.
5. Electrolysis: The process by which certain chemicals, in the molten state or in solution, break up into ions due to the passage of electric current through them is called electrolysis.

Question 4

(A)

A spinning wheel	Rotatory motion
Breathing	Vibratory motion
A train is moving in straight track	Uniform motion
Movement of a drill	Rolling motion
Motion of tides in the sea	Non-Periodic motion

(B)

1. Non-uniform motion
2. Echo
3. Kelvin
4. Corona
5. Insulator

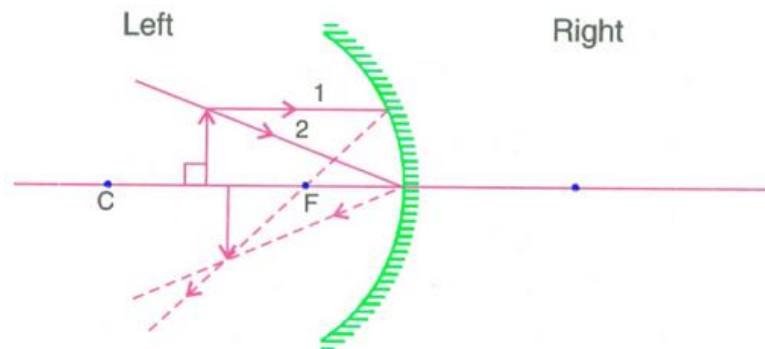
Question 5

(A)

1. True
2. False. A cork floats in water because its density is lesser than that of water
3. False. Conduction and convection requires a material medium. Radiation is possible in vacuum.
4. True
5. True

(B)

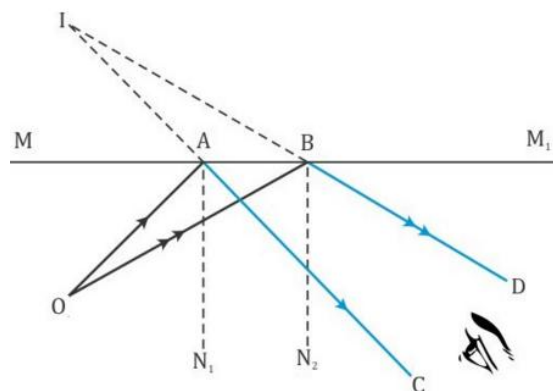
1. Rules to draw a ray diagram:
 - i. To construct a ray diagram, at least two rays whose paths can be traced after reflections are required.
 - ii. An object is kept on the left side of the reflecting surface and not on the right side.
 - iii. An object is always to be kept on the principal axis and its foot should touch the principal axis.



2. Effects of rectilinear propagation of light:
 - i. Formation of shadow
 - ii. Formation of day and night
 - iii. Formation of image from a pinhole camera

Question 6

- Distance = 560 km
Time taken = 480 min = $480/60 = 8$ hours
Hence, speed of train = distance travelled/time taken = $560 \text{ km}/8 \text{ h} = 70 \text{ km/h}$.
- The material of pans is a good conductor of heat. Hence, a wooden handle (which is a bad conductor of heat) is used in a frying pan so that it does not get heated by conduction.
- Formation of image of a point object in a plane mirror:

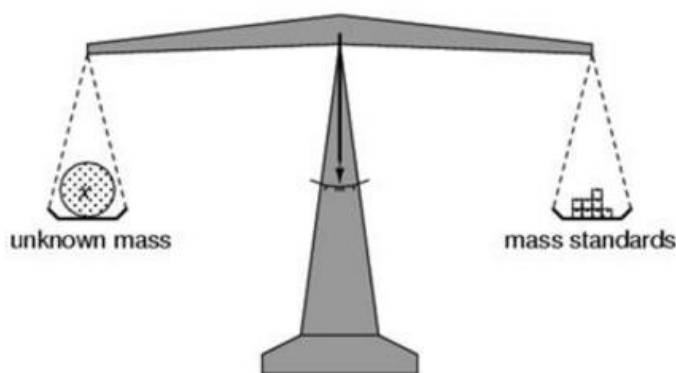


- We should not be barefooted while repairing or replacing any electrical components because if there is damage or cut in the wire, the current may leak through the cut and result in you getting electrical shocks.
- When the Earth comes in between the Sun and the Moon, the light reaching the Moon from the Sun is obstructed by the Earth. This makes the Moon invisible to the observer on the Earth and thus a lunar eclipse is said to occur.

Question 7

(A)

1. A beam balance is used to measure mass. It consists of a horizontal beam, supported at its centre. The beam can move freely about its support and a pointer is attached to the centre of the beam. Two similar pans are suspended at equal distances from the centre of the beam by means of strings of equal lengths. The object whose mass is to be measured is kept on one pan and standard known masses are kept on the other pan till the beam is horizontal and the pointer is vertical. The sum of the known masses gives the mass of the object.



2. Different types of mirrors can be identified by observing the nature of the image formed of our face.

Plane mirror - produces virtual, erect image of the **same size** as our face.

Concave mirror - produces virtual, erect and **magnified** image of our face.

Convex mirror - produces virtual, erect and **diminished** image of our face.

(B)

1.

Image	Shadow
Image is formed due to reflection or refraction.	Shadow is formed when light falls on an opaque object.
Image is seen when light comes from the object after reflection or refraction enters the observer's eye	No light enters the eye from the shadow of the object.
Image gives more information such as colour, structure, etc. about the object.	Shadow does not provide any details about the object but gives an idea about the shape of the object.