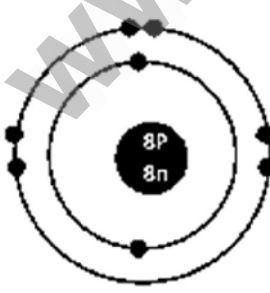
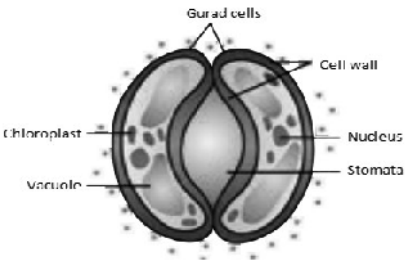


Quarterly Common Examination Sep – 2023
Science – Answer Key

IX Standard

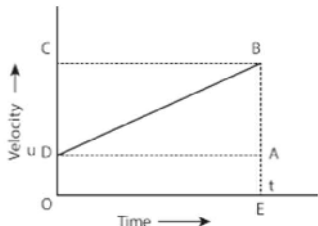
Question No.	Answer Key	Marks									
Part - I											
1	(a) metre	1									
2	(b) the force of reaction of centripetal force	1									
3	(a) density	1									
4	(b) pure substance	1									
5	(d) colloid	1									
6	(c) 2,8,8,1	1									
7	(b) 18,7	1									
8	(c) star fish	1									
9	(a) Acrania	1									
10	(b) hydrophytes	1									
11	(a) photosynthesis	1									
12	(d) stomata	1									
Part - II											
13.	International System of units										
14	<table border="1"> <thead> <tr> <th>S.No</th> <th>Distance</th> <th>Displacement</th> </tr> </thead> <tbody> <tr> <td></td> <td>The actual length of the path travelled by a moving body irrespective of the direction</td> <td>The change in position of a moving body in a particular direction</td> </tr> <tr> <td></td> <td>Scalar quantity</td> <td>Vector quantity</td> </tr> </tbody> </table>	S.No	Distance	Displacement		The actual length of the path travelled by a moving body irrespective of the direction	The change in position of a moving body in a particular direction		Scalar quantity	Vector quantity	1
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		1									
15	“The external pressure applied on an incompressible liquid is transmitted uniformly throughout the liquid”	1 1									
16	Element	Made up of atoms	1 1								
	Compound	Made up of molecules									
	Colloid	Pure substance									
	Suspension	Settles down on standing									
	Mixture	Impure substance									
17		1 1									
18	“The chemical and physical properties of the elements are the periodic functions of their atomic numbers”.	2									
19	“Classification is the ordering of organism into groups on the basis of their similarities, dissimilarities and relationships.”	2									

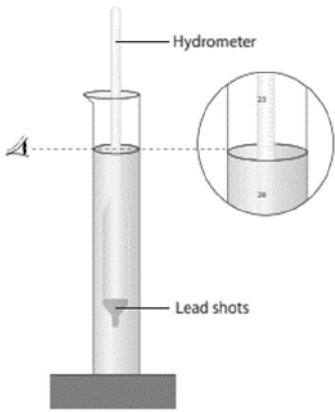
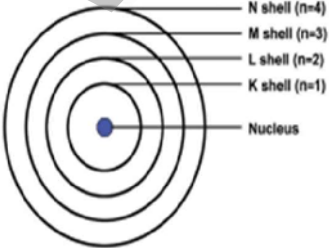
20	Due to the dual adaptation to live in both land and water frogs are said to be amphibians.	2														
21	<ul style="list-style-type: none"> xylem tracheids xylem vessels xylem fibres xylem parenchyma 	2														
22	<p>Weight = 98 N</p> <p>Mass = $\frac{M}{g}$, where $g = 9.8 \text{ ms}^{-2}$</p> <p>Mass = $\frac{98}{9.8} = 10 \text{ kg}$.</p>	1 1 1 1														
23		Diagram – 2 Any 2 parts 2														
PART - III																
24	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Mass</th> <th style="text-align: center;">Weight</th> </tr> </thead> <tbody> <tr> <td>1. It is a fundamental quantity.</td> <td>It is a derived quantity.</td> </tr> <tr> <td>2. It has magnitude alone – scalar quantity.</td> <td>It has magnitude and direction – vector quantity.</td> </tr> <tr> <td>3. It is the amount of matter contained in a body.</td> <td>It is the normal force exerted by the surface on the object against gravitational pull.</td> </tr> <tr> <td>4. Remains the same everywhere.</td> <td>Varies from place to place.</td> </tr> <tr> <td>5. It is measured using physical balance.</td> <td>It is measured using spring balance.</td> </tr> <tr> <td>6. Its unit is kilogram</td> <td>Its unit is newton</td> </tr> </tbody> </table>	Mass	Weight	1. It is a fundamental quantity.	It is a derived quantity.	2. It has magnitude alone – scalar quantity.	It has magnitude and direction – vector quantity.	3. It is the amount of matter contained in a body.	It is the normal force exerted by the surface on the object against gravitational pull.	4. Remains the same everywhere.	Varies from place to place.	5. It is measured using physical balance.	It is measured using spring balance.	6. Its unit is kilogram	Its unit is newton	Any 4 points
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25	<ul style="list-style-type: none"> The weight of a floating body in a fluid is equal to the weight of the fluid displaced by the body. The centre of gravity of the floating body and the centre of buoyancy are in the same vertical line. 	2 2														
26	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Homogeneous solutions</th> <th style="text-align: center;">Heterogeneous solutions</th> </tr> </thead> <tbody> <tr> <td>Components are uniformly mixed. It has single phase. No boundaries of separation between the components. Components are invisible to naked eye. Examples of Homogeneous solutions are salt solution, lemonade, petrol etc.</td> <td>Components are not uniformly mixed. It has two or more distinct phases. There are visible boundaries between the components. Components are visible to naked eye. Examples of Heterogeneous solutions are chalk in water, petrol in water, and sand in water.</td> </tr> </tbody> </table>	Homogeneous solutions	Heterogeneous solutions	Components are uniformly mixed. It has single phase. No boundaries of separation between the components. Components are invisible to naked eye. Examples of Homogeneous solutions are salt solution, lemonade, petrol etc.	Components are not uniformly mixed. It has two or more distinct phases. There are visible boundaries between the components. Components are visible to naked eye. Examples of Heterogeneous solutions are chalk in water, petrol in water, and sand in water.	4										
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27	<ul style="list-style-type: none"> The table is based on a more fundamental property i.e., atomic number. It correlates the position of the element with its electronic configuration more clearly. The completion of each period is more logical. In a period, as the atomic number increases, the energy shells are gradually filled up until an inert gas configuration is 	Any four points 4														

	<p>reached.</p> <ul style="list-style-type: none"> It is easy to remember and reproduce. Each group is an independent group and the idea of subgroups has been discarded. One position for all isotopes of an element is justified, since the isotopes have the same atomic number. 											
28	<p>Atomic number 3 and mass number 7 Number of protons – 3 Number of neutrons – 4 Number of electrons – 3</p> <p>Atomic number 92 and mass number 238 Number of protons – 92 Number of neutrons – 146 Number of electrons – 92</p>	<p>2</p> <p>2</p>										
29	<table border="1"> <thead> <tr> <th>Flat worms</th> <th>Round worms</th> </tr> </thead> <tbody> <tr> <td>Belongs to Phylum Platyhelminthes</td> <td>Belongs to Phylum Aschelminthes</td> </tr> <tr> <td>They are acoelomates.</td> <td>They are pseudocoelomates.</td> </tr> <tr> <td>These worms are hermaphrodites</td> <td>Sexes are separate.</td> </tr> <tr> <td>Most of them are parasitic in nature.</td> <td>They exist as free-living soil forms or as parasites.</td> </tr> </tbody> </table>	Flat worms	Round worms	Belongs to Phylum Platyhelminthes	Belongs to Phylum Aschelminthes	They are acoelomates.	They are pseudocoelomates.	These worms are hermaphrodites	Sexes are separate.	Most of them are parasitic in nature.	They exist as free-living soil forms or as parasites.	4
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30	<p>Complex Tissue:- Complex tissues are made of more than one type of cells that work together as a unit. Various kinds of complex tissues:- Xylem :-</p> <ul style="list-style-type: none"> xylem tracheids xylem fibres xylem vessels xylem parenchyma <p>Phloem:-</p> <ul style="list-style-type: none"> Sieve elements Companion cells Phloem fibres Phloem parenchyma. 	4										
31	<p>Transpiration:- The loss of water in the form of water vapour from the aerial parts of the plant body is called as transpiration.\</p> <p>There are three types of transpiration:</p> <p>Stomatal transpiration: Loss of water from plants through stomata. It accounts for 90-95% of the water transpired from leaves.</p> <p>Cuticular transpiration: Loss of water in plants through the cuticle.</p> <p>Lenticular transpiration: Loss of water from plants as vapour through the lenticels. The lenticels are tiny openings that protrude from the barks in woody stems and twigs as well as in other plant organs.</p>	4										

	Tropic movements	Nastic movements	
32	Unidirectional response to the stimulus.	Non-directional response to the stimulus.	4
	Growth dependent movements.	Growth independent movements.	
	More or less permanent and irreversible.	Temporary and reversible.	
	Found in all plants	Found only in a few specialized plants.	
	Slow action.	Immediate action.	

PART-IV

33	 <p>Figure shows the change in velocity with time for an uniformly accelerated object. The object starts from the point D in the graph with velocity, u. Its velocity keeps increasing and after time, t it reaches the point B on the graph..</p> <p>(i) First equation of motion:</p> $u = OD = EA, \quad v = OC = EB, \quad t = OE = DA$ <p>∴ From the graph we know that, $AB = DC$.</p> <p>By definition,</p> $\text{Acceleration} = \text{Change in velocity} / \text{Time}$ $= (\text{Final velocity} - \text{Initial velocity}) / \text{Time}$ $at = (OC - OD) / OE$ $= DC / OE = DC / t$ $DC = at = AB$ <p>From the graph, $EB = EA + AB$</p> $v = u + at \quad \dots\dots\dots (1)$ <p>(ii) Second equation of motion:</p> <p>From the graph the distance covered by the object during time, t is given by the area of quadrangle</p> $DOEB \text{ S} = \text{Area of the quadrangle DOEB}$ $= \text{Area of the rectangle DOEA} + \text{Area of the triangle DAB}$ $= (AE \times OE) + \frac{1}{2} \times (AB \times DA)$ $S = ut + \frac{1}{2} at^2 \quad \dots\dots\dots (2)$ <p>(iii) Third equation of motion :</p> <p>We see that the distance covered by the object during time, t is given by the area of the quadrangle DOEB. Here, DOEB is a trapezium. Then,</p> $S = \text{Area of trapezium DOEB}$ $= \frac{1}{2} \times \text{Sum of length of parallel side} \times \text{Distance between parallel sides}$ $= \frac{1}{2} \times (OD + BE) \times OE$ $S = \frac{1}{2} \times (u + v) \times t \quad (\text{Since, } a = (v - u) / t ; t = (v - u) / a)$ $S = \frac{1}{2} \times (v + u) \times (v - u) / a$ $2as = v^2 - u^2$ $v^2 = u^2 + 2as \quad \dots\dots\dots (3)$	<p>1 (Diagram)</p> <p>2</p> <p>2</p> <p>2</p>
OR		

	<p>Hydrometer</p>  <ul style="list-style-type: none"> • A direct-reading instrument used for measuring the density or relative density of the liquid is called hydrometer. • Hydrometer is based on the principle of flotation, i.e., the weight of the liquid displaced by the immersed portion of the hydrometer is equal to the weight of the hydrometer. • Hydrometer consists of a cylindrical stem having a spherical bulb at its lower end and a narrow tube at its upper end. • The lower spherical bulb is partially filled with lead shots or mercury. • This helps hydrometer to float or stand vertically in liquids. • The narrow tube has markings so that relative density of a liquid can be read directly. • The liquid to be tested is poured into the glass jar. • The hydrometer is gently lowered in to the liquid until it floats freely. • The reading against the level of liquid touching the tube gives the relative density of the liquid. • Hydrometers may be calibrated for different uses such as lactometers for measuring the density (creaminess) of milk, saccharometer for measuring the density of sugar in a liquid and alcoholometer for measuring higher levels of alcohol in spirits. 	<p>Diagram 2 marks Any 5 points 5</p>								
34	<table border="1"> <thead> <tr> <th>Element</th> <th>Compound</th> </tr> </thead> <tbody> <tr> <td>Made up of only one kind of atom.</td> <td>Made up of more than one kind of atom.</td> </tr> <tr> <td>The smallest particle that retains all its properties is an atom.</td> <td>The smallest particle that retains all its properties is the molecule.</td> </tr> <tr> <td>Cannot be broken down into simpler substances.</td> <td>Can be broken down into elements by chemical methods.</td> </tr> </tbody> </table>	Element	Compound	Made up of only one kind of atom.	Made up of more than one kind of atom.	The smallest particle that retains all its properties is an atom.	The smallest particle that retains all its properties is the molecule.	Cannot be broken down into simpler substances.	Can be broken down into elements by chemical methods.	7
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OR										
	 <ul style="list-style-type: none"> • In atoms, the electron revolve around the nucleus in stationary circular paths called orbits or shells or energy levels. • While revolving around the nucleus in an orbit, an electron neither loses nor gains energy. • An electron in a shell can move to a higher or lower energy shell by absorbing or releasing a fixed amount of energy. • The orbits or shells are represented by the letters K,L,M,N,... or the numbers, $n=1,2,3,4,\dots$ 	7								

35.	Mitosis	Meiosis	7
	Occurs in somatic cells.	Occurs in reproductive cells.	
	Involved in growth and occurs continuously throughout life.	Involved in gamete formation only during the reproductively active age.	
	Consists of single division.	Consists of two divisions.	
	Two diploid daughter cells are formed.	Four haploid daughter cells are formed.	
	The chromosome number in the daughter cell is similar to the parent cell (2n).	The chromosome number in the daughter cell is just half (n) of the parent cell.	
	Identical daughter cells are formed.	Daughter cells are not similar to the parent cell and are randomly assorted	
OR			
	<p>Birds:-</p> <ul style="list-style-type: none"> • Birds are homeothermic (warmblooded) animals with several adaptations to fly. • The spindle or boat shaped body is divisible into head, neck, trunk and tail. The body is covered with feathers. • Forelimbs are modified into wings for flight. Hindlimbs are adapted for walking, perching or swimming. The respiration is through lungs, which have air sacs. • Bones are filled with air (pneumatic bones), which reduces the body weight. They lay large yolk laden eggs. • They are covered by hard calcareous shell. e.g. Parrot, Crow, Eagle, Pigeon, Ostrich <p>Mammals:-</p> <ul style="list-style-type: none"> • Mammals are warm-blooded animals. • The skin is covered with hairs. It also bears sweat and sebaceous (oil) glands. • The body is divisible into head, neck, trunk and tail. Females have mammary glands, which secrete milk for feeding the young ones. • The external ears or pinnae is present. Heart is four chambered and they breathe through lungs. • Except egg laying mammals (Platypus, and Spiny anteater), all other mammals give birth to their young ones (viviparous). • Placenta is the unique characteristic feature of mammals.e.g Rat, Rabbit, Man. 	<p style="text-align: center;">$3\frac{1}{2}$</p> <p style="text-align: center;">$3\frac{1}{2}$</p>	