

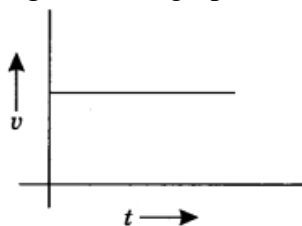
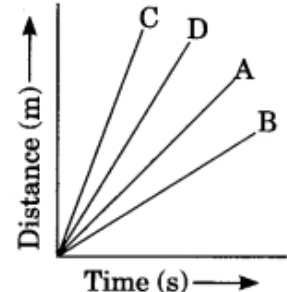
Indian School Al Wadi Al Kabir
Mid Term Examination
SCIENCE(Code:086)
SET 1

Class: IX
 Date: 29.09.2022

Time:3 Hours
 Max. Marks:80

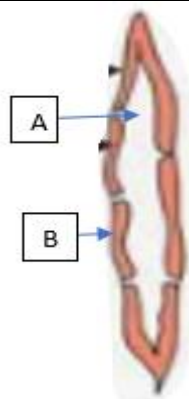
General Instructions:

- i) All the questions are compulsory
- ii) The question paper has five sections and 32 questions.
- iii) Section A has 16 questions of 1 mark each; Section B has 3 case-based questions. Section C has one source based questions of 3 marks. Section D has 6 questions of 3 marks each and Section E has 6 questions of 5 marks each.
- iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

| No. | QUESTIONS | Marks |
|------------------|--|-------|
| SECTION A | | |
| 1 | <p>From the given $v - t$ graph, it can be inferred that the object is</p>  <p>(a) in uniform motion (b) at rest (c) in non-uniform motion (d) moving with uniform acceleration</p> | 1 |
| 2 | <p>Four cars A, B, C and D are moving on a levelled road. Their distance versus time graphs are shown in the adjacent figure. Choose the correct statement.</p>  <p>(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</p> | 1 |

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| 3 | <p>In which of the following cases of motions, the distance moved and the magnitude of displacement are equal?</p> <p>(a) If the car is moving on a straight road</p> <p>(b) If the car is moving in Circular path</p> <p>(c) The pendulum is moving to and fro</p> <p>(d) The earth is revolving around the sun.</p> | 1 |
| 4 | <p>According to the third law of motion, action and reaction</p> <p>(a) always act on the same body</p> <p>(b) always act on different bodies in opposite directions</p> <p>(c) have same magnitude and directions</p> <p>(d) act on either body at normal to each other</p> | 1 |
| 5 | <p>If the mass of a body is doubled and its velocity becomes half, then the linear momentum of the body will</p> <p>(a) remains the same</p> <p>(b) becomes double</p> <p>(c) becomes half</p> <p>(d) becomes four times</p> | 1 |
| 6 | <p>A goalkeeper in a game of football pulls his hands backwards after holding the ball shot at the goal. This enables the goalkeeper to</p> <p>(a) exert larger force on the ball</p> <p>(b) to increase the velocity</p> <p>(c) increase the rate of change of momentum</p> <p>(d) decrease the rate of change of momentum</p> | 1 |
| 7 | <p>A few substances are arranged in the increasing order of forces of attraction between their particles. Which one of the following represents a correct arrangement?</p> <p>(a) Water, air, wind</p> <p>(b) Air, sugar, oil</p> <p>(c) Oxygen, water, sugar</p> <p>(d) Salt, juice, air</p> | 1 |
| 8 | <p>Intermolecular space is minimum in</p> <p>(a) Solids</p> <p>(b) Liquids</p> <p>(c) Gases</p> <p>(d) Plasma particles</p> | 1 |
| 9 | <p>Which of the following statements is not correct?</p> <p>(a) Colloidal solution is homogeneous</p> <p>(b) Colloidal solution appears to be homogeneous but actually it is heterogeneous.</p> <p>(c) Colloidal solution shows Tyndall effect.</p> <p>(d) Colloidal solution cannot be separated by filtration</p> | 1 |
| 10 | <p>Which of the following are physical changes?</p> <p>(i) Melting of iron metal</p> | 1 |

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| | <p>(ii) Rusting of iron metal (iii) Bending of an iron rod (iv) Drawing a wire of iron metal</p> <p>(a) (i), (ii) and (iii) (b) (i), (ii) and (iv) (c) (i), (iii) and (iv) (d) (ii), (iii) and (iv)</p> | |
| 11 | <p>Two substances A and B were made to react to form a third substance, A₂B according to the following reaction.</p> $2A + B \rightarrow A_2B$ <p>Which of the following statements concerning this reaction is correct?</p> <p>(a) The product A₂B shows the properties of substances A and B. (b) The product will always have a fixed composition. (c) The product so formed cannot be classified as a compound. (d) The product so formed is an element.</p> | 1 |
| 12 | <p>A cell will shrink up if</p> <p>(a) the concentration of water molecules in the cell is higher than the concentration of water molecules in the surrounding medium. (b) the concentration of water molecules in the surrounding medium is higher than water molecules concentration in the cell. (c) the concentration of water molecules is same in the cell and in the surrounding medium. (d) concentration of water molecules does not matter.</p> | 1 |
| 13 | <p>Which of these options are not a function of Golgi Apparatus?</p> <p>(i) It stores, modifies and packages materials synthesized in the cell and transport these to various targets inside and outside the cell. (ii) It plays a crucial role in detoxifying many poisons and drugs. (iii) It is involved in the formation of lysosomes (iv) It helps in manufacture of starch molecules.</p> <p>(a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (iv) and (ii)</p> | 1 |
| 14 | <p>Ribosomes is to _____ as lysosomes is to _____.</p> <p>(a) Protein synthesis; Lipid synthesis (b) Lipid synthesis; Protein synthesis (c) Protein synthesis; cellular digestion (d) cellular digestion; Protein synthesis</p> | 1 |
| 15 | <p>Select the wrong statement: -</p> <p>(a) Chlorenchyma is a parenchymatous tissue. (b) Chlorenchyma have chloroplast in them (c) Chlorenchyma provide flexibility to plants (d) Chlorenchyma are present in green leaves.</p> | 1 |
| 16 | <p>Observe the figure below and choose the correct options from the following –</p> | 1 |



- (a) Parenchyma, A – cytoplasm, B – Thick cell wall
 (b) Sclerenchyma, A – cytoplasm, B – Thick cell wall
 (c) Parenchyma, A – lumen, B – lignified thick cell wall
 (d) Sclerenchyma, A – lumen, B – lignified thick cell wall

SECTION B

CASE STUDY BASED QUESTIONS

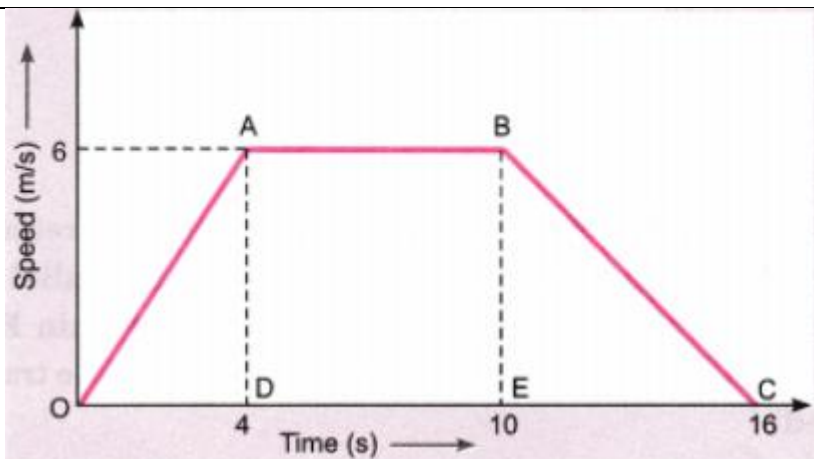
17 **CASE :** One day Rahul decided to go to his office by his car. He is enjoying the drive by listening to the old songs. His car is moving along a straight road at constant speed. On a particular moment, he notices that the car travels 150m in 5 seconds.



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| i | What is its average speed? (a) 20m/s (b) 30m/s (c) 10 m/s (d) 40 m/s | 1 |
| ii | How far does it travel in 1 second? (a) 20m (b) 30m (c) 10 m (d) 40 m | 1 |
| iii | How far does it travel in 6 seconds? (a) 120m (b) 130m (c) 180 m (d) 140 m | 1 |
| iv | Differentiate between average speed and average velocity. (any two points of difference) | 2 |
| 18 | CASE : Pure substances are substances which contain only one type of particles. Mixtures contain two or more different types of particles. Elements and compounds are pure substances. An element is the basic form of matter that cannot be broken down into simpler substances by chemical reactions. Elements can be normally divided into metals, non-metals and metalloids. A compound is a substance composed of two or more elements, chemically combined with one another in a fixed proportion. | |
| i | Which of the following is not a mixture? | 1 |

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| | (a) Soap solution (b) Blood (c) Carbon dioxide (d) Sugar solution | |
| ii | What are metalloids? | 1 |
| iii | Give two reasons to justify that water is a compound. | 1 |
| iv | Elements can be classified as metals, non-metals and metalloids. Give any one property of each. Also give one example of each | 2 |
| 19 | CASE : Mitosis is used for almost all of your body's cell division needs. It adds new cells during development and replaces old and worn-out cells throughout your life. The goal of mitosis is to produce daughter cells that are genetically identical to their mothers, with not a single chromosome more or less. Meiosis, on the other hand, is used for just one purpose in the human body: the production of gametes—sex cells, or sperm and eggs. Its goal is to make daughter cells with exactly half as many chromosomes as the starting cell. To put that another way, meiosis in humans is a division process that takes us from a diploid cell—one with two sets of chromosomes—to haploid cells—ones with a single set of chromosomes. In humans, the haploid cells made in meiosis are sperm and eggs. When a sperm and an egg join in fertilization, the two haploid sets of chromosomes form a complete diploid set. | |
| i | What are the examples of haploid cells produced by meiosis? | 1 |
| ii | What are the goals of mitosis and meiosis? How is a diploid set of chromosomes formed? | 2 |
| | SECTION C (SOURCE BASED QUESTIONS) | |
| 20 | The growth of plants occurs only in certain specific regions. This is because the dividing tissue, also known as meristematic tissue, is located only at these points. Depending on the region where they are present, meristematic tissues are classified as apical, lateral and intercalary. New cells produced by meristem are initially like those of meristem itself, but as they grow and mature, their characteristics slowly change and they become differentiated as components of other tissues. | |
| i | Girth of stem increases due to (a) apical meristem (b) lateral meristem (c) intercalary meristem (d) vertical meristem | 1 |
| ii | Apical meristem is present at the growing tips of stems and roots and increases the of the stem and the root. | 1 |
| iii | Write any two characteristics of meristematic tissue. | 1 |
| | SECTION D (SHORT ANSWER TYPE QUESTIONS) | |
| 21 | Give reason for the following a) Fruits and leaves fall down when we shake the branches of a tree. b) A karate player breaks a slab of ice with a single blow. | 3 |

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| | c) Water sprinkler used for grass lawns begins to rotate as soon as the water is supplied. Explain the principle on which it works. | |
| 22 | <p>A bullet of mass 50g when fired with a velocity of 30 ms^{-1}, can enter a wall up to a depth of 10 cm. How much will be the average resistive force offered by the wall?</p> <p style="text-align: center;">OR</p> <p>A car weighing 1800 kg moving with a velocity of 40 m/s retards uniformly coming to rest in 20 seconds. Calculate the</p> <p>a) Initial and final momentum of the car. b) Rate of change of linear momentum of the car. c) Acceleration of the car.</p> | 3 |
| 23 | <p>i) List any two characteristics of colloids. (ii) Name the two components of a colloid. (iii) Identify colloids from the following mixtures. Tincture iodine, sugar in water, blood, soda water, brass, starch solution.</p> <p style="text-align: center;">OR</p> <p>Identify solute and solvent in the following solutions:- (i) Aerated drinks (ii) Tincture of iodine (iii) copper sulphate solution.</p> | 3 |
| 24 | <p>(a) Define</p> <p style="text-align: center;">(i) Diffusion. (ii) Solubility</p> <p>(b) State the effect of temperature on diffusion.</p> | 3 |
| 25 | <p>a. Draw a labelled diagram of Location of meristematic tissue in plant body. b. Which tissue is responsible for flexibility in plants?</p> | 3 |
| 26 | <p>Name the organelles which are called 'suicide bags' and 'power house' of the cell. Why are they called so? Give reason.</p> <p style="text-align: center;">OR</p> <p>Tim was observing live cells from the peel of a Rhoen leaf in the biology laboratory and he was fascinated to observe cell wall, cytoplasm, small green granules of chloroplast, and nucleus clearly. Suddenly his friend who was doing another experiment with strong sugar solution spilled a few drops of sugar solution on the cells of the Rhoen leaf slide. After some time, Tim observed the slide and found some changes.</p> <p>(a) What would have been the change in the cells of a Rhoen leaf after adding sugar solution? (b) Name the process and define it.</p> | 3 |
| | SECTION E (LONG ANSWER TYPE QUESTIONS) | |
| 27 | Study the speed-time graph of a body given here and answer the following questions: | 5 |



- What type of motion is represented by OA?
- What type of motion is represented by AB?
- What type of motion is represented by BC?
- Find out the acceleration of the body.
- Calculate the retardation of the body.

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| 28 | <p>a) State and Derive the mathematical relation of Newton's second law of motion.</p> <p>b) A force of 20 N acts on a body of mass 2.5kg. What is the acceleration produced on the body?</p> <p style="text-align: center;">OR</p> <p>a) State Newton's three laws of motion.</p> <p>b) If a constant force acts on an object of mass 15kg for a duration of 3s. It increases the object's velocity from 10 m/s to 15 m/s. How much force is applied? Now, If the force was applied for a duration of 4s, what would be the final velocity of the object.</p> | 5 |
| 29 | <p>(a) Give any one point of difference between true solution, suspension and colloid.</p> <p>(b) Differentiate between saturated and unsaturated solution.</p> <p>(c) A solution contains 40 g of common salt in 320 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.</p> <p style="text-align: center;">OR</p> <p>(a) 65g of glucose is dissolved in 435g of water. Calculate the concentration of the solution in terms of mass by mass percentage.</p> <p>(b) Compare in tabular form the properties of true solution and colloids with respect to Tyndall effect, stability and particle size.</p> | 5 |
| 30 | <p>(a) Give any two differences between homogeneous and heterogeneous mixtures. Give one example of each.</p> <p>(b) Give reasons: -</p> <ol style="list-style-type: none"> Particles of solution cannot be seen with naked eye. Path of beam of light is not visible through a solution. | 5 |

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| 31 | <p>(a) Draw a diagram of prokaryotic cell and label on it - Cell wall, plasma membrane, cytoplasm, nucleoid and ribosomes</p> <p>(b) Write two differences between prokaryotic and eukaryotic cell.</p> | 5 |
| 32 | <p>(a) Give one-word answer for the following: -</p> <p>(i) Organelle containing chlorophyll.</p> <p>(ii) The fluid content inside the plasma membrane which takes very little stain.</p> <p>(iii) Cell without membrane bound nucleus.</p> <p>(iv) Storage sacs for solid or liquid contents.</p> <p>(b) Name the two strange organelles of the cell? Why are they called so?</p> <p>(c) Define the process in which diffusion takes place through a selectively permeable membrane.</p> <p style="text-align: center;">OR</p> <p>(a) Draw a neat diagram of transverse section of collenchyma tissues and label any four parts.</p> <p>(b) Write any two differences between Parenchyma and Collenchyma.</p> | 5 |