

Class-VIII

## PHYSICS

(Answer all questions)

## Question 1

- a. i) Will a body weigh more in air or in vacuum when weighed with a spring balance? (2)
- ii) Give a reason for the answer.
- b. i) State Archimedes' principle. (2)
- ii) What is the cause of upthrust?
- c. A piece of iron of density  $7.8 \times 10^3 \text{kgm}^{-3}$  and volume  $100 \text{cm}^3$  is completely immersed in water of density  $1000 \text{kgm}^{-3}$ . Calculate
- i) the weight of the iron piece in air (2)
- ii) the upthrust. ( $g = 10 \text{ m/s}^2$ .)
- d. State, how does the following affect upthrust
- i) volume of body submerged (2)
- ii) density of fluid.
- e. i) How does the density of material of a body determine whether it will float in water? (2)
- ii) What is the apparent weight of a floating body?

## Question 2

- a. Differentiate between density and relative density of a substance. (2)
- b. i) The density of iron is  $7800 \text{kgm}^{-3}$ . What do you understand by this statement. (2)
- ii) Express this density in cgs unit.
- c. The relative density of copper is 8.9. Find its density in
- i) SI unit (2)
- ii) cgs unit (2)
- d. An iron nail sinks in water while a ship floats. Explain. (2)
- e. A block of wood is loaded that it just floats in water at room temperature. What change will occur in the state of floatation if
- i) water is heated
- ii) some salt is added to water (2)

### Question 3

- a. i) What do you mean by anomalous expansion of water? (2)  
ii) At what temperature the density of water is maximum. (2)
- b. Draw a graph to show the variation in density of water with temperature in the temperature range  $0^{\circ}\text{C}$  to  $10^{\circ}\text{C}$ . (2)
- c. Water pipes in cold countries often burst in winter, Explain. (2)
- d. State two advantages of using hydro energy. (2)
- e. State two limitations of using wind energy for generating electricity. (2)

### Question 4

- a. The figure below shows a light ray incident on a plane mirror.



- i) Draw the reflected ray
- ii) What is the angle between the incident and the reflected rays? (2)
- b. An object is at a distance of 20cm in front of a plane mirror. The mirror is shifted 5cm away from the object. Find
- i) the new distance between the object and its image
- ii) the distance between the two positions of the image. (2)
- c. Draw diagrams to show the reflection of a parallel beam of light from
- i) a plane mirror
- ii) a plane sheet of paper (2)
- d. i) What is lateral inversion?
- ii) The letters on the front of an ambulance are written laterally inverted. Give reason. (2)
- e. Two plane mirrors are kept perpendicular to each other. How many images are formed if the object is placed
- i) asymmetrically ii) symmetrically, between the mirrors. (2)

**Section-B**  
**(Answer all questions)**

**Question 5**

- a. i) How many images are formed if two plane mirrors are kept at an angle of  $0^\circ$ .  
ii) Draw a diagram to support your answer. (4)
- b. State any three uses of a plane mirror. (3)
- c. Write any three characteristics of the image formed by a plane mirror. (3)

**Question 6**

- a. i) State the laws of reflection.  
ii) Draw a diagram to show the reflection of a light ray incident normally on a plane mirror.  
iii) What is the angle of reflection? (4)
- b. i) Name the type of reflection which can be obtained on a screen.  
ii) How is the above mentioned image formed?  
iii) Is it erect or inverted with respect to the object? (3)
- c. Define  
i) reflection of light  
ii) angle of incidence  
iii) point of incidence. (3)

**Question 7**

- a. i) What is a solar cell?  
ii) Name a substance used for making solar cell.  
iii) What is the name given to an arrangement of a large number of solar cells over a large area?  
iv) Why is it arranged as mentioned above in part (iii)? (4)
- b. i) What is global warming?  
ii) What is its cause?  
iii) State any one impact of global warming on life on the earth. (3)
- c. i) Name the process used for producing electricity using nuclear energy.  
ii) State one advantage and one disadvantage of using nuclear energy for producing electricity. (3)

### Question 8

- a. i) State two characteristics which a source of energy must have.  
ii) State two differences between renewable and non-renewable sources of energy. (4)
- b. A man first swim in sea water and the in river water.  
i) Compare the weights of sea water and river water displaced by him.  
ii) Where does he find it easier to swim?  
iii) Give reason for the answer in part ii). (3)
- c. i) A piece of ice floating in water melts, but the level of water in the glass does not change. Give reason.  
ii) A block of wood of mass 30kg floats on water. The volume of wood is  $0.04\text{m}^3$ . Find  
a. the volume of the block below the surface of water  
b. the density of wood. (Density of water= $1000\text{kgm}^{-3}$ ). (3)
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