

Sample Paper 9
ICSE Class X 2023-24
Physics
Science Paper - 1

Time: 2 Hours

Max. Marks: 80

General Instructions:

1. Answer to this Paper must be written on the paper provided separately.
 2. You will not be allowed to write during first 15 minutes.
 3. This time is to be spent in reading the question paper.
 4. The time given at the head of this Paper is the time allowed for writing the answers.
 5. Section A is compulsory. Attempt any four questions from Section B.
 6. The intended marks for questions or parts of questions are given in brackets [].
-

SECTION - A

(Attempt all questions from this Section.)

QUESTION 1.

Choose the correct answers to the questions from the given options.

[15]

(Do not copy the questions, write the correct answer only.)

- (i) The centre of gravity of a cricket ball is at :
- | | |
|---------------------------------|---------------------------------------|
| (a) at any point on its surface | (b) at its bottom touching the ground |
| (c) its geometric centre | (d) its top most point |
- (ii) The two basic forms of mechanical energy are:
- | | |
|---------------------|---|
| (a) Solar and wind | (b) Heat and tidal |
| (c) Sound and Light | (d) Potential energy and kinetic energy |
- (iii) Force = Power \times
- | | |
|------------------------------|----------------|
| (a) [velocity] ² | (b) velocity |
| (c) $\sqrt{\text{velocity}}$ | (d) 1/velocity |
- (iv) When a nucleus in an atom undergoes a radioactive decay, then the electronic energy levels of the atom
- | |
|--|
| (a) do not change for any type of radioactivity |
| (b) change for β -radioactivity but not for others |
| (c) change for α and β -radioactivity but not for γ -radioactivity |
| (d) change for α -radioactivity but not for others |

- (v) **Assertion :** Resistance of 50 W bulb is greater than that of 100 W.
Reason : Resistance of bulb is inversely proportional to rated power.
- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 - (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 - (c) Assertion (A) is true but reason (R) is false.
 - (d) Assertion (A) is false but reason (R) is true.
- (vi) How does the light should enter the glass to produce a large amount of bending ?
- (a) Obliquely, making a large angle of incidence
 - (b) Perpendicularly to the glass surface
 - (c) Obliquely, making a small angle of incidence
 - (d) All of the above
- (vii) Modern super sonic war planes use the principle of..... while detecting their targets.
- (a) SONAR
 - (b) echo
 - (c) reverberation
 - (d) none of these
- (viii) The amplitude of forced vibrations is generally than the amplitude of applied external force.
- (a) more
 - (b) equal to
 - (c) less
 - (d) none of these
- (ix) In a three pin plug the live pin in :
- (a) thinner and is toward left
 - (b) thicker and is towards right
 - (c) thicker and is towards left
 - (d) thinner and is towards right
- (x) Calculate the energy released by a heater, which draws a current of 5A at 220 V for 1 min.
- (a) 66 J
 - (b) 660 J
 - (c) 66000 J
 - (d) 6600 J
- (xi) Commutator is a device in a D.C. motor which :
- (a) reverses direction of current after half rotation of coil.
 - (b) increases the strength of electromagnet.
 - (c) increases the power.
 - (d) reverses direction of current coil after full rotation of coil.
- (xii) A copper vessel contains 200 g of water at 24°C. When 112 g of water at 42°C is added, the resultant temperature of water is 30°C. Calculate the thermal capacity of the calorimeter.
- (a) 1.8 J °C⁻¹
 - (b) 10.8 J °C⁻¹
 - (c) 1000.8 J °C⁻¹
 - (d) 100.8 J °C⁻¹

- (xiii) 400 g of mercury of specific heat capacity $0.14 \text{ Jg}^{-1}\text{C}^{-1}$ is heated by a 200 W heater for 1 min. and 40 s. If initially mercury is at 0°C , calculate its final temperature.
- (a) 753.1°C (b) 537.1°C
(c) 735.1°C (d) 357.1°C
- (xiv) Face of a person sitting near a camp fire appears to shimmer because of
- (a) total internal reflection (b) dispersion of light
(c) refraction of light (d) scattering of light
- (xv) If a swimmer inside water looks at an aeroplane in the sky, then which of the following conditions are fulfilled ?



- (a) For the swimmer, the aeroplane will appear to be lower than it actually is
(b) For the pilot, the swimmer will appear to be at greater depth than it actually is
(c) For the swimmer, the aeroplane will appear to be higher than it actually is
(d) For the swimmer, the aeroplane will appear at its actual height

QUESTION 2.

- (i) What is the relation between the velocity ratio and the number of strands of string used to support the load, in a 'block and tackle set up' ? [3]
- (ii) A uniform metre rule weighing 100 gf pivoted at its centre O . Two weights 150 gf and 250 gf hang from the metre rod as shown. Calculate [2]
(a) the total anticlockwise moments about O ,
(b) the total clockwise moments about O .
- (iii) The mechanical advantage of a machine is 5 and its efficiency is 80%. It is used to lift a load of 200 kgf to a height of 20 m. Calculate: [2]
(a) the effort required, and
(b) the work done on the machine ($g = 10 \text{ ms}^{-2}$).
- (iv) State the energy changes in an oscillating pendulum. [2]
- (v) The work done by a fielder when he takes a catch in a cricket match is negative. Explain. [2]

- (vi) A battery of emf 3 V sends a current of 0.5 A through a wire. Calculate : [2]
(a) the resistance of the wire
(b) the heat energy produced in one minute.
- (vii) (a) What is an echo ? [2]
(b) State two conditions for an echo to take place.

QUESTION 3.

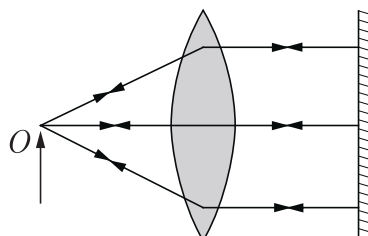
- (i) (a) Where should an object be placed so that a real and inverted image of the same size as the object is obtained using a convex lens ? [2]
(b) Draw a ray diagram to show the formation of the image as specified in the part (a)
- (ii) (a) An electrical gadget can give an electric shock to its user under certain circumstances. Mention any two of these circumstances. [2]
(b) What preventive measure provided in a gadget can protect a person from an electric shock?
- (iii) Under what circumstances does one get an electric shock from an electric gadget ? [2]
- (iv) 200 g of hot water at 80°C is added to 300 g of cold water at 10°C . Calculate the final temperature of the mixture of water. Consider the heat taken by the container to be negligible. [Specific heat capacity of water is $4200 \text{ J kg}^{-1} ^{\circ}\text{C}^{-1}$] [2]
- (v) What is space charge ? [2]

SECTION - B

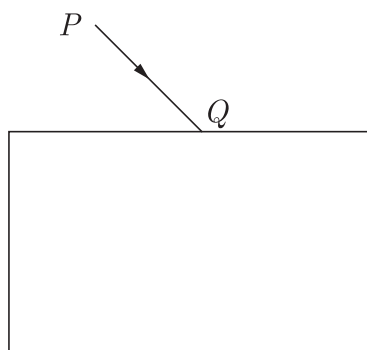
(Attempt any four questions.)

QUESTION 4.

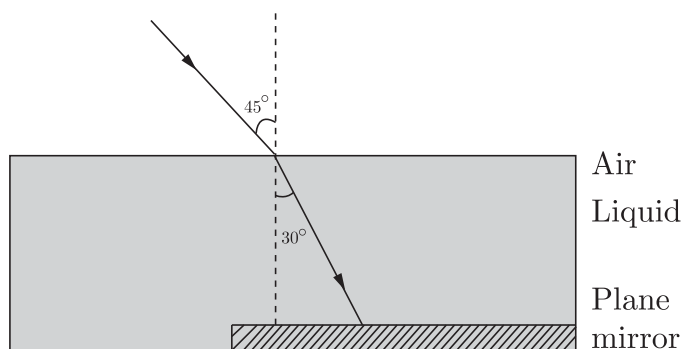
- (i) The given ray diagram below illustrates the experimental set up for the determination of the focal length of a converging lens using a plane mirror. [3]
(a) State the magnification of the image formed.
(b) Write two characteristics of the image formed.
(c) What is the name given to the distance between the object and optical centre of the lens in the above diagram?



- (ii) What is Newton's colour disc? What does the Newton's colour disc experiment establish about the nature of white light? [3]
- (iii) (a) In the diagram, PQ is a ray of light incident on a rectangular glass block. [4]
- Copy the diagram and complete the path of the ray of light through the glass block. In your diagram, mark the angle of incidence by letter ' i ' and the angle of emergence by the letter ' e '.
 - How are the angles ' i ' and ' e ' related to each other?



- (b) A ray of monochromatic light enters a liquid from air as shown in the diagram given below :



- Copy the diagram and show in the diagram the path of the ray of light after it strikes the mirror and re-enters the medium of air.
 - Mark in your diagram the two angles on the surface of separation when the ray of light moves out from the liquid to air.
- (c) (i) When does a ray of light falling on a lens pass through it undeviated ?
- (ii) Which lens can produce a real and inverted image of an object ?
- (d) (i) How is the refractive index of a medium related to its real depth and apparent depth ?
- (ii) Which characteristic property of light is responsible for the blue colour of the sky ?

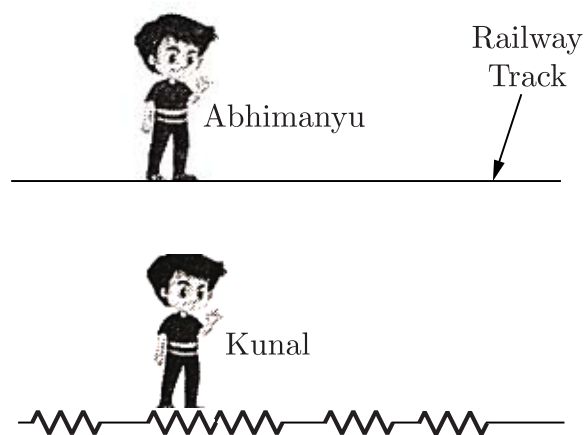
QUESTION 5.

- (i) The speed of light in air is $3 \times 10^8 \text{ ms}^{-1}$. Calculate the speed of light in glass. The refractive index of glass is 1.5. [3]

- (ii) (a) A harpoon used to kill a fish is aimed at a point below the apparent position of the fish. Why? [3]
(b) A pencil partially immersed in water in glass, appears bent. Explain with the help of a ray diagram.
- (iii) The stem of a tuning fork is pressed against a table top. Answer the following questions : [4]
(a) Would the above action produce any audible sound ?
(b) Does the above action cause the table to set into vibrations ?
(c) If the answer above is yes, what type of vibrations are they ?
(d) Under what conditions does the above action lead to resonance ?

QUESTION 6.

- (i) Kunal and Abhimanyu were waiting to go cross a railway crossing. Kunal jumped over the barrier and curiously put his ear on the railway track. Abhimanyu opposed Kunal and pulled him away from the railway track. [3]
(a) Why did Kunal put his ear on the railway track?
(b) Write the name of material in which sound travel faster?
(c) Why did Abhimanyu pull Kunal away from the railway track?



- (ii) The mechanical advantage of a machine is 5 and its efficiency is 80%. It is used to lift a load of 200 kgf to a height of 20 m. Calculate: [3]
(a) the effort required and
(b) the work done on the machine ($g = 10 \text{ ms}^{-2}$).
- (iii) A world weight lifting record is held by Sergei Didyk of USSR. He lifted 261 kg to a height of 2.3 m in 4 s. Find (a) the weight lifted by Didyk, (b) the work done by him, and (c) the power developed by him. (Take $g = 10 \text{ ms}^{-2}$) [4]

QUESTION 7.

- (i) (a) The human ear can detect continuous sounds in the frequency range from 20 Hz to 20000 Hz. Assuming that the speed of sound in air is 330 ms^{-1} for all frequencies, calculate the wavelengths corresponding to the given extreme frequencies of the audible range. [3]
- (b) An enemy plane is at a distance of 300 km from a radar. In how much time the radar will be able to detect the plane ? Take velocity of radio waves as $3 \times 10^8 \text{ ms}^{-1}$.
- (ii) (a) What is meant by radioactivity? [3]
- (b) What is meant by nuclear waste?
- (c) Suggest one effective way for the safe disposal of nuclear waste.

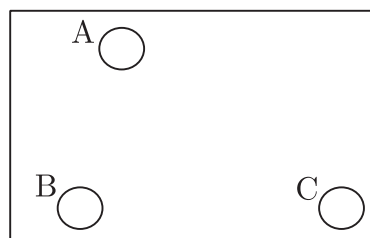
or

Name the methods used for disposal of nuclear waste.

- (iii) Give two reasons why the efficiency of a single movable [4]
- (a) What is meant by an ideal machine ?
- (b) Write a relationship between the mechanical advantage (M.A.) and velocity ratio (V.R.) of an ideal machine.
- (c) A coolie carrying a load on his head and moving on a frictionless horizontal platform does no work. Explain the reason why.

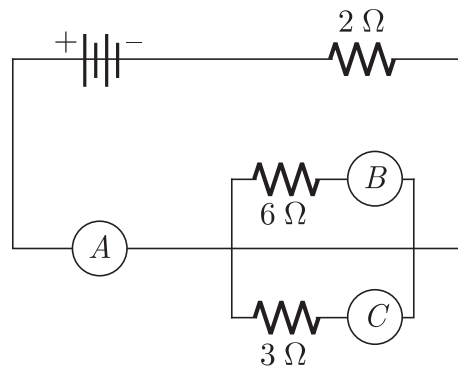
QUESTION 8.

- (i) Three wires with proper colour coding are connected to the three terminals of a three pin socket. Match the colour of the wire with the proper terminals *A*, *B* and *C* of the socket. [3]



- (a) Brown
- (b) Green
- (c) Light blue
- (ii) How is a cathode ray beam affected while passing through (a) a magnetic field, (b) an electric field ? [3]

- (iii) In the given figure A , B and C are three ammeters. The ammeter B reads 0.5 A . [4]
(All the ammeters have negligible resistance.)



Calculate:

- the readings in the ammeters A and C .
- the total resistance of the circuit.

QUESTION 9.

- A certain amount of heat Q will warm 1 g of material X by 3°C and 1 g of material Y by 4°C . Which material has a higher specific heat capacity? [3]
 - A calorimeter of mass 50 g and specific heat capacity $0.42\text{ J g}^{-1}^\circ\text{C}^{-1}$ contains some mass of water at 20°C . A metal piece of mass 20 g at 100°C is dropped into the calorimeter. After stirring, the final temperature of the mixture is found to be 22°C . Find the mass of water used in the calorimeter.
[Specific heat capacity of the metal piece $= 0.3\text{ J g}^{-1}^\circ\text{C}^{-1}$, Specific heat capacity of water $= 4.2\text{ J g}^{-1}^\circ\text{C}^{-1}$]
- State whether the specific heat capacity of a substance remains the same when its state changes from solid to liquid. [3]
 - Give one example to support your answer.
- Four cells each of e.m.f. 2 V and internal resistance 0.1Ω are connected in series. The combination is connected in series to an ammeter of negligible resistance, a 1.6Ω resistor and an unknown resistor R_1 . The current in the circuit is 2 A . [4]
Draw a labelled circuit diagram for the above arrangement and calculate:
 - The total resistance in the circuit,
 - The total e.m.f.,
 - The value of R_1 ,
 - The potential difference across R_1 .

Pre Board Sample Papers Exam Feb 2024

ICSE Class 10th Physics

Click PDF Icon and Download Sample Papers 30 Sets

If you are not able to click papers, please see last page of this PDF

Physics Paper 1

Paper

Solution



Physics Paper 2

Paper

Solution



Physics Paper 3

Paper

Solution



Physics Paper 4

Paper

Solution



Physics Paper 5

Paper

Solution



Physics Paper 6

Paper

Solution



Physics Paper 7

Paper

Solution



Physics Paper 8

Paper

Solution



Download Chapterwise Previous 20 Years Exam Question Bank
Questions Worksheet and Solutions



DOWNLOAD

Physics Paper 9

Paper

Solution



Physics Paper 10

Paper

Solution



Physics Paper 11

Paper

Solution



Physics Paper 12

Paper

Solution



Physics Paper 13

Paper

Solution



Physics Paper 14

Paper

Solution



Get all Subject Sample Papers
Click Below to Join our Whatsapp Channel



Join Whatsapp Channal

Physics Paper 15

Paper

Solution



Physics Paper 16

Paper

Solution



Physics Paper 17

Paper

Solution



Physics Paper 18

Paper

Solution



Physics Paper 19

Paper

Solution



Physics Paper 20

Paper

Solution



Add Whatsapp ChatBot Number

94142 43489

In your class Whatsapp group to get all subjects.

Sample papers will be sent in your class whatsapp group.

ICSE Pre Board Sample Papers

Class 10th Exam 2024

Click your subject and Download 20 Set Sample Papers

MATHS

PHSYICS

CHEMISTRY

BIOLOGY

HIS. & CIVICS

GEOGRAPHY

ENGLISH - I

ENGLISH - II

COMPUTER

हिंदी

File is not opening after click or touch ? What to do ?

If sample paper file is not opening after click or touch, it means links doesn't work in you mobile PDF opening app. It seems that your mobile has WPS office, in which links doesn't work.

Open this file in Google Drive only.

क्लिक/टच करने से फाइल नहीं खुल रहा है ? मैं क्या करूँ

अगर आपके क्लिक करने के बाद सैंपल पेपर फाइल नहीं खुल रहा है तो आपके PDF खोलने वाले एप्प में लिंक काम नहीं करते हैं | अगर आपके मोबाइल में WPS ऑफिस है तो उसमें भी फाइल नहीं खुलेगा |

आप इसे गूगल ड्राइव में खोलिये |

Get all Subject Sample Papers

Click Below to Join our Whatsapp Channel



Join Whatsapp Channal