

Chapter 1

Matter in our surroundings

1. What happens when you open a bottle of perfume?
2. The molecules of water have more energy as compared to molecules of ice at same temperature. Justify this statement.
3. If the food is being cooked in the kitchen, name the process which brings smell and define it.
4. A substance has a finite volume but no definite shape. Write the physical state of the substance.
5. Arrange the three states in the increasing order of (i) rate of diffusion (ii)particle motion
6. A small amount of gas is let into a large evacuated chamber. How much of the chamber gets filled with the gas?
What property of the gas helps it to do so?
7. Explain why heat energy is needed to melt a solid. Define latent heat of fusion.
8. Write the chemical name of dry ice. How is it stored?
9. Write the full form of LPG and CNG.
- 10.Explain the inter conversion of three states of matter in terms of force of attraction and kinetic energy of the molecules.
- 11.Enumerate the changes that takesplace inside the matter during the change of state.
- 12.When a solid melts its temperature remains the same. Give reason.
- 13.Write an activity to show the particulate nature of matter.
- 14.What happens when acetone is poured on the palm?
- 15.Name the process involved in the following changes (i)liquid to solid (ii)gas to liquid (iii)solid to liquid (iii) solid to gas.
- 16.Define evaporation. How does it differ from boiling? How does evaporation cause cooling?
- 17.When sugar and common salt are kept in different jars, they take the shape of jars. Are they solid? Justify your answer.
- 18.Define matter. Name the states of matter in which the forces between the constituent particles are (i) strongest and (ii)weakest.
- 19.Define the following terms (i) rigidity (ii) compressibility and (iii) diffusion.
- 20.Why do clothes take more time in drying on a rainy day?
- 21.During summer sitting under a fan makes us comfortable. Give reason.

22. Doctors advise to put strips of wet cloth on the forehead of a person having high fever. Why ?
23. After a hot sunny day, people sprinkle water on the roof .why?
24. Gases are more compressible. Write two reasons for this.
25. Give reason why gases undergo diffusion very fast.
26. With the help of a well-labelled diagram explain how solid ammonium chloride converts directly to gaseous state on heating?
27. 5 ml of water was taken in a test tube and china dish separately. These samples were then kept under different conditions as below:
- (a) Both the samples are kept under a fan
 - (b) Both the samples are kept inside a cupboard. State in which case evaporation will be faster. Give reason to support your answer. How will the rate of evaporation change if above activity is carried out on a rainy day? Justify your answer.

INTERNATIONAL INDIAN SCHOOL – DAMMAM

LESSON 2 – IS MATTER AROUND US PURE

WORKSHEET – CLASS IX

1. Is ink a pure substance or mixture ? Give reason.
2. State two reasons to justify that air is a mixture and water is a compound.
3. Define a solution. Give an example of
 - (a) Gas in liquid solution
 - (b) Gas in gas solution
4. (i) Define Tyndall Effect. (ii) Which of the following will show Tyndal effect.
 - (a) Salt solution
 - (b) Milk
 - (c) Copper sulphate solution
 - (d) Starch
5. Tabulate the difference between solutions, colloid and suspension.
6. A solution contains 40 g of common salt in 360 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.
7. Define the terms solute, solvent and solution. When is a solution said to be saturated ? State two ways by which a saturated sugar solution can be made unsaturated.
8. Identify the separation technique used :
 - (a) To separate the components of ink
 - (b) To separate cream from milk
 - (c) To separate alcohol from water
 - (d) To separate mustard oil from water
 - (e) Iron filings and sand
 - (f) Salt and ammonium chloride
9. Classify the following as elements and compounds.
Silver, Methane, Water, Mercury
10. Mention the dispersed phase, dispersing medium and the type of colloids in the following:
Smoke, Jelly, Fog, Colored gemstone, Cloud, Sponge, Jelly, Mud, Milk.
11. Differentiate between :
 - (i) Saturated and unsaturated solution
 - (ii) Mixture and compound
 - (iii) Homogeneous and Heterogeneous mixtures.
 - (iv) Distillation and fractional distillation.
 - (v) Physical and chemical change
12. What are metalloids ? Give two examples.
13. State the principle used in separating different components of a mixture by the method of centrifugation. List any two applications of this method.
14. Name the principle used to separate kerosene and water. Draw a neat labelled diagram.
15. What is chromatography ? Write any two applications of chromatography.

16. What kind of mixture the atmospheric air is ? Describe the steps involved in obtaining liquid oxygen from air.
17. (a) Why is crystallization technique better than simple evaporation ?
(b) Why is a fractionating column with beads used for fractional distillation process.
(c) Draw a labelled diagram showing the process of fractional distillation.
18. Give an example of each of the following:
(a) Aerosol (b) Emulsion (c) Gel (d) Solid Sol
19. (a) What are elements ?
(b) What are the three main types of elements ?
(c) Name a metal that is liquid at room temperature.
20. Identify physical and chemical changes from the following:
Rusting of iron, Cooking of food, Freezing of water, Burning of candle, Melting of wax, Glowing of a bulb.

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Biology Worksheet -Class IX

L-5: The Fundamental Unit of Life

I. Fill in the Blanks

- i. The animal cell which does not possess nucleus is _____.
- ii. The opening and closing of stomata is due to _____.
- iii. Two organelles which have their own genetic material are _____ and _____.
- iv. The solution in which a cell will gain water by osmosis is called ___ solution.
- v. The term protoplasm was coined by _____.

II. Name the Following

- i. Two cells which keep changing their shape -
- ii. The cell organelle that helps in packaging-
- iii. The phenomenon by which resins placed in water swell up -
- iv. Main cellular site of ATP generation -
- v. The barrier between the protoplasm and the outer environment in an animal cell is _____.

III. Define

- i. Diffusion
- ii. Hypertonic Solution
- iii. Plasmolysis
- iv. Membrane Biogenesis
- v. Endocytosis

IV. Short Questions

- i. State the functions of chromosomes in a cell.
- ii. Differentiate between prokaryotic & eukaryotic cell.
- iii. Which organelles are called:
 - a) Powerhouse of the cell
 - b) Suicidal Bags
- iv. What will happen to a plant cell if it is kept in sugar solution? Explain.

V. Give a scientific reason for the following

- i. Inner membrane of mitochondria is deeply folded.
- ii. Mitochondria are able to make some of their proteins.

VI. *What are the different types of endoplasmic reticulum? Write the functions of each.*

VII. *List two main functions of Plasma membrane.*

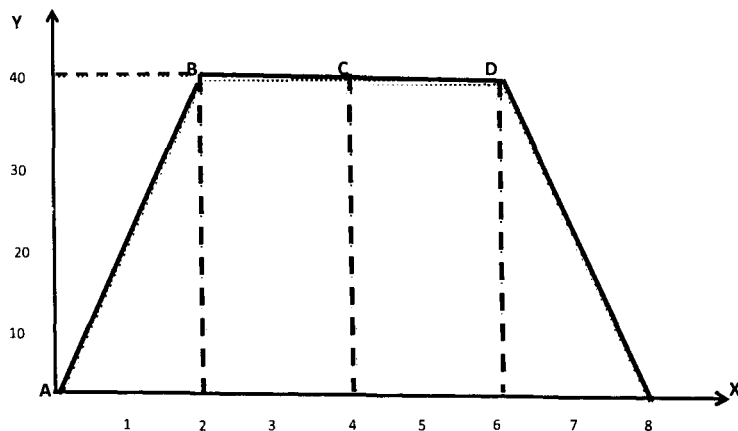
VIII. *Draw a neat diagram of plant cell and label 4 parts.*

1. Name the tissue which is present at the growing tips of stem and roots.
2. What do you mean by parenchyma?
3. Name the tissue which allows easy bending in various parts of a plant.
4. Which structure protects the plant body against the invasion of parasites?
5. Where is intercalary meristem found?
6. Name the enucleate thin walled plant cells with perforated end walls.
7. Based on ability to divide, how many types of plant tissues are found?
8. Name the tissue present at the growing tips of root and stem.
9. What is the function of xylem?
10. Name the tissues which make up the husk of coconut
11. What is lignin?
12. What do you mean by differentiation?
13. How are simple tissues different from complex tissues in plant?
14. Which type of plant tissue is an active site of cell division?
15. Which type of plant tissue is an active site of cell division?
16. Which type of permanent tissue does carrot contain?
17. Which type of permanent tissue help the aquatic plants to float?
18. Which type of parenchyma contains chlorophyll?
19. Which substance is responsible for thickening of sclerenchyma walls?
20. Epidermis in desert plants has a thin waxy coating of a chemical substance. Name the chemical.
21. Which are the tubular structures present in xylem?
22. Name the part of phloem with perforated walls.
23. Name the dead part of phloem.
24. Define tissue. What is the utility of tissue in multicellular organisms
25. Mention characteristics of permanent tissues.
26. Give reasons for – (a) intercellular spaces are absent in sclerenchymatous tissues.
(b) Meristematic cells have a prominent nucleus and dense cytoplasm but they lack vacuoles (c) We get crunchy and granular feeling, when we chew pear fruit.
27. Why is epidermis important for the plants?
28. Draw and label: a) parenchyma tissue
b) phloem
c) muscular tissues
d) neuron
29. Differentiate between:
 - a) Bone and cartilage
 - b) Apical and intercalary meristem
 - c) Voluntary and involuntary muscle
 - d) Tendon and ligament

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Worksheet – Class 9, Chapter - Motion

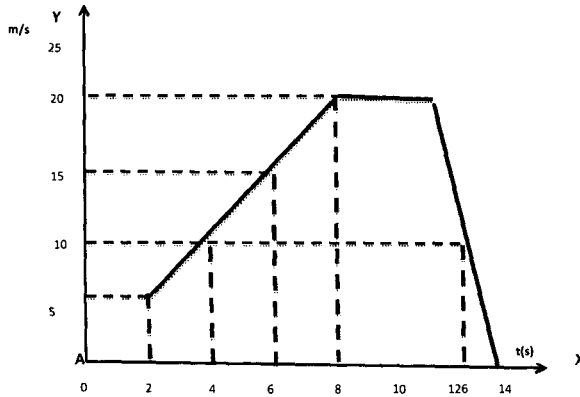
1. Distinguish between scalar and vector quantities
2. State whether the given situation is possible give example. An object moving in a certain direction with acceleration in the perpendicular direction.
3. Why uniform circular motion is called accelerated motion?
4. Give an example of a situation when a body covers some distance but the displacement is zero.
5. (a) What does the slope of v-t graph indicate?
(b) Draw v-t graphs for –
 - i. A train moving on a straight path along a particular direction with constant velocity
 - ii. A freely falling stone under the action of gravity
6. A train starting from rest attains a velocity of 72 km/h in 5 minutes. Find
 - i. Acceleration
 - ii. The distance travelled by the train for attaining this velocity
7. What do you measure by finding the area under velocity – time graph ?
8. Under what condition is the magnitude of average velocity of an object equal to its average speed?
9. The velocity time graph for a car is shown in the figure below



Using this graph, calculate

- a) What type of motion is represented by
 - (i) AB
 - (ii) BC
 - (iii) DE
- b) The acceleration in the first two hours, in the next two hours and in the last two hours
- c) The total distance travelled by the car

10. From the given graph below :



- a) What type of motion is represented during 2 – 4 seconds.
 - b) What is the acceleration in the first 6 seconds
 - c) Calculate the distance travelled between 6 to 8 seconds
 - d) Calculate the retardation during 12 to 14 seconds
11. Draw the shape of V-T graph in the following cases
 - (a) Uniform retardation
 - (b) Non uniform acceleration
 12. Distinguish between speed and velocity
 13. What does the odometer of an automobile measure? Which of the following is moving faster?
 - (a) A scooter moving with a speed of 300m/ min
 - (b) A car moving with a speed of 36Km/h
 14. Distinguish between distance and displacement
 15. Derive the equation for velocity time relation by graphical method
 16. Derive second equation of motion graphically
 17. A Cheetah can accelerate from rest at the rate of 4 m/s^2 .
 - (a) What will be the velocity attained by it in 10 sec
 - (b) How far will it travel in this duration
 18. A cyclist goes around a circular track, once in every 2 minutes. If the radius of the circular track is 105 meters, calculate its speed
 19. A car travels 30km at a uniform speed of 40km/h and the next 30 km at a uniform speed of 20 km/h. Find its average speed?
 20. A racing car has a uniform acceleration of 4 m/s^2 . what distance will it cover in 10 seconds after the start?
 21. A bus accelerates at 2 m/s^2 for first 10 seconds after the start and retards 1 m/s^2 for next 10 seconds. Find the total distance covered by the bus.
 22. A car accelerates from 6 m/s^2 to 16 m/s^2 in 10 seconds. Calculate
 - (a) The Acceleration
 - (b) The distance covered by the car in that time

23. An object starting from rest travels 20 m in first 2 seconds and 160 m in next 4 seconds. What will be the velocity after 7 seconds from the start?
24. A car starts from rest and moves along the x-axis with constant acceleration of 5 m/s^2 for 8 seconds. It then continues with constant velocity. What distance will the car cover in 12 seconds since it started from the rest?
25. Define Uniform Acceleration. What is the acceleration of a body, moving with uniform velocity ?

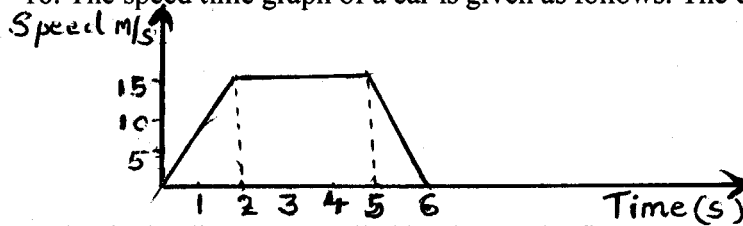
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FIRST TERMINAL EXAMINATION-June '17 WORKSHEET – FORCE AND LAWS OF MOTION

1. Define the term “force” and state the effects of force.
2. What do you understand by the term “balanced forces and “unbalanced forces”
.Explain with examples?
3. State the first law of motion . Give two examples to illustrate Newton’s first law of motion.
4. What do you mean by inertia .How is it related to mass?
5. Give reason for the following
 - a) A person travelling in moving bus tend to fall forward when it breaks and he tend to fall backwards when the bus accelerates from rest
 - b) When a hanging carpet is beaten with stick, the dust particles start coming out of it ?
 - c) When a tree is shaken ,its fruits and leaves fall down.
 - d) It is dangerous to jump out of a moving bus .
 - e) Vehicles are provided with seat belts ?
6. Define momentum of a body. On what factors does the momentum of the body depends ?
7. A man throws a ball weighing 500g vertically upwards with a speed of 10 m/s.
 - a) What will be its initial momentum ?
 - b) What would be its momentum at the highest point of its flight ?
8. What is the change in momentum of a car weighing 1500kg when its speed increases from 36km/h to 72km/h uniformly?
9. Athletes in pole jump event falls on a cushioned surface not on a floor. Why ?
10. . What is the momentum of a man of mass 75 kg when he walks with a uniform velocity of 2m/s ?
11. State the Second law of motion.Using the second law of motion, derive the relation between force and acceleration.
12. Give reason and the law related to the following statement.
“ It is difficult for the fireman to hold the hose ejecting a large amount of water.”
13. State reason for the following
 - a) Road accidents at high speed is worse than the accidents at low speed.
 - b) When a motor car takes a sharp turn at a high speed, the passengers are thrown to one side.
 - c) The fielders lowers his hands while catching a fast moving cricket ball .
 - d) While swimming a person pushes the water backward.
 - e) A gun recoils on firing
14. A body of mass 5kg is acted upon by a force of 1 N , what would be the acceleration caused ?
15. Calculate the force required to change the velocity of a car from 20 m/s to 36 m/s in 8 s. The mass of the car is 1500 kg .
16. State the principle on which a rocket works.

17. Two objects of masses 100g and 200g moving along the same straight line and direction with velocities 2m/s and 3m/s. After collision, the first object moves with a velocity 3m/s, then find the velocity of the second.

18. The speed time graph of a car is given as follows. The car weighs 100kg.



a) What is the distance travelled by the car the first two seconds.

b) What is the braking force applied at the end of 5 sec to bring the car to stop within one second?

19. A bullet of mass 10 g moving with a velocity of 400m/s gets embedded in a freely suspended wooden block of mass 900g. What is the velocity acquired by the block ?

20. A gun of mass 3 kg fires a bullet of mass 30 g . The bullet takes 0.003 s to move through the barrel of the gun and acquires a velocity of 100 m/s. Calculate

i) the velocity with which the gun recoils

ii) The force exerted on the gun due to the recoil of the gun.

21. State Newtons Third law of motion and give two examples to illustrate the law.

22. Define the S.I unit of force.

23. State the law of conservation. Mathematically derive the Law of conservation of momentum.