

WINTER ASSIGNMENT FOR SESSION: 2020-2021

CLASS: 6TH

EXAM: FA-1 & FA-2

SUBJECT: PHYSICS

Chapter 2: Matter

Short-answer type questions

Q1. Define matter. Give three examples.

Ans) Anything which is made up of atoms is called matter. Matter occupies space and has mass. The three examples of matter are chair, book and pen.

Q2. What is matter made up of?

Ans) Matter is made up of tiny particles called atoms.

Q3. What is the space between the molecules of a substance called?

Ans) The space between the molecules of a substance is called intermolecular space.

Q4. What are the three states of matter?

Ans) The three states of matter are solid state, liquid state and gaseous state.

Q5. How do solids, liquids and gases differ in respect of volume and shape?

Ans) Solids have definite shape and volume. Liquids have no definite shape but have definite volume. Gases neither have definite shape nor definite volume.

Q6. What do you understand by 'interconversion of state'?

Ans) The conversion of one state of matter into any other state by change in temperature is called interconversion of state.

Q7. What is sublimation? Name two substances that sublime.

Ans) The change of solid state of matter directly into gaseous state without passing through the liquid state is called sublimation. Naphthalene and camphor are the two substances that sublime.

Q8. What is liquefaction?

Ans) The process of conversion of a gas into liquid state is called liquefaction.

Q9. What causes matter to change its state?

Ans) The change in temperature of matter causes a change in its state. Matter changes its state when heated or cooled to the right degree.

Q10. Why are gases highly compressible?

Ans) Gases have large intermolecular spaces as the molecules in gases are very loosely packed. That is why gases are highly compressible.

Long-answer type questions

Q1. Explain the characteristics of a solid on the basis of the space and force between its molecules?

Ans) The characteristics of solids are:

- i. Solids have very little spaces between their constituent particles, that makes them rigid and incompressible
- ii. The constituent particles of the solids are held together by strong forces of attraction that makes their shape and volume definite.

Q2. Compare the characteristics of a solid and a liquid?

Ans)

Solid	Liquid
1. A solid has very little intermolecular spaces.	1. A liquid has greater intermolecular space than a solid.
2. A solid has rigidity but not fluidity.	2. A liquid has fluidity but not rigidity.
3. A solid has a definite shape and volume.	3. A liquid has a definite volume but not definite shape.
4. The intermolecular force in a solid is very strong.	4. The intermolecular force in a liquid is less than in a solid.

Q3. In what ways do gases behave differently from liquids?

Ans) Gases are highly compressible because of large intermolecular spaces. They have no fixed volume or shape. They fill up whatever space is available to them. However, liquids are almost incompressible. They also have no fixed shape but have fixed volume. They take the shape of the container in which they are kept.

Q4. Write about solid-liquid interconversion in brief.

Ans) When a solid is heated, its temperature increases, due to which the kinetic energy of particles also increases. With increase in the kinetic energy, the particles start vibrating with greater speed. They overcome the force of attraction and move freely. A stage is reached when the solid melts and is converted into a liquid. The temperature at which a solid melts is called melting point.

Q5. What happens when a liquid is heated to its boiling point? Does a liquid change into the vapour state only at its boiling point?

Ans) When a liquid is heated to its boiling point, bubbles start forming throughout its bulk and it changes into vapour at a much faster rate. A liquid changes into vapour at a temperature far below its boiling point.

Note: Do all the book work by yourself.

Chapter 2: Measurement

Examination:FA-2

Short-answer type questions

Q1.What is meant by the unit of a physical quantity?

Ans) The known physical quantity with which a particular quantity is compared and measured is called unit of measurement.

Q2. Give two examples showing how the magnitude of a physical quantity is expressed as a number and a unit.

Ans) The two examples are as under:

i. To measure the length of a room, the length is the unknown quantity. We choose one meter as a known quantity. We compare the length of the room with this unit. Suppose we find that this length is 5.4 times this unit. So the length of room is 5.4 meter

ii. To measure the mass of an object, the mass is the unknown quantity. We choose one kg as known quantity and compare the mass of the object with this unit. Suppose the mass of the object is 10 times this unit. So the mass of the object is 10 kg.

Q3. What is length? What are its units in the cgs and the fps system?

Ans) The distance between any two points is called length. E.g., distance between two ends of a ruler is called length of the ruler. In cgs the unit of length is centimeter (cm) and in fps the unit of length is foot (ft).

Q4. Mention two advantages of metric system?

Ans) The two advantages of metric system are:

- i. In metric system a single unit is defined for each physical quantity, such as length and mass.
- ii. In metric system larger or smaller forms of a unit are related to each other by powers of 10.

Q5. How many units are defined in SI? Give the SI units of three base quantities.

Ans) The SI unit system defines the units of seven quantities called base quantities or fundamental quantities.

The SI unit of Mass is kilogram(kg). The SI unit of Length is meter(m) and the SI unit of time is second(s)

Q6. What is mass? Mention three units of mass.

Ans) The quantity of matter contained in a body is called mass of the body. The three units of mass are pound(lb), gram(gm) and kilogram(kg).

Q7. Distinguish between the time shown by a clock, and a time interval. Give one example of each.

Ans) The time shown by a clock is the real time of the day. E.g., the first period begins at 9:30 refers to the time of the day.

A time interval is the difference in time between two events. E.g., the first period is of 40 minutes from (9:30 to 10:10) refers to a time interval or a duration.

Q8. Mention two scales of temperature used in everyday life. Give one example of each.

Ans) The two scales of temperature used in everyday life are degree Celsius($^{\circ}\text{C}$) scale and degree Fahrenheit($^{\circ}\text{F}$) scale. E.g., the normal body temperature is about 37°C or 98.6°F . Water boils at 100°C or 212°F .

Q9. What are the lower and upper fixed points of the Celsius scale?

Ans) The lower and upper points on Celsius scale are 0°C and 100°C respectively.

Q10. Why does a clinical thermometer have a kink?

Ans) A clinical thermometer has a kink in the tube because it does not allow the mercury to move back into the bulb by itself. This allows us time to read the temperature after removing the thermometer from a person's mouth.

Q11. Why is not necessary to write AM or PM in the 24-hour-clock system?

Ans) It is not necessary to write AM or PM in the 24-hour-clock system because in this system a day is not divided into 12-hour periods. Instead, time is expressed as the number of hours and minutes that have passed since midnight.

Q12. Mention one advantage and one disadvantage of approximation.

Ans) The advantage of approximation is that it saves our time and also saves us from the trouble of measuring. The disadvantage of approximation is that it may be inaccurate.

Q13. How would you find the average of a number of values?

Ans) The average of number of values is calculated by adding all the values and dividing the sum by number of values.

Average= $\frac{\text{sum of values}}{\text{number of values}}$

Q14. How would you identify a standard meter scale?

Ans) A standard meter scale has arrow marks (\leftarrow and \rightarrow) at the two ends and the stamp of the department on the reverse side. The graduation marks on the scale are 10 cm apart.

Q15. Mention the defects which may be present in a beam balance used in the market.

Ans) Following are the defects which may be present in the beam balance used in the market:

- i. The beam may be fixed rigidly to the handle used to suspend the balance.
- ii. The two arms of the beam may be unequal.
- iii. The pans may be unequal in weight.

Long-answer type questions

Q1. Describe the precautions required while measuring length.

Ans) The precautions required while measuring length are as under:

i. **Avoid using the end of the scale:** The ends of the scale should not be used while taking measurement as they may be damaged that can lead to errors.

ii. **Place the scale properly:** The scale should be placed parallel to the length of the we measure. Also, it should be kept as close to the object as possible.

iii. **Place one's eyes correctly:** When we look at a scale placed horizontally, our eye should be vertically above the mark we are reading. If the scale is upright then our eye should be horizontally in line with the mark we are standing.

Q2. Describe how would you measure (a) the diameter of tennis ball, and (b) the radius of a thin wire.

Ans) a. To measure the diameter of the tennis ball, place it between two blocks. Place a scale against the blocks. Read the position of the inner edge of each block on the scale. The difference between the readings is equal to the diameter of the tennis ball.

b. To measure the radius of a thin wire, wind about 30-40 turns of the wire around a pencil. The turns of the wire should touch each other. Measure the combined thickness of all the turns with the help of a scale. Divide the measured length by the number of turns to get the thickness of the wire. Finally divide this thickness by 2 to get the radius of the wire.

Q3. Name three instruments used for measuring mass (weighing). Mention three defects that balances may have.

Ans) The three instruments used for measuring mass are as under:

i. The simple beam balance

ii. Electronic weighing machine

iii. physical balance

The three defects that balances may have are as under:

Refer to Q15.

Q4. Describe the construction of a laboratory thermometer.

Ans) A laboratory thermometer has a small bulb at one end of a long glass cylinder called the stem. The bulb holds mercury (a silvery metal) and is connected to a very thin tube inside the stem called the bore. When the bulb is heated the mercury expands into the bore. It looks like a thin shining thread. A temperature scale is marked on the stem. The thermometer reading is the temperature mark at the end of the thread of the mercury.

- Book work should be done by yourself.
- Numerical problems will be solved in class room during regular classes.