B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

PERIODIC TEST-I 2025-26
SCIENCE MARKING SCHEME (086)

Class: IX **Time: 1hour**
Date: 05.07.25 **Max Marks: 25**

Section A

1. (b) Uniform acceleration 1

2. (c) Dry ice changing directly to gas. 1

3. (b) shrinkage of cytoplasm in hypertonic medium 1

Section B

4. 2

Given:
Initial velocity, $u = 6\ \text{m/s}$
Final velocity, $v = 16\ \text{m/s}$
Time, $t = 10\ \text{s}$

(a) Acceleration
Using the formula:
$a = \frac{v-u}{t}$
$a = \frac{16-6}{10} = \frac{10}{10} = 1\ \text{m/s}^2$
Answer: Acceleration = 1 m/s²

(b) Distance covered
Using the formula:
$s = ut + \frac{1}{2}at^2$
$s = 6 \times 10 + \frac{1}{2} \times 1 \times 10^2$
$s = 60 + 50 = 110\ \text{m}$
Answer: Distance covered = 110 meters

5. (a) Uniform motion is motion where an object moves with a constant speed in a straight line, meaning it covers equal distances in equal time intervals. 2
Non-uniform motion is motion where an object's speed and/or direction changes over time, resulting in unequal distances covered in equal time intervals.
(b) Uniform motion: A car moving at a constant speed on a straight highway,
A train traveling on a straight track at a constant speed,
A ball rolling at a constant speed on a smooth surface
Non Uniform motion: A ball thrown upwards, A vehicle on a bumpy road, A train approaching a station

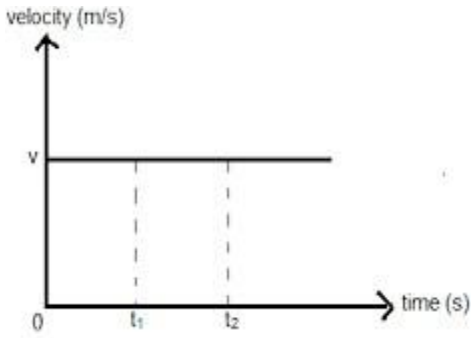
6. i. Particles of matter have space between them 2
ii. Particles of matter attract each other.

7. i) Liquid ii) Gas 2

8. (a) If placed in a hypotonic solution, both a plant cell and an animal cell will swell due to endosmosis; however, the plant cell will be able to withstand this pressure because of its cell wall, while the animal cell may burst if the swelling becomes too great.
(b) If placed in a hypertonic solution, both a plant cell and an animal cell will shrink as water moves out of the cell due to the higher solute concentration outside. In a plant cell, this process is called plasmolysis, where the cell membrane pulls away from the cell wall. An animal cell will simply shrink. 2

Section C

9. 3



Velocity-time graph for uniform motion

The velocity-time graph for uniform motion of an object is a horizontal straight line. To calculate velocity, identify the constant velocity on the y-axis. To calculate displacement, find the area under the graph (which is a rectangle in this case).

10. 3

ii. In gases, the particles move randomly at high speed and they collide with each other and with the walls of the container.

iii. i) 110 ^{0} C ii) -163 ^{0} C

11 (a) Lysosomes are called "suicide bags" because they contain hydrolytic enzymes that can break down cellular components.

(b) Mitochondria are called the "powerhouse of the cell" because they are the primary sites of energy production within the cell, specifically through cellular respiration.

(c) Bacteria and fungi can withstand greater changes in their surrounding medium than animal cells primarily due to the presence of a cell wall. 3

12. a) Unicellular vs. Multicellular Organisms:

- **Unicellular:**

Consisting of only one cell, like bacteria, algae, or protozoa. Each cell performs all necessary life functions.

- **Multicellular:**

Composed of many cells, with cells often specialized for specific functions, like plants and animals. Cells depend on each other for survival, and different cell types have different roles.

(b) Prokaryotic vs. Eukaryotic Cells:

- **Prokaryotic:**

Simple, unicellular organisms lacking a nucleus and membrane-bound organelles. Examples are bacteria and archaea.

- **Eukaryotic:**

More complex, can be unicellular or multicellular, and have a nucleus and membrane-bound

organelles. Examples are animals, plants, fungi, and algae.

(c) Plant vs. Animal Cells:

- **Plant Cells:**

Have a cell wall, chloroplasts (for photosynthesis), large vacuoles, and plasmodesmata for communication between cells. Animal cells lack these structures.

- **Animal Cells:**

Have centrioles, centrosomes, and lysosomes. Plant cells do not have these structures. 3
