

# HOLIDAY ASSIGNMENT

## CLASS-IX

### ASSIGNMENT-1

#### Physics

1. Draw the speed time graph of a) body moving with uniform speed b) a body moving with uniform retardation and finally comes to rest. [1]
2. A kangaroo is capable of jumping to a height of 2.5 m. Determine the takeoff speed of the kangaroo. [g = 10 m/s<sup>2</sup>] [2]
3. Write two differences between uniform linear and uniform circular motion. [2]
4. (a) Define average speed.  
(b) A bus travels a distance of 120 km with a speed of 40 km/h and returns with a speed of 30 km/h. Calculate the average speed for the entire journey [3]
5. (a) Derive the equation of motion  $v = u + at$ , using graphical method.  
(b) A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration is uniform, find  
(i) the acceleration.  
(ii) the distance travelled by the train for attaining this velocity. [2+3]

#### Chemistry

1. Can we regard high fever as matter? 1
2. Why do substances undergo change in physical state? 2
3. Solids are generally very heavy while gasses are light. Explain. 2
4. Define a) Latent heat of fusion, b) Melting point, c) Fusion. 3
5. With the help of an activity show that particles of matter are very small. 5

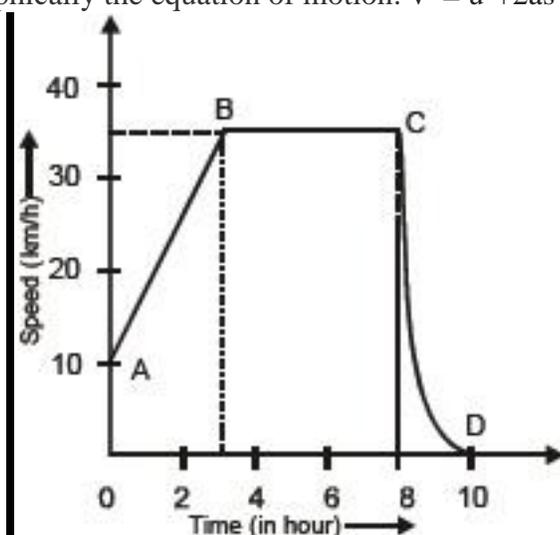
#### Biology

1. Name the organelle which is known as “powerhouse of a cell”. 1
2. Write the full form of DNA. 1
3. Write the function of vacuole. 2
4. Write the full form of SER. Mention its functions. 2
5. Write any three differences between a plant cell and an animal cell. 3
6. Draw the diagram of a plant cell and label the following parts: Vacuole, Plastid, Mitochondria, Ribosome. 5

## ASSIGNMENT-2

### Physics

- Identify the kind of motion in the following cases:
  - A stone rolling down an inclined road. [1]
  - An electron orbiting around nucleus. [1]
- A coin is dropped into a deep well and is heard to hit the water surface 5 s after being dropped. Determine the depth of the water surface from the edge of the well.  $[g = 10 \text{ m/s}^2]$  [2]
- A car moving initially with a speed of 54 km/h starts accelerating at the rate of  $10 \text{ m/s}^2$  for 10 seconds. Find the final velocity and distance covered. [2]
- Prove graphically the equation of motion:  $v^2 = u^2 + 2as$ . [3]
- 



The graph given alongside shows how the speed of a car changes with time.

- What is the initial speed of the car?
- What is the maximum speed attained by the car?
- Which part of the graph shows zero acceleration?
- Which part of the graph shows varying retardation?
- Find the distance travelled in first 8 hours. [5]

### Chemistry

- What temperature in Kelvin scale is equal to  $50^\circ \text{C}$ ? 1
- $\text{CO}_2$  is heavier than both nitrogen and oxygen. Why does not it form lower layer in the atmosphere? 2
- A rubber band can change its shape on stretching will you classify it as solid or not? Justify. 2
- Compare any three properties of liquid and vapour. 3

5. What is evaporation? Write down any two factors on which rate of evaporation depends.

Relate these to your day to day life event.

5

### **Biology**

1. Write the full form of RER. 1
2. Name any two organelles which are present in plant cell but not in animal cell. 1
3. Write the four different parts of a nucleus. 2
4. Write any two functions of Golgi bodies. 2
5. Briefly describe the structure of mitochondria along with its function. 3
6. Draw a labeled diagram of an animal cell. 5

## ASSIGNMENT-3

### Physics

1. A particle moves over three quarters of a circle of radius  $r$ . What is the magnitude of its displacement? [1]
2. Define uniform acceleration. What is the acceleration of a body moving with uniform velocity? [2]
3. Show that for a body falling freely under the action of gravity from a height  $h$ , its velocity just before it touches the ground is  $v = \sqrt{2gh}$ . [2]
4. An Aeronautics engineer is designing the runway for an airport. Of the planes that will use the airport, the lowest acceleration rate is likely to be  $3 \text{ m/s}^2$ . The takeoff speed for this plane will be  $65 \text{ m/s}$ . Assuming this minimum acceleration, what is the minimum allowed length for the runway? [3]
5. . The following table gives the data about motion of a car.

Time (h)	11.00	11.30	12.00	12.30	1.00
Distance(km)	0	30	30	65	100

Plot the graph.

- (i) Find the speed of the car between 12.00 hours and 12.30 hours.
- (ii) What is the average speed of the car?
- (iii) Is the car's motion an example of uniform motion? Justify. [5]

### Chemistry

1. Why does a gas exert pressure? 1
2. Account for the following:
  - a) When sugar crystals dissolved in water, the level of water does not rise appreciably.
  - b) A wooden chair should be called a solid.  $2 \times 2 = 4$
3. How do you separate each component of sand, sodium chloride and ammonium chloride from their mixture.. 3
4. Draw the heating curve of a pure substance, (mentioning three states of matter) and explain it. 5

### Biology

1. Write the full form of DNA. 1
2. Write the function of Ribosome. 1
3. Why Lysosome is known as "Suicidal bag of cell"? 2

4. Differentiate between Cilia and Flagella. 2
5. Mention three different types of plastids and write their function. 3
6. a) Why DNA is known as genetic material of a cell? 5
- b) Write any three differences of Prokaryotic and Eukaryotic cells.

**Project:- Draw and label prokaryotic cell, eukaryotic cell.**