



...learning beyond classroom

DWARKA INTERNATIONAL SCHOOL
HALF YEARLY EXAMINATION (2024-25)
CLASS – IX SUBJECT - SCIENCE (086)

NAME : Ananya Kanodia
TIME: 3 Hours

ROLL NO : 9
M. M. : 80

SET - A

General Instructions:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of the questions.
3. Section A consists of 20 Objective Type questions carrying 1 mark each.
4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/ case-based units of assessment of 04 marks each with sub-parts.

SECTION A (MULTIPLE CHOICE QUESTIONS)

1	Dry ice is (a) Water in solid state (b) Water in gaseous state (c) CO ₂ in liquid state (d) CO ₂ in solid state	1
2	During summer, water kept in an earthen pot becomes cool because of the phenomenon of (a) Diffusion (b) transpiration (c) Osmosis (d) evaporation	1
3	In sugar solution, (a) Sugar is solute, water is solvent (b) Sugar is solvent, water is solute (c) Both are solutes (d) Both are solvent	1
4	Which one of the following statements is not correct about solid? a) Solids have fixed shape b) Solids have fixed volume c) Solids can flow d) Solids have high densities	1

5.	Which one of the following statements is incorrect? a) Increase in surface area, increases the rate of evaporation. b) Increase in temperature, increases the rate of evaporation. c) Increase in humidity, increases the rate of evaporation. d) Increase in wind speed, increases the rate of evaporation.	1
6	Which of the following is a pure substance? a) Air b) Distilled water c) Steel d) Brass	1
7	Which of the following are homogeneous in nature? I. Ice II. Wood III. Soil IV. Air a) I and III b) II and IV c) I and IV d) III and IV	1
8	A particle is traveling with a constant speed. This means (a) its acceleration is zero (b) its position remains constant as time passes (c) it covers equal distances in unequal time intervals (d) it does not change its direction of motion	1
9	The inertia of an object tends to cause the object (a) to decelerate due to friction (b) to decrease its speed (c) to resist any change in its state for motion (d) to increase its speed	1
10	Chromosomes are made up of (a) DNA (b) protein (c) DNA and protein (d) RNA	1
11	Cell wall of which one of these is not made up of cellulose? (a) Bacteria (b) Peepal (c) Mango tree (d) Cactus	1
12	Cell arises from pre-existing cell was stated by (a) Haeckel (b) Virchow (c) Hooke (d) Schleiden	1
13	Organelle do not contain DNA is (a) Mitochondria (b) Golgi apparatus (c) Plastid (d) Nucleus	1
14	Cells of cork are (a) alive (b) dead (c) only a (d) none of them	1
15	Apical meristem is present: (a) tip of root (b) tip of stem (c) both of them (d) none of them	1
16	Which is not the function of parenchyma: (a) Photosynthesis (b) storage of food and water (c) provide buoyancy (d) support	1

Direction to attempt question No. 17 – 20;

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.

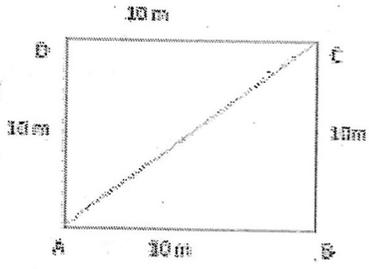
17	Assertion- Water and carbon dioxide are known as compounds. Reason- Water and carbon dioxide are heterogenous in nature.	1
18	Assertion : When we sit on a chair, our body exerts a force downward and that chair needs to exert an equal force upward or the chair will collapse. Reason : The third law says that for every action there is an equal and opposite reaction.	1
19	Assertion : The inner membrane of mitochondria is folded into cristae. Reason : Cristae increases the surface area.	1
20	Assertion : All the plant tissues divide throughout their life. Reason : Meristematic tissues are localised in certain regions.	1

SECTION B (2 MARKS QUESTIONS)

21	Give the difference between homogeneous and heterogenous mixtures.	2
22	What is the nature of the velocity-time graphs for uniform and uniform accelerated motion of an object?	2
23	Why can a small mass such as a bullet kill a person when fired from a gun?	2
24	Differentiate prokaryotic and eukaryotic cells.	2
25	What is tonoplast? Name the cell organelle consisting of it? Write one function of organelle.	2
26	Expand SER? Write two functions of it.	2

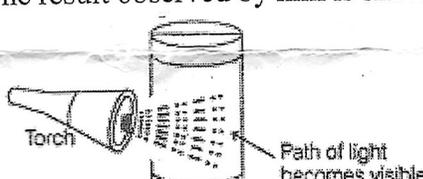
SECTION C (3 MARKS QUESTIONS)

27	Name three states of matter. Which state of matter is rigid and why?	3
28	What types of mixtures are represented by the following? (i) Carbon dioxide gas dissolved in water. (ii) Air containing suspended particles.	3
29	State Newton's second law of motion. Derive its mathematical expression.	3

30	<p>Answer the following questions by observing the following diagram:</p>  <p>a) What is the displacement, when the particle moves from point A to D? b) What is the displacement, when the particle moves from point A to C through A-B-C? c) Find distance and displacement covered when the particle moves in path ABCDA i.e. starts from A and ends at A?</p>	3
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31	(a) Explain why some leaves may fall from a tree when its branch is violently shaken. (b) Why Action and reaction forces do not cancel each other? (c) Explain why it is difficult for a firefighter to hold onto a hose discharging large volumes of water at high speed.	3
32	What do you mean by Hypertonic solution? What happens to an animal cell if placed in a hypotonic cell, explain? OR Write three differences between Hypertonic and Isotonic solutions.	3
33	Differentiate between collenchyma and parenchyma based on cell wall and intercellular space. OR Write the characteristic features of sclerenchyma and its functions.	3

SECTION D (4 MARKS CASE BASED QUESTIONS)

34	<p>Read the following and answer questions :</p> <p>The scattering of a beam of light by colloidal particles is called the Tyndall effect. Due to scattering of light, the path of the light becomes visible. The source of light may be explored completely. The size of the scattering particles determines the colour of scattered light. The colloidal particles may be seen moving as points of light moving against a black backdrop.</p> <p>Ravi took some amount of substance X and add it into a transparent beaker containing water. He mixed the solution very well and then passed light through this solution by using a torch. The result observed by him is shown below:</p> <div style="text-align: center;">  </div> <p>Ravi wants to show this experiment to his younger brother. He kept the solution for 10 minutes and calls his brother and further repeat the experiment, but results are different at this time. The path is not visible.</p> <p>(i) What was the reason for change in result?</p> <p>a) In first case, the path is visible because of the presence of impurities b) In second case, the particles settle down c) In second case, the concentration increases d) In second case, the impurities dissolve in the solution</p> <p>(ii) What is the nature of solution obtained, when X is added to water?</p> <p>a) Colloid b) True solution c) Suspension d) None of the above</p> <p>(iii) Which of the following show Tyndall effect?</p> <p>a) Sugar solution b) Salt solution c) Starch solution d) Copper Sulphate solution</p> <p>(iv) Which of the following is an example of colloidal solution?</p> <p>a) Milk b) Urea c) Sugar in water d) Common salt in water</p>	4
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35	<p>We know that the circumference of a circle of radius r is given by $2\pi r$. If the body takes t seconds to go once around the circular path of radius r, the speed v can be calculated. When an object moves in a circular path with uniform speed, its motion is called uniform circular motion. Refer the paragraph and answer the following questions</p> <p>(i) What happens to the acceleration, when a body is moving with constant speed? (ii) Which Physical quantity remains constant when body is in uniform circular motion? (iii) Define uniform circular motion. Give 2 examples of uniform circular motion.</p>	4
36	<p>A student observed permanent tissue under microscope. He wrote his observations as: it is composed of four type of cells, one of the cell type is long cylindrical, alive cell without nucleus.</p> <p>a) Identify the tissue. b) Draw labelled diagram of tissue.</p>	4
SECTION E (5 MARKS QUESTIONS)		
37	<p>Define the following terms:</p> <p>(a) Sublimation (b) Evaporation (c) Latent heat of vaporization (d) True solution (e) Suspension</p>	5
38	<p>(i) Define momentum. (ii) State its SI unit. (iii) An object of mass 50 kg is accelerated uniformly from a velocity of 4 m/s to 8 m/s in 8 s. calculate the initial and final momentum of the object. Also find the magnitude of the force exerted on the object.</p>	5
39	<p>Which cell organelles are called the kitchen of a cell? Explain the structure of the organelle. Why is it also called a semi-autonomous body?</p> <p style="text-align: center;">OR</p> <p>Describe the structure of the control room of the cell. How is it different in bacteria?</p>	<p>1+3+ 1 3+2</p>