

HOLIDAYS HOME WORK (2026-27)

CLASS-9

1. Revise all the chapters completed before the summer vacation.

2. Interdisciplinary project-

Sikkim, a small Himalayan state in India, is known for its rich biodiversity and unique geographical features. Due to variation in altitude, Sikkim shows remarkable diversity in climate, vegetation, and wildlife. This project connects science with geography and environmental studies to explore how altitude affects living organisms and ecosystems.



Create a research-based project based on the following points- (paste pictures also)

- What is meant by biodiversity? Why is Sikkim considered a biodiversity hotspot?
- What is altitudinal diversity? Explain in your own words.
- How does temperature change with increase in altitude?
- What type of vegetation is found in low altitude regions (below 1500 m)?
- What changes occur in vegetation as we move to mid-altitude regions (1500 m–3000 m)?
- What kind of plants grow in high altitude regions (above 3000 m)?
- What are rhododendrons? Why are they important in Sikkim?
- What is the importance of medicinal plants found in Sikkim?

Note- Do this work in A4 size sheets.

3) Art Integrated Activity-

Make a poster on the topics mentioned below with a catchy slogan on a half pastel sheet according to the roll number

- Water conservation and management - Roll No 1 to 7
- Climate Action (SDG -13)- Roll No 8 to 14
- Planet Vs Plastic - Roll No 15 to 21
- Affordable and Clean Energy (SDG 7)- Roll No 22 to 28
- Emerging technologies (SDG -11)- Roll No 29 onwards

4) PRACTICE ASSIGNMENT – Take print out of the worksheets, paste it in your notebook and write the answers in your registers.

REVISION WORKSHEET – DESCRIBING THE MOTION AROUND US

Multiple-choice Questions

1. A particle is moving in a circular path of radius r . The displacement after half a circle would be:

- (a) Zero
- (b) πr
- (c) $2r$
- (d) $2\pi r$

2. A body is thrown vertically upward with velocity u , the greatest height h to which it will rise is,

- (a) u/g
- (b) $u^2/2g$
- (c) u^2/g
- (d) $u/2g$

3. The numerical ratio of displacement to the distance for a moving object is

- (a) always less than 1
- (b) always equal to 1
- (c) always more than 1

(d) equal or less than 1

4. If the displacement of an object is proportional to square of time, then the object moves with

(a) uniform velocity

(b) uniform acceleration

(c) increasing acceleration

(d) decreasing acceleration

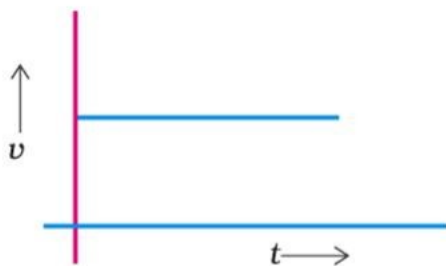
5. From the given $v - t$ graph (Fig. 8.1), it can be inferred that the object is

(a) in uniform motion

(b) at rest

(c) in non-uniform motion

(d) moving with uniform acceleration



6. Suppose a boy is enjoying a ride on a merry-go-round which is moving at a constant speed of 10 m/s. It implies that the boy is

(a) at rest

(b) moving with no acceleration

(c) in accelerated motion

(d) moving with uniform velocity

7. Area under a $v - t$ graph represents a physical quantity which has the unit

(a) m^2

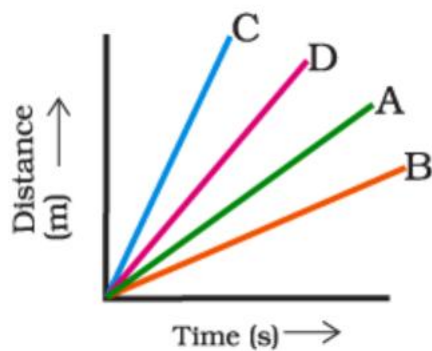
(b) m

(c) m^3

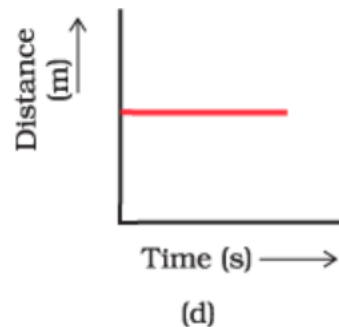
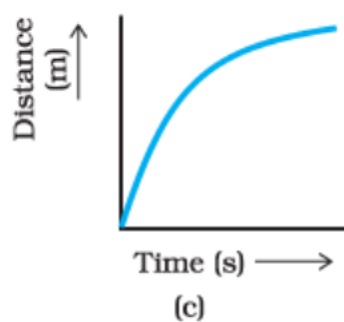
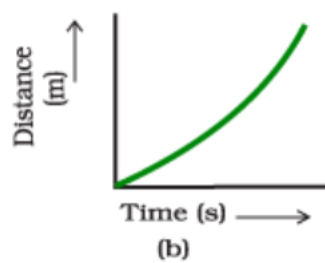
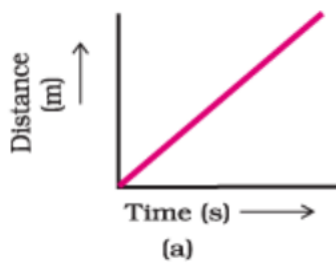
(d) $m s^{-1}$

8. Four cars, A, B, C and D, are moving on a levelled road. Their distance versus time graphs are shown in Fig. 8.2. Choose the correct statement

- (a) Car A is faster than car D.
- (b) Car B is the slowest.
- (c) Car D is faster than car C.
- (d) Car C is the slowest.



9. Which of the following figures (Fig. 8.3) represents the uniform motion of a moving object correctly?



10. Slope of a velocity–time graph gives

- (a) the distance
- (b) the displacement

(c) the acceleration

(d) the speed

11. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal?

(a) If the car is moving on a straight road

(b) If the car is moving in a circular path

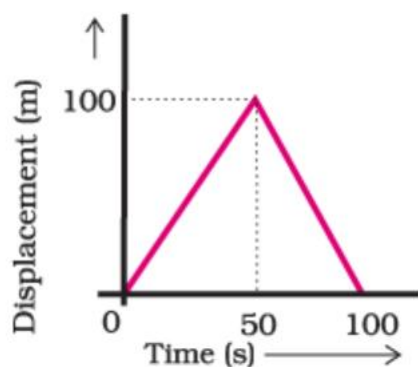
(c) The pendulum is moving to and fro

(d) The earth is revolving around the Sun

Short Answer Questions-

12. The displacement of a moving object in a given interval of time is zero. Would the distance travelled by the object also be zero? Justify your answer.

13. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement–time graph is shown in Fig. Plot a velocity-time graph for the same.



14. A motorcyclist drives from A to B with a uniform speed of 30 km/h and returns back with a speed of 20 km h⁻¹. Find its average speed.

15. The velocity-time graph (Fig. 8.5) shows the motion of a cyclist. Find (i) its acceleration, (ii) its velocity, and (iii) the distance covered by the cyclist in 15 seconds

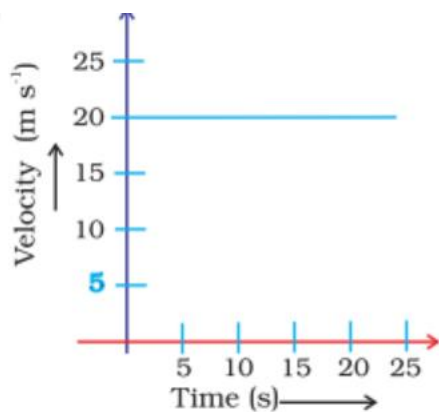


Fig. 8.5

16. An object starting from rest travels 20 m in first 2 s and 160 m in next 4 s. What will be the velocity after 7 s from the start?

17. Using the following data, draw time-displacement graph for a moving object:

Time(s)	0	2	4	6	8	10	12	14	16
Displacement(m)	0	2	4	4	4	6	4	2	0

Use this graph to find the average velocity for the first 4 s, for the next 4 s, and for the last 6 s.

18. What does the odometer of an automobile measure? Which of the following is moving faster? Justify your answer.

(i) A scooter moving with a speed of 300 m per minute.

(ii) A car moving with a speed of 36 km per hour.

CHEMISTRY

A. MCQs

- Which of the following is a homogeneous mixture?
 - Sand and water
 - Oil and water
 - Salt solution
 - Soil
- Which method is best to separate tea leaves from tea?
 - Evaporation
 - Filtration
 - Sieving
 - Distillation

3. Which of the following mixtures can be separated using a magnet?
 - a) Rice and pulses
 - b) Sand and salt
 - c) Iron filings and sand
 - d) Oil and water
4. The process used to separate cream from milk is:
 - a) Filtration
 - b) Churning (centrifugation)
 - c) Evaporation
 - d) Sieving
5. Which method is used to obtain pure water from salt water?
 - a) Filtration
 - b) Distillation
 - c) Handpicking
 - d) Sedimentation

B. Short Answer Questions

6. What is a mixture? Give one example.
7. Define sedimentation with an example.
8. What is decantation?
9. Name one method used to separate immiscible liquids.

C. Long Answer Questions

10. Differentiate between homogeneous and heterogeneous mixtures with examples.
11. Explain filtration and evaporation with suitable examples from daily life.
12. Describe any three methods of separation used at home or in industry.

D. Case-Based Questions

Case 1: Making Tea ☉

While preparing tea, Riya boils water with tea leaves and sugar. After boiling, she pours the tea through a strainer into a cup.

Questions:

- 13. What type of mixture is tea before straining?**
- 14. Which method is used to separate tea leaves?**
- 15. Why is filtration suitable in this case?**

Case 2: Cleaning Muddy Water 

After heavy rain, Ravi collects muddy water. He leaves it undisturbed for some time and then carefully pours the clear water into another container.

Questions:

- 16. What is the settling of mud called?**
- 17. What is the pouring off of clear water called?**
- 18. Why is this method useful before filtration?**

Case 3: Oil Spill in Water 

In a kitchen, some oil accidentally gets mixed with water. The oil floats on top.

Questions:

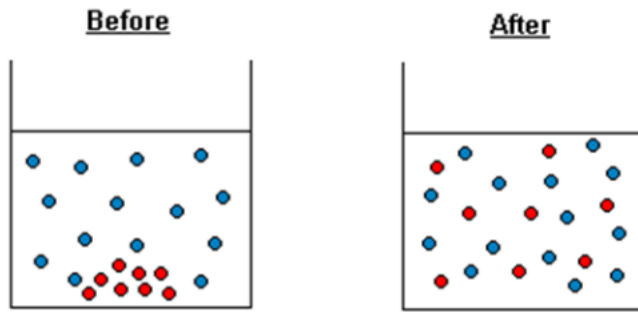
- 19. Why does oil float on water?**
- 20. Which method can be used to separate oil and water?**
- 21. Name the instrument used for this separation.**
- 22. A mixture contains sand, salt, and iron filings. Design a step-by-step method to separate all three components.**
- 23. Why is filtration not useful for separating dissolved substances? Explain with an example.**
- 24. In cities, water is purified before supply. Which separation methods do you think are used and why?**

Chapter- Cell the building block of life

Q1. Give contribution of following scientists:

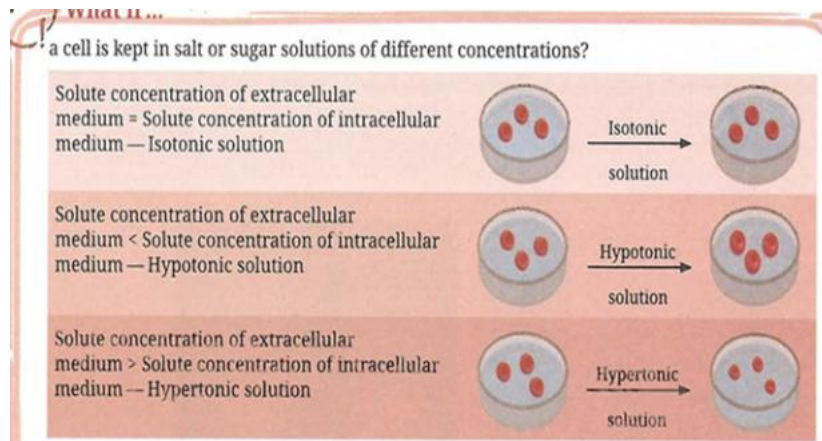
- a. Robert Hooke**
- b. Camillo Golgi**

Q2. Look at the set up given below and answer the questions.



- Identify the process involved in set up
- Define the process.

Q3. Observe the diagram given below and answer the questions



a) Explain what happens to a cell placed in:

(i) Hypotonic solution (ii) Hypertonic solution

b) Red blood cells burst when placed in distilled water. Explain the reason

c) Why is saline (0.9% NaCl) used in hospitals instead of pure water?

d) Predict what will happen if a cell is transferred from a hypertonic solution to a hypotonic solution.

e) Explain how osmosis helps in water absorption in plant roots.

f) Why do plant cells not burst in hypotonic solution, unlike animal

Q4. What will happen if Golgi apparatus is removed from the cell?

Q5. Draw well labeled diagram and write main function of each of the following cell components:

- a. Mitochondria
- b. Lysosomes
- c. Cell wall
- d. Ribosomes
- e. Endoplasmic reticulum

Q6. Explain the fluid mosaic model of plasma membrane.

Q7. Name the plastid involved in conversion of green tomato to red.

Q8. Differentiate between the following:

- a) SER and RER.
- b) Plant cell and animal cell.
- c) Chromoplast and leucoplast.
- d) Plasma membrane and cell wall.

Q9. If you are provided with some vegetables to cook, you generally add salt into the vegetables. After adding salt, vegetables release water. Why?

Q10. How is bacterial cell (prokaryotic cell) different from onion peel?

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II Case based questions

Read the given passage and answer the questions

Plant and animal cells have several differences and similarities. For example, animal cells do not have a cell wall or chloroplasts but plant cells do. Animal cells are mostly round and irregular in shape while plant cells have fixed, rectangular shapes. Plant and animal cells are both eukaryotic cells, so they have several features in common, such as the presence of a cell membrane, and cell organelles, like the nucleus, mitochondria and endoplasmic reticulum.

- i. Name the cell organelle and structures held by only plant cell and not by animal cell.**
- ii. Name two cell organelle that have their own genetic materials.**
- iii. Why is mitochondria called 'power house of cell'?**
- iv. What is the main function of lysosomes?**