



Saint Soldier's School

TERM 1

Class IX

Science (Set-2)

Time: 3 hrs

M.M=80

CHEMISTRY

SECTION A (ONE MARK QUESTIONS)

Q1. Which of the following is not a property of gas?

- (a) Gases have a definite shape (b) Gases have no definite volume
(c) The rate of diffusion of a gas is higher (d) Gaseous particles are in a state of random motion

Q2. Which of the following conditions is most favourable for converting gas into liquid?

- (a) High pressure, low temperature (b) Low pressure, low temperature
(c) Low pressure, high temperature (d) High pressure, high temperature

Q3. Some water vapour changes into liquid state, then it particles

- (a) gains energy (b) loses energy
(c) neither loses energy nor gains energy (d) It depends on atmosphere

Q4. Which of the following is not a homogeneous mixture?

- (a) Air (b) Tincture of iodine (c) Sugar solution (d) milk

Q5. An example of liquid metal and liquid non-metal is

- (a) Gallium, mercury (b) Mercury, chlorine
(c) Mercury, bromine (d) Bromine, sulphur

Q6. The solid which undergoes sublimation is _____

- (a) ice cube (b) naphthalene (c) sodium chloride (d) potassium chloride

In each of the following questions, a statement of Assertion is given, and a corresponding statement of Reason is given just below it. Of the statements, given below, mark the correct answer as:

- (a) Both assertion and reason are true, and reason is the correct explanation of assertion.
(b) Both assertion and reason are true, but reason is not the correct explanation of assertion.
(c) Assertion is true, but reason is false.
(d) Assertion is false, but reason is true.

Q7. Assertion : A gas can easily be compressed by applying pressure.

Reason : The inter-particle spaces between gases are large, they can decrease by applying pressure.

Q8. Assertion : The rate of evaporation increases with increase in temperature.

Reason: Increase in temperature decreases the kinetic energy of the particles.

SECTION B (Two mark questions)

Q9. Convert the following temperature to Celsius scale:

- 200K b. 573K

29
30
27
027

573
- 273
300

SECTION C (THREE MARK QUESTIONS)

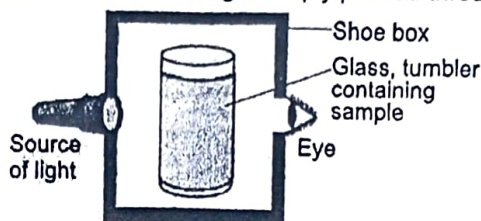
Q10. To make a saturated solution, 36g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.

Q11. Give reasons for the following observation:

- The smell of hot sizzling food reaches you several meters away, but to get the smell from cold food, you have to go close.
- A diver is able to cut through water in a swimming pool.
- We can easily move our hand in the air, but to do the same through a solid block of wood, we need a karate expert.

SECTION D (FOUR MARK QUESTIONS)

Q12. A group of students took an old shoe box and covered it with a black paper from all sides. They fixed a source of light (a torch) at one end of the box by making a hole in it and made another hole on the other side to view the light. They placed a milk sample contained in a tumbler in the box as shown in the figure below. They were amazed to see that milk taken in the tumbler was illuminated. They tried the same activity by taking a salt solution but found that light simply passed through it.



Read the given passage carefully and give the answer of the following questions:

- Explain why the milk sample was illuminated? Name the phenomenon involved.
- Same results were not observed with a salt solution. Explain.
- Can you suggest two more solutions which would show the same effect as shown by the milk solution?
- Give one example of above phenomenon observed in our surroundings.

SECTION E (FIVE MARK QUESTIONS)

- Q13 i) Give two points of differences between an element and a compound.
ii) Identify the dispersed phase and dispersing medium in the following colloids.
- Fog
 - Cheese
 - Coloured gemstone

PHYSICS

SECTION A (One mark questions)

Q1: In uniform circular motion, the speed of the object:

- Increases
- Decreases
- Remains constant
- Varies

Q2: The area under a velocity-time graph represents:

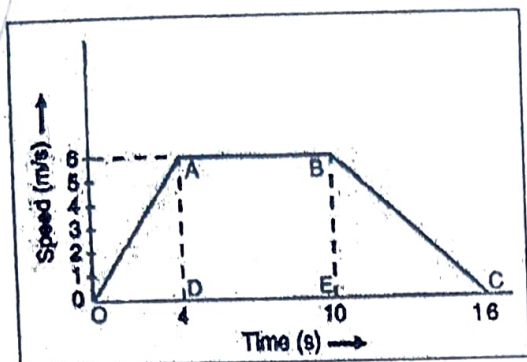
- Speed
- Distance
- Displacement
- Acceleration

Q3: If the distance between two objects is doubled, the gravitational force between them becomes:

- Half
- Double
- One-fourth
- Four times

Q4: When a number of forces acting simultaneously on a body bring about a change in its state of rest or of uniform motion in a straight line, then these forces

$\frac{36}{100} \times 100 = 36$
 $\frac{293}{293} = 1$



$$s = ut + \frac{1}{2} at^2$$

$$400 = 0 \times 20 + \frac{1}{2} a \times 20^2$$

$$400 = \frac{1}{2} a \times 400$$

$$0 = \frac{400 \times 2}{400}$$

- (i) What type of motion is represented by OA?
- (a) uniform velocity (b) uniform acceleration
 (c) negative acceleration (d) no acceleration
- (ii) What type of motion is represented by BC?
- (a) uniform velocity (b) uniform acceleration
 (c) negative acceleration (d) no acceleration
- (iii) Find out the acceleration of the body from O to A
- (a) 1.5 m/s² (b) 2 m/s²
 (c) 3 m/s² (d) 1 m/s²
- (iv) Calculate the retardation of the body from B to C
- (a) 1.5 m/s (b) 2 m/s²
 (c) 3 m/s² (d) 1 m/s²
- (v) Find out the distance travelled by the body from A to B.
- (a) 15 m (b) 30 m (c) 36 m (d) 60 m

SECTION E (Five mark question)

Q12: (a) Differentiate between speed and velocity
 (b) A train starting from rest attains a velocity of 72 km h⁻¹ in 5 minutes. Assuming that the acceleration is uniform, find (i) the acceleration and (ii) the distance travelled by the train for attaining this velocity.

Q13: (a) Explain why some of the leaves may get detached from a tree if we vigorously shake its branch
 (b) A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 tonnes (Hint: 1 tonne = 1000 kg.)

BIOLOGY

SECTION A (One mark questions)

M.M= 27

Q1. The tissue responsible for providing support and mechanical strength to plants is:

- a) Epithelial tissue b) Meristematic tissue
 c) Connective tissue d) Parenchyma tissue

Q2. The distinguishing feature of sclerenchyma is:

- (a) living cells with thickened walls (b) living cells with thin walls
 (c) dead cells with thin walls (d) dead cells with thickened walls

Q3. Lysosomes are known as "suicidal bags" because

acting on the body are said to be

- (a) balanced forces (b) equal forces (c) unbalanced forces (d) opposite forces

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Q5:Assertion(A): A football has lesser inertia than a stone of the same size.

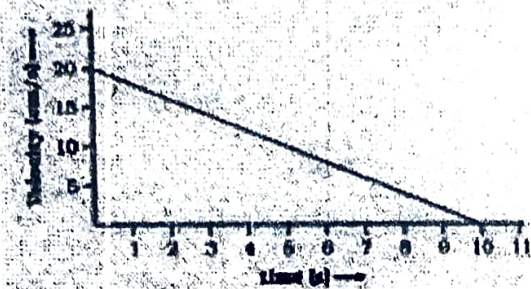
Reason(R): Massive object has less inertia

Q6:Assertion (A): The mass of an object is constant everywhere in the universe.

Reason (R): The weight of an object is the gravitational force acting on it and varies with the location.

SECTION B(Two mark questions)

Q7: (a)The velocity-time graph of a ball of mass 20 g moving along a straight line on a long table is given



$$\begin{array}{r} 0.2 \\ \times 2 \\ \hline 0.4 \end{array}$$

How much force does the table exert on the ball to bring it to rest?

Q8: State the universal law of gravitation. Mention any two phenomena that the universal law of gravitation was able to explain.

SECTION C(Three mark questions)

Q9:State Newton's second law of motion. Derive the mathematical relation of Newton's second law of motion. Also define 1 Newton.

Q10:(a)Give two differences between acceleration due to gravity (g) and universal gravitational constant (G).

(b) An object weighs 10 N when measured on the surface of the earth. What would be its weight when measured on the surface of the moon?

SECTION D (Four mark question)

Q11: Attempt any four questions:

Aditya started driving his car. He increases the speed till 4 seconds and then he kept his car in constant speed for 6 seconds. Then after he decreased the speed of the car upto another 6 seconds. After reaching at the starting place, he draws the speed-time graph of his 16 seconds driving as shown below:

- (a) Parasitic activity (b) Presence of food vacuole
 (c) Hydrolytic activity (d) Catalytic activity

Q4. Which of the following is a characteristic feature of meristematic tissue?

- (a) Cells with large vacuoles (b) Presence of intercellular spaces
 (c) Rapid cell division (d) Highly specialized cells

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

Q5. Assertion : A cell swells up when present in a hypotonic solution.
 Reason : More water molecules enter the cell than they leave.

Q6 Assertion : Parenchyma cells help in storage of food.
 Reason : Parenchyma cells are the main seats of photosynthesis.

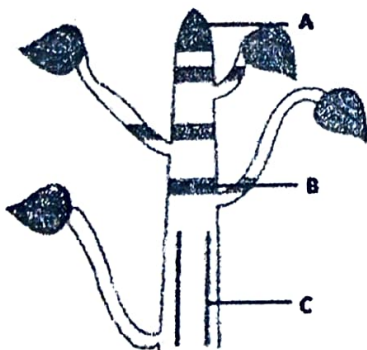
SECTION B (Two mark questions)

Q7 Which cell organelle controls most of the activities of the cell? Write a short note on it

Q8 What are the constituents of phloem? What all are living tissues present in phloem? Write the functions of phloem

SECTION C (Three Mark Questions)

Q9 Define, Draw and label all parts of Meristematic tissues. Write the functions of each part.



Q10 Differentiate between parenchyma, collenchyma and sclerenchyma tissues on the basis of their occurrence, cell wall and functions.

Case Based Question (4 marks)

Q12 Diffusion is the process of movement of molecules under a concentration gradient. It is an important process occurring in all living beings. Diffusion helps in the movement of substances in and out of the cells. The molecules move from a region of higher

concentration to a region of lower concentration until the concentration becomes equal throughout.

Read the given passage carefully and give the answer of the following questions:

Q 1. Name the process which is useful for the movement of substances like CO_2 and O_2 across the plasma membrane.

- a. Osmosis
- b. Diffusion
- c. Endocytosis
- d. Plasmolysis

Q 2. Osmosis is the diffusion of:

- a. Water
- b. Free energy
- c. Solute and solvent
- d. None of these

Q 3. Diffusion finally stops when:

- a. concentration of particles of one region becomes higher than the other.
- b. concentration of particles of one region becomes lower than the other.
- c. concentration of particles of two regions becomes the same.
- d. None of the above

Q 4. Which of the following statement defines hypertonic solutions?

- a. A solution that has a lesser concentration of solutes on the outside of a cell when compared with the inside of a cell.
- b. A solution that has a greater concentration of solutes on the outside of a cell when compared with the inside of a cell.
- c. A solution that has same concentration of solutes on the outside of a cell when compared with the inside of a cell.
- d. None of the above

Section-E

Q 11 Define the following terms:

(a) (i) plasmolysis. (ii) Nucleoid (iii) Mitochondria

(b) Why plasma membrane is called as selectively permeable membrane ?