SET A

ARMY PUBLIC SCHOOL, DHAULA KUAN

EXAMINATION: PERIODIC TEST- 1 YEAR: 2025- 2026

CLASS : IX SET: A SUBJECT: SCIENCE

DURATION: 1.5 HRS **M.M.: 40**

GENERAL INSTRUCTIONS:

(i) The question paper has five sections and 19 questions. All questions are compulsory.
(ii) Section–A has 8 MCQs and 2 assertion-reason type of 1 mark each; Section–B has 3 questions of 2 marks each; and Section–C has 2 questions of 3 marks each; Section–D has 2 questions of 5 marks each; Section–E has 2 case based question of 4 marks.
(iii) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
(iv) For case study questions in section E, there is one choice in one subpart, with 3 questions based per case study.

SECTION A (MCQs)

Q1	The process in which solid is directly converted to vapours state is called a) vapourisation (b) solidification (c) condensation (d) sublimation	1M
Q2	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? (a) Water, air, wind (b) Air, sugar, oil (c) Oxygen, water, sugar (d) Salt, juice, air	1M
Q3	Cell theory was proposed by: a) Schleiden and Schwann b) Watson and crick c) Schleiden, Schwann and Robert Hooke d) Davson and Daniell	1M
Q4	You expect RBCs to burst when they are placed in a) Hypotonic solution. b) hypertonic solution. c) isotonic solution d) all of these	1M
Q5	Dry ice is solid form of (a)Carbon dioxide. (b) Sodium chloride. (c) Nitrogen. (d) Potassium Permanganate	1M
Q6	Living cells were discovered by a) Robert Hooke b) Purkinje. c) Robert Brown. d)Leeuwenhoek	1M
Q7	Which of the following conditions is most favourable for converting gas into liquid? (a) High pressure, low temperature (b) Low pressure, low temperature (c) Low pressure, high temperature (d) High pressure, high temperature	1M
Q8	Which one of the following is not a unicellular organism? a) Amoeba b) Paramecium c) Chlamydomonas d) Fungi	1M

Q9 to Q10 are assertion-reasoning based questions.
These consist of two statements - Assertion (A) and Reason (R). Answer these questions selecting the appropriate options 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.

Q9	**Assertion:** A cell swells up when present in a hypotonic solution. **Reason:** More water molecules enter the cell than they leave.	1M

Army Public School DhaulaKuan

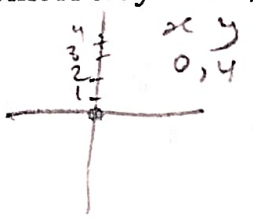
REVISION WORKSHEET

CLASS 09 - MATHEMATICS

	Section A	
1	The value of $\left(\frac{81}{16}\right)^{\frac{-3}{4}} \times \left\{\left(\frac{25}{9}\right)^{\frac{-3}{2}} \div \left(\frac{5}{2}\right)^{-3}\right\}$ is a) 4 b) 3 c) 1 d) 2	[1]
2	$\frac{5^{n+2}-6\times5^{n+1}}{13\times5^{n}-2\times5^{n+1}}$ is equal to a) $-\frac{3}{5}$ b) $\frac{3}{5}$ c) $-\frac{5}{3}$ d) $\frac{5}{3}$	[1]
3	If x is a positive real number and $x^2 = 2$, then x^3 = a) 4 b) $2\sqrt{2}$ c) $\sqrt{2}$ d) $3\sqrt{2}$	[1]
4	The value of m for which $\left[\left\{\left(\frac{1}{7^2}\right)^{-2}\right\}^{\frac{-1}{3}}\right]^{\frac{1}{4}} = 7^{m}$, is a) - 3	[1]

	b) $(x+y)(x^2 - xy + y^2)$ c) $(x-y)^2(x+y)$ d) $(x+y)(x^2 + xy + y^2)$	
10	If $\frac{x}{y} + \frac{y}{x} = -1$ $(x, y \neq 0)$, the value of $x^3 - y^3$ is a) 2 b) 0 c) 1 d) - 1	[1]
11	A point of the form $(0, b)$ lies on: a) quadrant I b) quadrant III c) y - axis d) x - axis	[1]
12	Which of the points P(0, 3), Q(1, 0), R(0, – 1), S(–5, 0), T(1, 2) do not lie on the x - axis? a) P, R and T b) P and R only c) Q and S only d) Q, S and T	[1]
13	If P(3, 9) and Q(- 3, - 4), then (abscissa of P) - (ordinate of Q) is a) 7 b) - 1 c) 1 d) - 7	[1]
14	P(5, - 7) be a point on the graph. Drawthe PM⊥ y - axis. The coordinates of M are a) (0, 0)	[1]

	b) (- 6, 0) c) (0, 6) d) (6, 0)	
20	The coordinates of a point A on y - axis, at a distance of 4 units from x - axis and below it, are a) (0, 4) b) (- 4, 0) c) (0, - 4) d) (4, 0)	[1]
21	The graph of x + y = 6 intersect coordinate axes at a) (6, 0) b) (0, 6) c) Both (0, 6) and (6, 0) d) (2, 3)	[1]
22	The graph of the linear equation 4x + y = 12 is a line which meets the y - axis at the point _____. a) (0, 4) b) (12, 0) c) (0, 12) d) (4, 0)	[1]
23	For what value of 'k', x = 2 and y = - 1 is a solution of x + 3y – k = 0? a) - 2 b) - 1 c) 1 d) 2	[1]
24	The graph of the line y = - 6 passes through a) (- 1, 4)	[1]



$2 + 3(-1) - k = 0$

$+2 - 3 - k = 0$

$-3 - k = -2$

$-k = -2 + 3$

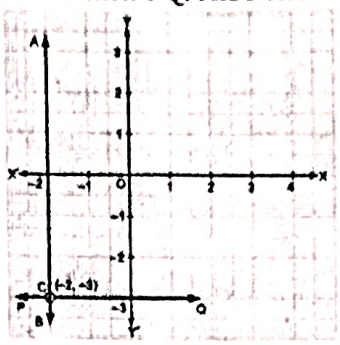
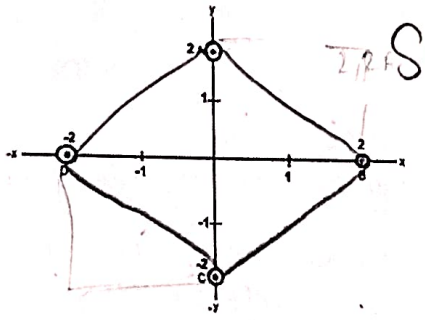
$-k = 1$

	b) (0, 4) c) (4, - 6) d) (- 6, 4)	
25	The distance between the graph of the equations x = - 3 and x = 2 is a) 2 b) 1 c) 5 d) 3	[1]
26	**Assertion (A):** $\sqrt{2}, \sqrt{3}$, are examples of irrational numbers. **Reason (R):** An irrational number can be expressed in the form $\frac{p}{q}$. 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.	[1]
27	**Assertion (A):** If (x)+ 1 is a factor of $f(x) = x^2 + ax + 2$,then a = - 3. **Reason (R):** If (x - a)is a factor of p(x), if p(a) = 0. 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.	[1]
28	**Assertion (A):** There are infinite number of lines which passes through (2, 14). **Reason (R):** A linear equation in two variables has infinitely many solutions. 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. .	[1]

$x^2 + y^2 + xy = 9$

$(3)^2 + (-3)^2 + 3 \times -3$

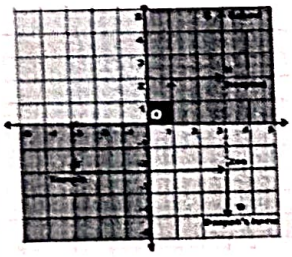
$= 9 + 9 - 9$

47	Express x in terms of y for the linear equation $\frac{2}{3}x + 4y = -7$.	[2]
48	Draw the graphof theequation: $x = -2$	[2]
49	Write the linear equation represented by line AB and PQ. Also find the co - ordinate of intersection of line AB and PQ.  $(-2, -3)$	[2]
50	Find the co - ordinate where the linear equation $4x - \frac{2}{3}y = 7$ meets at y - axis .	[2]
51	If $x = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $y = \frac{\sqrt{2}-1}{\sqrt{2}+1}$ find the value of $x^2 + y^2 + xy$. $= 9$	[3]
52	If $a = 2 + \sqrt{3}$, then find the value of $a - \frac{1}{a}$. $= 0$	[3]
53	If $4^{2x-1} - 16^{x-1} = 384$, find the value of x.	[3]
54	Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is divisible by $x^2 + 3x + 2$.	[3]
55	Find the value of k, if x - 1 is a factor of p(x) in case: $p(x) = kx^2 - \sqrt{2}x + 1$	[3]
56	Factorise: $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$	[3]
57	Find the value of k, if x - 1 is a factor of p(x) in case: $p(x) = 2x^2 + kx + \sqrt{2}$	[3]
58	Find whether polynomial g(x) is a factor ofpolynomial f(x) ornot: $f(x) = x^3 - 6x^2 + 11x - 6$, $g(x) = x^2 - 3x + 2$	[3]
59	In fig. write the Co - ordinates of the points and if we join the points write the name of fig. formed. Also write Co - ordinate of intersection point of AC and BD.  Square $(0, 0)$	[3]
60	Find at least 3 solutions for the following linear equation in two variables: $x + y - 4 = 0$	[3]
61	Let y varies directly as x. If y = 12 when x = 4, then write a linear equation. What is the value of y when x = 5?	[3]

$a = 2 + \sqrt{3}$ $\quad a - \frac{1}{a}$

$\frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{2-\sqrt{3}}{4-3} = 2 - \sqrt{3} = k - \sqrt{2} + 1$

$kx^2 - \sqrt{2}x + 1$

	3. Simplify $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$. (2) **OR** Is it true that if r is rational and s is irrational, then r + s is irrational? (2)	
73	**Read the following text carefully and answer the questions that follow:** Beti Bacho, Beti Padho (BBBP) is a personal campaign of the Government of India that aims to generate awareness and improve the efficiency of welfare servicesintended for girls.  In a school, a group of (x+ y) teachers, ($x^2 + y^2$) girls and ($x^3 + y^3$) boys organised a campaign on Beti Bacho, Beti Padho. 1. How many teachersare there in the group if there are 63girls (given xy = 9)? (1) 2. How many girls are there in the group if there are 10 teachers and 370 boys? (1) 3. How many boys are there in the group if there are 10 teachers and 58 girls? (2) **OR** What is the value of ($x^2 - y^2$) if the number of teaches are 10 (given (x - y) = 23)? (2)	[4]
74	**Read the following text carefully and answer the questions that follow:**  In the above picture, one small square is of size 1 km × 1 km. From the starting point O(0, 0) Deepak started to drive towards his home. He first drives 3 km in	[4]

	left then he turned to his leftand drove 2 km, there he found a temple.He worshipped there and drove 6 km in the left direction, there is azoo and from the zoo, he drives 2km on the right side, then he reached his home. From O Sanjay drove for his school, he drove 1 km to his right then took a left turn and drives 2 km then again took a right turn and drives 2 km.He found a hospital in the way. From Hospital, he drove 3km and finally reached his school. 1. Deepak Drove in which quadrants? (1) 2. Sanjay Drove in which quadrants? (1) 3. What are the coordinates of the Hospital? (2) **OR** What is common abscissa of school, Hospital, Zoo, and Deepak's home? (2)	
75	**Read the following text carefully and answer the questions that follow:** Peter, Kevin James, Reeta and Veena were students of Class 9th Bat Govt Sr Sec School, Sector 5, Gurgaon. Once the teacher told **Peter to think a number x andto Kevin to think another number y** so that the difference of the numbers is 10 (x > y). Now the teacher asked James to add double of Peter's number and that three times of Kevin's number, the total was found 120. Reetajust entered in the class, she did not know any number. The teacher said Reeta to form the 1st equation with two variables x and y. Now Veena just entered the class so the teacher told her to form 2ndequation with two variables x and y. Now teacher ToldReeta to find the values of x and y. Peter and kelvin were told to verify the numbers x and y.  1. What arethe equation formed by Reeta and Veena? (1)	**[4]**

2. What was the equation formed by Veena? (1)

3. Which number did Peter think? (2)

OR

Which number did Kelvin think? (2)

ARMY PUBLIC SCHOOL, DHAULA KUAN
PERIODIC TEST-2 (2025-26)
MATHEMATICS
CLASS: IX (SET-1A)

DURATION: 1 hr. 30 mins. **M.M.:40**

General Instructions:

- **This question paper has 5 sections A, B, C, D, and E.**
- **Draw neat figures where ever required.**

SECTION A [1 × 10 = 10 Marks]

1. Diagonals necessarily bisects opposite angles in
(a) rectangle (b) parallelogram (c) isosceles trapezium (d) square

2. If the circumference of base circle of a cylinder of height 9 cm is 14cm, then its curved surface area is
(a) $126cm^2$ (b) $226cm^2$ (c) $63cm^2$ (d) $28\ cm^2$

3. If ABCD is a trapezium in which AB || CD and AD = BC, then:
(a) $\angle A = \angle B$ (b) $\angle A > \angle B$ (c) $\angle A < \angle B$ (d) None of the above

4. The radius of a right circular cone having slant height 1.3m and height 1.2m is
(a) 50 cm (b) 10 cm (d) 5m (d) 2.5cm

5. If the radius of a sphere is $2r$ then its surface area is
(a) $4\pi r^2$ (b) $2\pi r^2$ (c)$8\pi r^2$ (d) $16\pi r^2$

6. In parallelogram ABCD, if $\angle A = 2x + 15°$, $\angle B = 3x - 25°$, then value of x is:
(a) 91° (b) 89° (c) 34° (d) 38°

7. Area of an equilateral triangle having measure of side as 's' is
(a) $\frac{1}{2}s^2$ (b) $\sqrt{\frac{3}{4}}s^2$ (c)$\frac{\sqrt{3}}{4}s^2$ (d) $\frac{\sqrt{3}}{2}s^2$

8. Total surface area of a cone of radius $\frac{r}{2}$ and slant height $2l$ is
(a) $2\pi r(l + r)$ (b) $\pi r\left(l + \frac{r}{4}\right)$ (c) $\pi r(l + r)$ (d) $2\pi rl$

9. The length of each side of an equilateral triangle having an area of $9\sqrt{3}$ cm² is
(a) 8 cm (b) 36 cm (c) 4 cm (d) 6 cm

10. In a Quadrilateral ABCD, AB = BC and CD = DA, then the quadrilateral is a
(a) Triangle (b) Kite (c) Rhombus (d) Rectangle

SECTION B: [2 × 3 = 6 Marks]

11. Prove that diagonal of a parallelogram divides it into two congruent triangles.

12(a). The surface area of a sphere is $5544cm^2$, find its diameter.

OR

12(b) A hemispherical bowl made of brass has inner diameter 10.5 cm. Find the cost of tinplating it on the inside at the rate of 4 paise per cm^2.

13. Two equal sides of an isosceles triangle have measure 13cm and its perimeter is 50cm. find its area.

SECTION C: [3 × 2 = 6 Marks]

14. A wooden toy is in the form of a cone surmounted on a hemisphere. The diameter of the base of the cone is 14 cm and its height is 31 cm. Find the surface area of the toy.

15(a). Find the altitude of an equilateral triangle having area $49\sqrt{3}cm^2$.

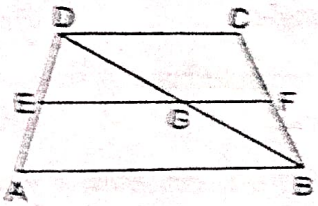
OR

15(b). The sides of a triangular plot are in the ratio of 3: 5: 7 and its perimeter is 300 m. Find its area.

SECTION D: [5 × 2 = 10 Marks]

16. The radius and height of a cone are in the ratio of 4:3. The area of the base is $154cm^2$. Find the area of its curved surface.

17(a). In the given figure, ABCD is a trapezium in which side AB is parallel to side DC and E is the mid-point of AD such that line segment EF through E is parallel to AB. Prove that F is the mid-point of BC and $EF = \frac{1}{2}(AB + CD)$.

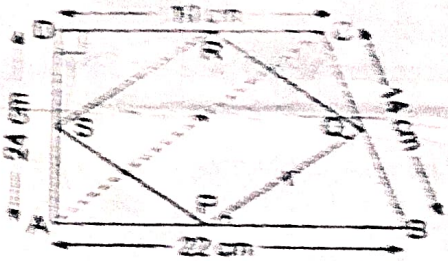


OR

17(b). Show that the bisectors of angles of a parallelogram form a rectangle.

SECTION E: [4 × 2 = 8 Marks]

18. **Case Study 1:** Ram has quadrilateral shaped paper cut from a circular paper. His friend Shyam joined the mid points of all sides and another quadrilateral was formed. The given figure shows how the paper appears. Side AB= 22cm, BC=14cm, CD=10 cm and AD= 24cm. Also $\angle ADC = 90^0$.



On the basis of above information, solve the following questions:

(i) Find the measure of diagonal AC. (1 mark)

(ii) Find the measure of PQ. (1 mark)

(iii)(a) Prove that quadrilateral PQRS is a parallelogram.

OR (2 marks)

(iii)(b) If the measure of $\angle P$ is 115^0 in quadrilateral PQRS, find the measure of all its angles.

19. **Case Study 2:** The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 13 m, 14 m and 15 m. The advertisements yield an earning of ₹2000 per m^2 a year. Based on the above information answer the following questions.

(i) Find the perimeter of the triangular side wall. (1 mark)

(ii) Does the sides 13m, 14m and 15m form the sides of a right triangle? (1 mark)

(iii)(a) Find the rent paid by the company for hiring one of the side walls for 1 year.

OR (2 marks)

(iii)(b) A company hired one of its walls for 6 months. How much rent did it pay?

HARSHITA 9K'

SET A1

ARMY PUBLIC SCHOOL, DHAULA KUAN
EXAMINATION: HALF YEARLY : 2025-2026
CLASS : IX SUBJECT: SCIENCE

DURATION: 3 HRS **M.M.:80**

General Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology; Section B is Chemistry and Section C is Physics.

(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

SECTION - A (BIOLOGY)

1 Sclerenchyma tissues are found abundantly in: 1

(a) Leaves (b) Stems (c) Roots (d) All of the above

2 The most important function of cell membrane is that it: 1

(a) controls the entry and exit of materials from cells.

(b) controls only the entry of materials into cells.

(c) controls only the exit of materials from cells.

(d) allows entry and exit of materials without any control.

3 A tissue whose cells are capable of dividing and re-dividing is called: 1

(a) complex tissue (b) connective tissue (c) permanent tissue (d) meristematic tissue

4 Which of the following is not a function of the vacuole in plants? 1

(a) They store toxic metabolic wastes (b) They help with the process of cell division

(c) They help to maintain turgidity (d) They provide structural support

The following two questions consist of two statements – Assertion (A) and Reason (R). Answer these questions by 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, and R is not the correct explanation of A.

C - A is true but R is false.

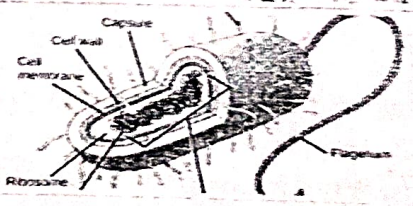
D - A is false but R is true.

5 **Assertion:** Most of the plant tissues are dead. 1

Reason: Due to the sedentary existence of plants, dead cells provide mechanical strength more easily than live ones and need less maintenance.

6 (a) Identify the diagram shown above. 2

(b) List any two features of the above organism type.



7 ***Attempt either option A or B.*** 2

A. Give reasons:

(a) Why are intercellular spaces absent in sclerenchyma tissue?

(b) Why is aerenchyma tissue important for aquatic plants?

OR

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ARMY PUBLIC SCHOOL, DHAULA KUAN
EXAMINATION: INTERNAL ASSESSMENT YEAR: 2024-2025
CLASS : IX SUBJECT: SCIENCE

DURATION: 1H M.M.:30

GENERAL INSTRUCTIONS:

There are 40 MCQs. Each question carries 1 mark. All questions are compulsory.

1.	A vehicle was moving with a constant speed of 6 m/s. The driver then speeds up the vehicle with a uniform acceleration of 6 m/s^2. The time taken by it to attain a velocity of 36 m/s will be (a) 5 seconds (b) 6 seconds (c) 7 seconds (d) 1 second
2.	Whenever objects fall towards the Earth under gravitational force alone, we say that objects are in : (a) Free fall (b) Free gravity (c) Free movement (d) Free state
3.	Identify the correct representation of the audible range for human beings? (a) 2 kHz – 20 kHz (b) 0.02 kHz – 20 kHz (c) 0.2 kHz – 20 kHz (d) 0.02 kHz – 2 kHz
4.	If one Newton of force displaces a body by one meter, the work done is (a) 10 joule (b) 5 joule (c) 1 joule (d) zero
5.	On tripling the velocity of a body, its kinetic energy will increase by (a) 9 times (b) 3 times (c) 5 times (d) 4 times
6.	Which of the following does not have a unit as Joule? (a) Work done (b) Kinetic energy (c) Potential energy (d) Force
7.	When a body falls freely towards the earth then the total energy (a) remains constant (b) increases (c) decreases (d) first increases and then decreases
8.	To hear a distinct echo the time interval between the original sound and the reflected sound must be at least (a) 1 s (b) 0.1 s (c) 0.5 s (d) 2
9.	In case of negative work the angle between the force and displacement is (a) 0° (b) 45° (c) 90° (d) 180°
10.	Energy possessed by body which is in motion is called (a) Potential energy (b) Kinetic energy (c) Nuclear energy (d) chemical energy
11.	The molecular mass of Ozone (O-16) : (a) 16 (b) 48 (c) 68 (d) 52
12.	Which atoms exist by only one atom of that element? (a) Gaseous (b) Metals (c) Non-metals (d) Noble gas
13.	Choose incorrect option: (a) AL is the symbol of aluminium (b) Ag is the symbol of silver (c) Au is the symbol of gold (d) Ar is the symbol of argon.
14.	Which isotope is used in the nuclear power plants to generate electricity? (a) Uranium 235 (b) Iodine 131 (c) Cobalt 60 (d) Uranium 238
15.	How many electrons are present in the outermost shell of a lithium atom. (a) 1 (b) 2 (c) 3 (d) 5

16.	Sum of proton and neutron gives..... of molecule (a) Atomic number (b) Atomic unit (c) Molecular formula (d) Molecular weight.
17.	What property of an element determines its chemical behaviour? (a) Size of an element (b) Valency of an element (c) Molar mass (d) molecular mass.
18.	Non uniform compositions of solutions called..... solutions. (a) Compound (b) Texture (c) Homogenous (d) Heterdgeneous
19.	The amount of the solute present in the saturated solution at this temperature is called its.... (a) Unsaturation (b) Diffusion (c) Collusion (d) Solubility
20.	Which experiment was designed by Rutherford? (a) Atoms look like watermelon (b) Moving alpha particles fall on thin magnesium foil (c) Moving alpha particles fall on thin gold foil (d) Moving alpha particles fall on thin silver foil
21.	This cell organelle does not contain DNA (a) Nucleus (b) Mitochondria (c) Lysosomes (d) Chloroplast
22.	The organelle serving as a primary packaging area for molecules that will be distributed throughout the cell is (a) Vacuole (b) Plastids (c) Mitochondria (d) Golgi apparatus
23.	This tissue includes the blood tissue (a) Muscle tissue (b) Connective tissue (c) Epithelial tissue (d) Nervous tissue
24.	Which of this is/are examples of an organ containing a smooth muscle (a) Iris of eye (b) Bronchi only (c) Uterus only (d) All of the above
25.	_____ is not found in xylem tissues. (a) Sieve tubes (b) Xylem parenchyma (c) Tracheids (d) Vessels
26.	Flexibility in plants is due to (a) Collenchyma (b) Sclerenchyma (c) Parenchyma (d) Chlorenchyma
27.	Which type of epithelial tissue is responsible for absorption of digested food in the small intestine? (a) columnar epithelium (b) ciliated epithelium (c) stratified squamous epithelium (d) cuboidal epithelium
28.	Which one of the following fishes is a surface feeder? (a) Rohus (b) Mrigals (c) Common carps (d) Catlas
29.	Which one of the following nutrients is not available in fertilizers? (a) Nitrogen (b) Phosphorus (c) Iron (d) Potassium
30.	Which of the following are exotic breeds? (i) Brawn (ii) Jersey (iii) Brown Swiss (iv) Jersey Swiss (a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)

SENIOR SECTION
DEPARTMENT OF BIOLOGY
CLASS IX
CH-6 TISSUES (PLANTS)
WORKSHEET –I

ONE MARK QUESTIONS

1. Where is apical meristem found in plants?
2. Name the tissue present in soft parts of the plants like pith and cortex.
3. What are complex tissues?
4. Which plant tissue is associated with conduction of food in plants?
5. Name the chemical substance that makes the cork cells impervious to gases and water.

TWO MARKS QUESTIONS

6. List the characteristic features of meristematic tissue.
7. Differentiate between sclerenchyma and parenchyma tissues.
8. Water hyacinth floats on water surface. Explain.
9. Why is epidermis important for the plants?
10. List the constituents of xylem and phloem.

THREE MARKS QUESTIONS

11. Explain three types of meristematic tissues.
12. Ennumerate three differences between simple and complex tissues.
13. Give the functions of the stomata.
14. Draw the diagram of the section of the tissue responsible for translocation of food in plants. Name the element of phloem which comprises of non living cells.
15. Define the term differentiation. List two functions of collenchyma cells.

FIVE MARKS QUESTIONS

16. Justify the statements giving suitable reasons:
    a) Meristamatic cells have prominent nucleus, dense cytoplasm but lack vacuole.
    b) Absence of intercellular spaces in sclerenchyma tissues.
    c) While chewing pear fruit we get a crunchy and granular feeling.
    d) Branches of a tree move and bend freely in high wind velocity.
    e) It is difficult to pull the husk of a coconut tree.
17. List the characteristics of cork. How are they formed? Mention their role.
18. Draw the labeled diagrams of:
    a) Location of meristematic tissue in plant body
    b) Transverse section of parenchyma, collenchyma and sclerenchyma tissues.
    c) Draw a neat diagram of leaf epidermal peel showing stomata .Label any two parts.

Class 9 – Science (NCERT) ASSIGNMENT WORKSHEET

Chapter: The Fundamental Unit of Life

1. Multiple Choice Questions (1 mark each)

Q1. Which cell organelle is known as the "powerhouse of the cell"?
a) Ribosome
b) Mitochondria
c) Golgi apparatus
d) Endoplasmic reticulum
[Answer: b]

Q2. Which of the following is a single membrane-bound organelle?
a) Nucleus
b) Lysosome
c) Mitochondria
d) Chloroplast
[Answer: b]

2. Assertion–Reason Questions (1 mark each)

Q3. Assertion (A): The cell wall in plant cells provides mechanical support and shape to the cell.
Reason (R): Cell wall is made up of cellulose.
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
[Answer: a]

Q4. Assertion (A): Lysosomes are called "suicidal bags" of the cell.
Reason (R): They digest foreign substances only.
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
[Answer: c]

3. Very Short Answer Questions (2 marks each)

Q5. State two differences between prokaryotic and eukaryotic cells.

Q6. State one difference between mitosis and meiosis in terms of the type of cells produced.

4. Short Answer Questions (3 marks each)

Q7. Explain the role of the following organelles in the cell:

(a) Ribosomes

(b) Golgi apparatus

(c) Mitochondria

Q8. Why is the plasma membrane called a selectively permeable membrane? Support your answer with an example.

Q9. Write three functions of the smooth endoplasmic reticulum in animal cells.

5. Case-Based Question (1 × 4 = 4 marks)

Read the passage and answer the following questions:

A student observed an onion peel under the microscope and found that the cells were swollen and turgid. The teacher then placed the peel in a concentrated salt solution for 10 minutes. The student observed that the cells had shrunk away from the cell wall. The teacher explained that this was due to the movement of water from inside the cell to the outside medium through the plasma membrane.

Q10(i). Name the process responsible for the shrinkage of the cell contents. [Answer: Plasmolysis]

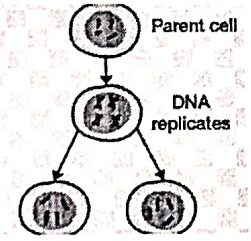
Q10(ii). What type of solution causes plasmolysis? [Answer: Hypertonic solution]

Q10(iii). Which structure in the plant cell prevents it from bursting when water enters? [Answer: Cell wall]

Q10(iv). State one function of the plasma membrane. [Answer: Controls the movement of substances into and out of the cell]

7. Diagram-Based Question – Plant vs. Animal Cell (3 marks)

Q11.The diagram below shows the stages of cell division:



a) Identify the type of cell division taking place and how many daughter cells are formed?

b) Mention the importance of Mitosis cell division.

c) Which type of cell division results in the formation of gametes?

Q12. Draw diagrams showing a plant cell and an animal cell:

a) Identify two structures present only in plant cells and not in animal cells.

b) Identify one structure present in both but larger in plant cells.

c) Write any two differences between plant and animal cells based on their diagram.

Assignment 3
Level 1
Class 9 (2025-26)
Chapter: Force and laws of Motion

Q1 Acceleration acts always in the direction :
(a) of the displacement
(b) of the initial velocity
(c) of the net force
(d) of the final velocity

Q2 . Four objects P, Q , R and S have mass 1kg, 2kg, 3kg, 4kg respectively. They move with the same velocity. Which of the objects has the largest momentum:
(a) P (b) Q (c) R (d) S

Q3 Which of the following is true for the third law of motion?
(a) The action-reaction pair always acts on the same body.
(b) They act on different bodies in opposite directions
(c) Action-Reaction pairs have the same magnitudes and directions
(d) Act on either body at normal to each other

Q4. What do you mean by the term 'unbalanced forces'?

Q5.Define momentum.

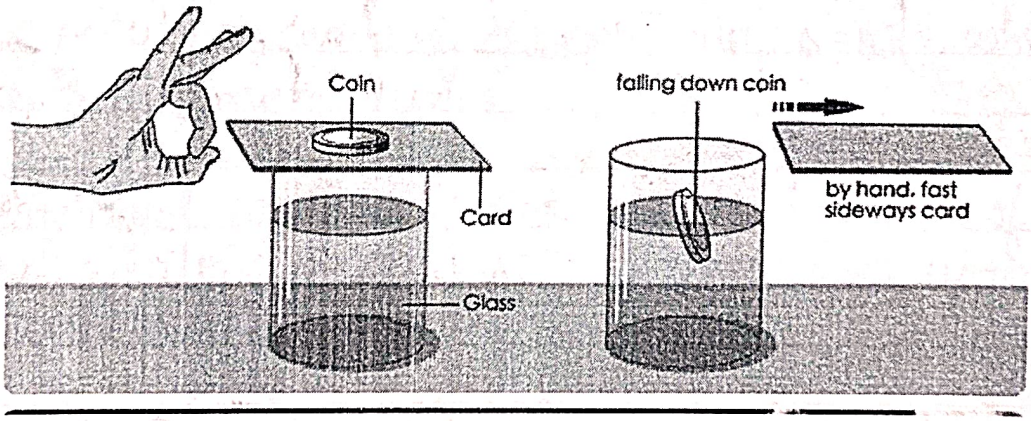
Q6 Write its SI unit of momentum?

Q7. What is the momentum of an object of mass m, moving with a velocity v?

Q8 State Newton's first law of motion.

Q9. The carpet is beaten with a stick to remove dust from it. Explain why?

Q10 In the figure below the card is flicked with a push. It was observed that the card moves ahead while the coin falls in glass.



(i) Give reason for the above.
(ii) Name the law involved in this case.

Q11. What is the momentum of a body of mass 5 kg moving with velocity of 20 m/s?

Q12.A ball is thrown vertically upwards. What is the momentum at the highest point?

Q13. State Newton's second law of motion.

Q14. Define 1Newton of force.

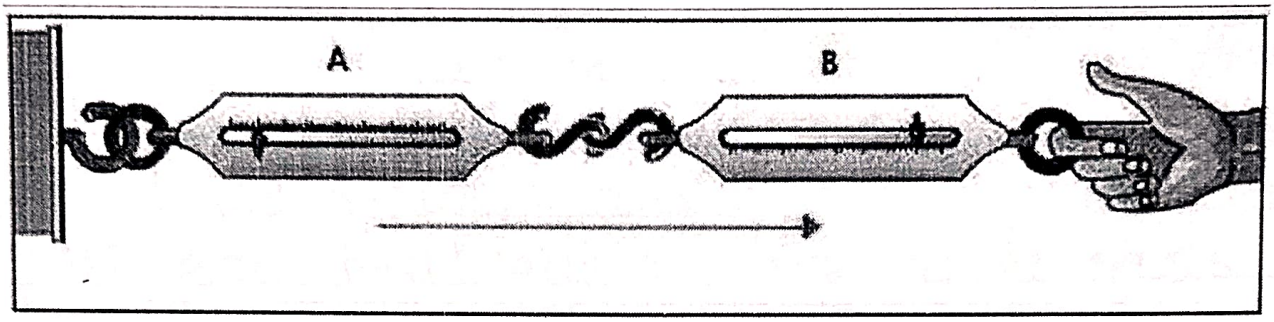
Q15. What is the relation between farce applied on the body and resulting acceleration?

Q16. While catching a cricket ball player towards his hands with the ball. Explain why?

Q17. State Newton's third law of motion.

Q18.State action and reaction forces in recoiling of a gun.

Q19. Two spring balances A and B are connected to each other as shown in figure



Find the reading on B if A shows reading of 5N.

Q20. An object of mass of 1 kg is moving with a constant velocity of 2 m/s on a frictionless table. Find the force required to keep the object moving with the same velocity

PERIODIC TEST II 2025-26

SUBJECT: SCIENCE

CLASS IX

MM: 40

TIME:1Hr 30min

General Instructions:

1. The question paper is divided into three sections: Physics, Chemistry & Biology.
2. Marks are indicated against each question.
3. All questions are compulsory.
4. Draw and label diagrams wherever required.

Q.NO	SECTION – A BIOLOGY (14M)	MARKS
1	Match the animal tissue in column I with its Characteristic feature in column II.	1M

	Column I		Column II
P	SQUAMOUS EPITHELIUM	1.	SPINDLE-SHAPED CELLS, UNINUCLEATE, INVOLUNTARY
Q	SMOOTH MUSCLE	2.	CELLS EMBEDDED IN A HARD MATRIX OF CALCIUM /PHOSPHOROUS
R	BONE	3.	TRANSMITS STIMULI VERY RAPIDLY
S	NERVOUS TISSUE	4.	EXTREMELY THIN, FLAT CELLS FORMING DELICATE LINING

A. P-4,Q-1,R-2,S-3 .
B. P-1,Q-4,R-3,S-2
C. P-4,Q-2,R-1,S-3
D. P-3,Q-1,R-2,S-4

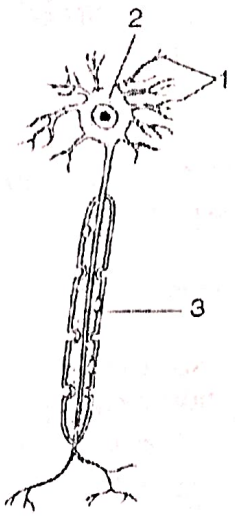
2 Which of the following correctly pairs an animal tissue with one of its specific locations? 1M
A. Ciliated column epithelium – lining of blood vessels
B. Adipose Tissue – connecting muscles to bones.
C. Cardiac muscle – walls of the heart.
D. Areolar tissue – covering of the bone surface at joints

3 Consider the following statements about muscle tissue. 1M
I. Striated muscles are also called skeletal muscles and are voluntary
II. Smooth muscles are found in the iris of the eye and are involuntary
III. Cardiac muscles are cylindrical, branched, and uninucleated
Which of the above statements is /are correct?
A. I and II only
B. II and III only
C. I and III only
D. I, II and III

4 Assertion- Oviduct is lined by ciliated columnar tissue.
Reason – Cilia provide protection and help to repair the tissue. 1M

5 Give reason.
a. Blood is considered to be connective tissue 2M
b. Animals of colder regions and fish of cold water have a thicker layer of subcutaneous fat

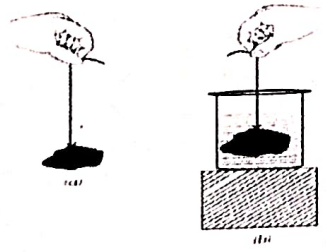
6 (a) Identify the tissue.
(b) Label the parts marked 1, 2 and 3. 3M

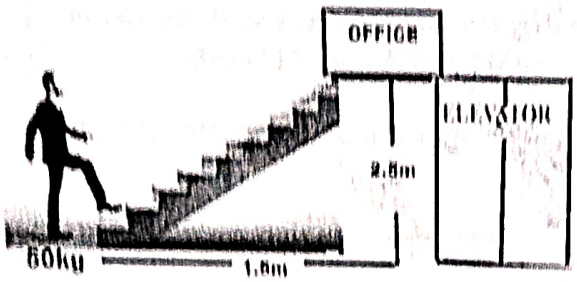
7	(c) What is the location of this tissue?  a. Distinguish between the following pairs (ONE POINT EACH) 3+2 (I) Tendon and Ligament (II) Bone and Cartilage (III) striated and unstriated muscles b. Rahul observed two slides of muscle fibres under the microscope Muscle fibre appeared spindle-shaped and contained one nucleus in slide A, while in slide B muscle fibre appeared cylindrical, branched and contained one nucleus. Identify A and B... write the location of each muscle fibre.	5M
	SECTION – B **CHEMISTRY (13M)**	
1	A student created a chart displaying various compounds and their formulas, but made some errors. Identify them from the provided list. i. Water – H_2O ii. Carbon dioxide – CO_2 iii. Ammonia – NH_4 iv. Sodium chloride – NaCl v. Calcium oxide – Ca_2O a) i & ii b) i & iv c) iii & iv d) iii & v	1M
2	**Assertion:** A molecule is an indivisible particle of matter **Reason:** Molecule is derived from the Greek word Mole. 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	1M
3	Some amount of methane reacts with 0.44gm of oxygen to form 1.8g of CO2 and 0.88gm of water. What will be the amount of methane reacted? Which law governs the reaction mentioned above	2M
4	Risha believes that molecular mass is the same as formula unit mass. How can you help her understand the difference with an example for each?	2M
5	Write down the chemical formula of the following and calculate their molecular masses: 3M a) aluminium nitrate b) aluminium nitride c) sodium sulphide (given atomic mass: sodium =23u , sulphur = 32u, oxygen = 16u, aluminium=27u, nitrogen=14u) **OR** a) Define the law of definite proportion	3M

	b) Determine the amount of Hydrogen and nitrogen required to prepare 50g of Ammonia	
6	Rucha conducted an experiment to verify the Law of Conservation of Mass. She took 5g of iron filings and kept them exposed to moist air in an open beaker for several days. After a week, she observed that the iron had turned reddish-brown (rust). When she weighed the rust, she found it weighed 7g. Riya was confused because she expected the mass to remain 5g based on the Law of Conservation of Mass. **Questions**: (a) Why did the mass increase from 5g to 7g? Does this violate the Law of Conservation of Mass? (2 marks) (b) Design an improved experiment that Riya should perform to correctly verify the Law of Conservation of Mass during rusting. What precaution should she take? (2 marks) **OR** How are atoms and molecules related to the laws of chemical combination? Illustrate with the help of an example?	4M

SECTION – C

(PHYSICS) (13)

1	Which of the following statements stands true? i. Kinetic energy of an object is directly proportional to its mass. ii. If the speed of a particle is doubled, its kinetic energy becomes four times. iii. When an object is thrown vertically upwards, its kinetic energy gradually increases. iv. Kinetic energy of an object can never be negative. (a) (ii) and (iii) (b) (i) and (iii) (c) (i), (ii) and (iv) (d) Only (ii)	1
2	In the following question, two statements are given-one labelled ASSERTION (A)and the other labelled REASON(R). Select the correct answer to the questions from codes (a), (b), (c), and (d) as given below: (a) Both A and R are true, and R is the correct explanation of the assertion. (b) Both A and R are true, but R is not the correct explanation of the assertion. (c) A is true, R is false (d) A is false, R is true **Assertion:** Pressure exerted by a brick is directly proportional to its weight. **Reason:** Thrust exerted by the brick on the surface is its weight.	1
3	Calculate the work required to be done to stop a car of 1500 kg moving at a velocity of 54 km/h?	2
4	Derive an expression for the kinetic energy of a moving body. **OR** An object of mass 4500g is raised to a height of 5 m above the ground. What is its potential energy?	2
5	 (a) While experimenting, it is observed that the rubber string got elongated due to the weight of a piece of stone suspended from it in the air. The elongation decreased as the stone was immersed in water. What could be the reason for such an observation? What will happen if we dissolve sugar in water in which the stone is immersed?	3

	(b) If the weight of the stone in air was 10N, and when measured in water, it was showing 8N, then find the weight of the displaced water?	
6	**CASE BASED QUESTION:** **Read the given passage and answer the given questions.** Rohit works in an office where he has two ways to reach his room. One way is to use a staircase, and the other way is to use an elevator, as shown in the figure below. (Given, mass of Rohit is 50kg)  A. In which of the two ways will, work done be maximum? B. What will be the work done by the man if he walks 1.5m towards the lift? C. What will be the work done by gravity on the man if he climbs up the stairs? **OR** Evaluate the statement 'Work done by the gravity is always positive'.	4