



Sainik School Bhubaneswar

Autumn Vacation Task 2025

Class-IX

Subject-Physics

1. State the relation between weight and mass of a body.
2. How does Newton's Third Law of Motion explain the recoil of a gun?
3. The Earth attracts the Moon. Does the Moon also attract the Earth? Justify.
4. A body of mass 5 kg is moving with a velocity of 10 m/s. Calculate its momentum. Also find the force required to stop it in 2 seconds.
5. A ball of mass 200 g moving with velocity 5 m/s strikes a wall and comes to rest in 0.25 s. Calculate the force exerted on the ball by the wall.
6. Find the weight of an object on the Moon. Mass of the object = 12 kg. $g_{\text{moon}} = 1.6 \text{ m/s}^2$.
7. The gravitational force between two objects is 100 N. If the distance between them is doubled, what will be the new force?
8. A stone is thrown vertically upward with a velocity of 20 m/s. (Take $g = 9.8 \text{ m/s}^2$)
 - (a) How high will it rise?
 - (b) How much time will it take to reach the maximum height?
9. Derive the formula for force $F = ma$ from Newton's Second Law of Motion.
10. Derive the formula for acceleration due to gravity $g = GM/R^2$.

Project / Assignment Work (Any one)

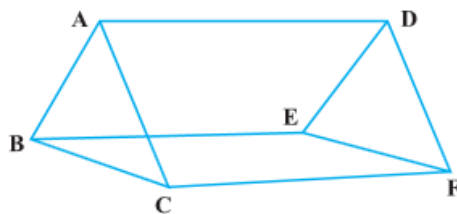
- Make project on:
 - Newton's Laws of Motion in daily life **or**
 - Gravitational Force and Artificial Satellites.
- Prepare a **handwritten note** on "*Applications of Newton's Laws of Motion in Defence Services*".

MATHEMATICS

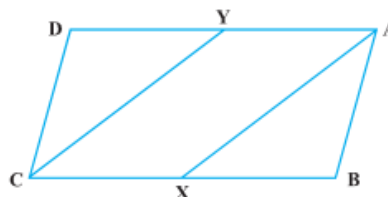
Write the correct option /answer (Q 1 to Q 12)

- Q1. Decimal representation of a rational number cannot be
(a) terminating (b) non-terminating
(c) non-terminating repeating (d) non-terminating non-repeating
- Q2. The product of any two irrational numbers is
(a) always an irrational number (b) always a rational number
(c) always an integer (d) sometimes rational, sometimes irrational
- Q3. One of the factors of $(25x^2 - 1) + (1 - 5x)^2$ is
(a) $5 + x$ (b) $5 - x$ (c) $5x - 1$ (d) $20x$
- Q 4. The value of $249^2 - 248^2$ is
(a) 1^2 (b) 477 (c) 487 (d) 497
- Q 5. The factorisation of $4x^2 + 8x + 3$ is
(a) $(x + 1)(x + 3)$ (b) $(2x + 1)(2x + 3)$
(c) $(2x + 2)(2x + 5)$ (d) $(2x - 1)(2x - 3)$
- Q 6. If P $(-1, 1)$, Q $(3, -4)$, R $(1, -1)$, S $(-2, -3)$ and T $(-4, 4)$ are plotted on the graph paper, then the point(s) in the fourth quadrant are
(a) P and T (b) Q and R (c) Only S (d) P and R
- Q 7. If the coordinates of the two points are P $(-2, 3)$ and Q $(-3, 5)$, then (abscissa of P) – (abscissa of Q) is
(a) -5 (b) 1 (c) -1 (d) -2
- Q 8. The quadrilateral formed by joining the mid-points of the sides of a quadrilateral PQRS, taken in order, is a rectangle, if
(a) PQRS is a rectangle (b) PQRS is a parallelogram
(c) diagonals of PQRS are perpendicular (d) diagonals of PQRS are equal.
- Q 9. The quadrilateral formed by joining the mid-points of the sides of a quadrilateral PQRS, taken in order, is a rhombus, if
(a) PQRS is a rhombus (b) PQRS is a parallelogram
(c) diagonals of PQRS are perpendicular (d) diagonals of PQRS are equal.
- Q 10. Which of the following is not true for a parallelogram?
(a) opposite sides are equal (b) diagonals bisect each other
(c) opposite angles are bisected by the diagonals (d) opposite angles are equal
- Q 11. Which is the greatest among $\sqrt[3]{2}$, $\sqrt{2}$, $\sqrt[3]{4}$ and $\sqrt[4]{3}$
(a) $\sqrt[3]{2}$ (b) $\sqrt{2}$ (c) $\sqrt[3]{4}$ (d) $\sqrt[4]{3}$
- Q 12. In a quadrilateral opposite sides are equal. Then it is called
(a) Trapezium (b) Kite (c) Parallelogram (d) Cyclic quadrilateral.

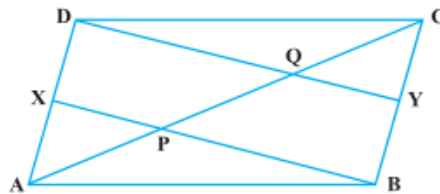
- Q 13. ABCD is a rhombus with $\angle ABC = 40^\circ$. The measure of $\angle ACD$ is .
 (a) 20° (b) 40° (c) 70° (d) 90°
- Q 14. Find the value of m so that $2x - 1$ be a factor of $8x^4 + 4x^3 - 16x^2 + 10x + m$.
- Q 15. Without plotting the points indicate the quadrant in which they will lie, if
 (a) ordinate is 5 and abscissa is -3 (b) abscissa is -5 and ordinate is -3
 (c) abscissa is -5 and ordinate is 3 (d) ordinate is 5 and abscissa is 3
- Q 16. Classify the following numbers as rational or irrational :
 (i) $\sqrt{52}$ (ii) $\sqrt{225}$ (iii) 0.3796
 (iv) 7.478478... (v) 1.101001000100001... (vi) $\sqrt{8}$
- Q 17. Visualize the representation of $4.5\bar{6}$ on the number line upto 5 decimal places, that is, up to 4.56666
- Q 18. Without finding the cubes, factorise
 $(x - 2y)^3 + (2y - 3z)^3 + (3z - x)^3$
- Q 19. Find the value of
 $x^3 - 8y^3 - 36xy - 216$, when $x = 2y + 6$
- Q 20. Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is divisible by $x^2 - 3x + 2$.
- Q.21. If $\frac{4+\sqrt{6}}{4-\sqrt{6}} + \frac{4-\sqrt{6}}{4+\sqrt{6}} = a + b\sqrt{6}$, find value of a and b
- Q 22. $AB \parallel DE$, $AB = DE$, $AC \parallel DF$ and $AC = DF$. Prove that $BC \parallel EF$ and $BC = EF$.



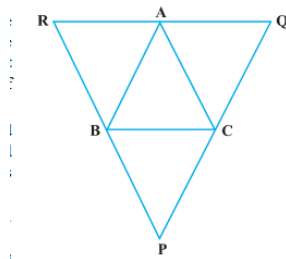
- Q 23. AX and CY are respectively the bisectors of the opposite angles A and C of a parallelogram ABCD. Show that $AX \parallel CY$.



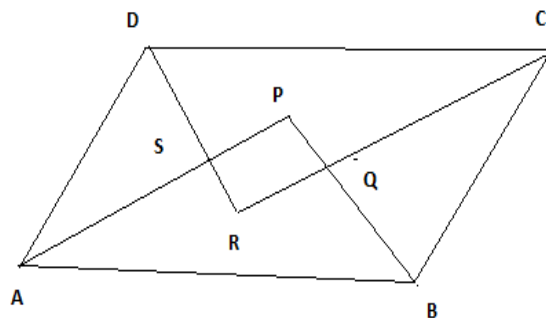
- Q 24. Prove that, the line drawn through the mid point of one side of a triangle parallel to another side bisects the third side.
- Q 25. Find the value of m so that $2x - 1$ be a factor of $8x^4 + 4x^3 - 16x^2 + 10x + m$.
- Q 26. Prove that , “If a side of a triangle is produced , then the exterior angle so formed is equal to the sum of the two interior opposite angles” .
- Q 27. Determine the point on the graph of the linear equation $2x + 5y = 19$, whose ordinate is $1\frac{1}{2}$ times its abscissa
- Q 28. X and Y are respectively the mid-points of the opposite sides AD and BC of a parallelogram ABCD. Also, BX and DY intersect AC at P and Q, respectively. Show that $AP = PQ = QC$.



- Q 29. Through A, B and C, lines RQ, PR and QP have been drawn, respectively parallel to sides BC, CA and AB of a $\triangle ABC$ as shown below. Show that $BC = \frac{1}{2}QR$.



- Q 30. Show that the bisectors of angles of a parallelogram ABCD form a rectangle PQRS .



- Q 31. The angles of a quadrilateral are in the ratio of 3: 5: 9: 13. Determine all the angles of a quadrilateral.

- Q 32. Show how $\sqrt{3}$ can be represented on the number line.
- Q 33. If one angle of a parallelogram is 30° less than twice the smallest angle, then determine the measurement of each angle.
- Q 34. Prove that the diagonal of a parallelogram divides it into two congruent triangles.
- Q 35. ABCD is a rhombus with $\angle ABC = 50^\circ$. Determine $\angle ACD$.
- Q 36. ABC is a triangle. D, E, and F are the midpoints of AB, BC and CA respectively. Show that by joining these midpoints D, E and F, ΔABC is divided into four congruent triangles.
- Q 37. If $x + 2a$ is a factor of $x^5 - 4a^2x^3 + 2x + 2a + 3$, find a .
- Q 38. ABCD is a quadrilateral in which P, Q, R, S are the midpoints of the sides AB, BC, CD and DA respectively. AC is the diagonal. Prove that: (a) PQRS is a parallelogram (b) $PQ = SR$ (c) $SR \parallel AC$ and $SR = \frac{1}{2} AC$.
- Q 39. Show that the diagonals of a rectangle are equal in length.
- Q 40. Prove that the diagonals of a quadrilateral bisect each other at right angles, then it is a rhombus.

BIOLOGY

1. Draw the model of a plant cell or animal cell or any organelles. (using the waste material present in your homes)
2. Use A4 sheet chart paper for poster making on the topic “Health is wealth” or “Save natural resources”
3. Draw the labelled diagram of White blood cells from the textbook.
4. Draw the labelled diagram of Neuron from the textbook.
5. Differentiate between Plant tissue and animal tissue.
6. Compare between Meristematic tissue and Permanent tissue.
7. List the differences between Mitosis and Meiosis in a tabular form. Draw the diagram from the textbook.
8. How is the structure of mitochondria related to its function?
9. Why are plastids found only in Plant cells?
10. Describe the formation of Cork in trees.
11. Why is meristematic tissue important for the growth of plants/
12. Write down the characteristic features of (a) Epidermal tissue and (b) Meristematic tissue.
13. Explain the modification of Epidermal tissue in all cases.

Geography

1. On an out-line map of India, show the six physical divisions, use different colours for each division.
2. Collect two pictures each of any two physiographical divisions and paste them in your notebook.
3. Answer in brief: How were the Himalayas formed.
4. On a political map of India, mark- River system of the Himalayas (Ganga, Brahmaputra, Indus). Peninsular rivers (Godavari, Krishna, Narmada, Mahanadi, Kaveri)
5. Write short notes on National Conservation Plan, Importance of lakes.
6. Draw a flow chart to show factors of production.
7. Write a paragraph on how Palampur is an ideal village.
8. Collect data from newspapers/magazines on any two government schemes for education and health.
9. **Prepare one-word answer questions from all taught chapters and note down in UPSC (GAT) notebook.**
10. Differentiate between :
 - a) Human Capital and Physical Capital.
 - b) Educated unemployment and Seasonal unemployment.

History & Civics

Instructions:

All work must be handwritten in your notebook or on A4 sheets.

- Include illustrations, timelines, maps, or pictures wherever appropriate.
- Maintain neatness, originality, and clarity of thought.
- Chapters Nazism and Electoral Politics are *self-study* – you are expected to explore them using books or reliable online sources.

HISTORY TASKS

1. The French Revolution

Create a Storyboard or Comic Strip (8–10 boxes) representing the major events of the French Revolution. Include:

- Meeting of the Estates-General
- Tennis Court Oath
- Storming of the Bastille
- Declaration of the Rights of Man and Citizen
- The role of women
- Execution of Louis XVI and the Reign of Terror

Bonus: Mention one lasting impact of the French Revolution in 2–3 lines.

2. Socialism in Europe and the Russian Revolution

(a) Make a timeline of 6–8 key events from the rise of socialism in 19th-century Europe to the Russian Revolution of 1917.

(b) Answer briefly (80–100 words):

"What were the main causes of the Russian Revolution, and why did people support socialist ideas?"

3. Nazism and the Rise of Hitler (*Self-study*)

Prepare a research-based illustrated report (200–250 words) on:

"How Hitler rose to power, and how propaganda influenced public opinion in Nazi Germany."

Must include:

- Key steps in Hitler's rise
- Role of the Treaty of Versailles
- Use of media, education, and symbols (e.g., Swastika, rallies)
- 2–3 visuals (printed or hand-drawn) with captions
- Mention one source used for your research (website, book, article)

Tip: Try using NCERT, Britannica, or BBC Bitesize for easy reading.

4. Forest Society and Colonialism

Write a detailed case study on any tribal forest community (India or world). Include:

- Name and location of the community

- Their traditional lifestyle and forest usage
- Colonial forest laws and how they were affected
- Their resistance or protests (e.g., rebellions, migrations)
- Map or drawing showing forest region

Minimum 150 words with illustrations or a mini poster.

CIVICS TASKS

6. What is Democracy? Why Democracy?

Create a comparison chart between Democratic and Non-Democratic governments under these 4 headings:

- Definition
- Key Features
- Examples
- Citizens' Role

Use country examples like India, China, North Korea, etc.

7. Constitutional Design

(a) Write a Preamble (8–10 lines) for your imaginary country. Include values like justice, liberty, equality, fraternity, etc.

(b) Answer in 70–80 words:

"Why is a constitution important for a democratic country? What would happen without one?"

8. Electoral Politics (*Self-study*)

Activity: Interview an adult (parent/guardian/neighbor) about their voting experience.

Write their answers to these 5 questions:

- Why do you vote?
- What do you expect from a good candidate?
- Do you think elections in India are fair?
- Have you ever seen misuse of power during elections?
- What changes would improve our election system?

Present your work in Q&A format or as a short paragraph summary.

9. "Why should young people care about democracy and elections even if they are not eligible to vote yet?"

(Answer in about 80–100 words:)

10. Design a creative poster on the theme:

"The Power of People in a Democracy"

- Use drawings, slogans, or collage
- Poster size: Full A4
- Can be hand-drawn or digital

English

LITERATURE: Read the following chapters and note down the difficult words.

1. The bond of love
2. Reach for the Top
3. The Last Leaf
4. A house is not a home.

WRITING:

1. While visiting TajMahal, you came across many children outside the monument begging. You are shocked and disgusted at this sight. Make a diary entry in about 100 words.
2. Hari was caught missing the class and playing in the ground. What might have happened thereafter? Write in a paragraph.
3. Write an article on “An Ideal Student”.
4. Write an article on “Importance of Co- Education”.

GRAMMAR:

1. A brief note on use of modals with examples. - Will, Would, Shall, Should, Can, Could, Used to.
 2. Use of Passive: 20 Examples.
 3. Subject – Verb Agreement : 10 Rules with Examples.
 4. Reported Speech: Interrogative and Imperative sentences
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Sainik School Bhubaneswar
Autumn vacation Task (2025 - 2026)
Class IX-A (Odia)

୧) ନିମ୍ନଲିଖିତ ବିଷୟ ଗୁଡ଼ିକର ଅଭ୍ୟାସ କର ।

- କ) ସମୂହ ଦୃଷ୍ଟି
- ଖ) ଶକ୍ତି ଓ ଜ୍ଞାନ
- ଗ) ପାଇକ ବଧୂର ଉଦ୍ ବୋଧନ
- ଘ) ବାମନର ହାତ ଓ ଆକାଶର ଚନ୍ଦ୍ର
- ଙ) ଗୋପ ପ୍ରୟାଗ

୨) ଶରତ ଅବକାଶ କିପରି କାଟିଲ ତୁମ ପ୍ରିୟ ସାଙ୍ଗ ନିକଟକୁ ପତ୍ର ଲେଖ ।

୩) ନିଜ ମନରୁ ଭାବି ୨୦ ଟି ସ୍ବରସନ୍ଧି ଓ ବ୍ୟଞ୍ଜନ ସନ୍ଧି ଲେଖ ।

୪) ନିଜ ମନରୁ ଭାବି ୩୦ ଟି ପ୍ରତିଶବ୍ଦ ଲେଖ ।

୫) ନିଜ ମନରୁ ଭାବି ୨୦ ଟି ସମୋଚ୍ଚାରିତ ଶବ୍ଦର ଅର୍ଥ ଲେଖ ।

୬) ନିଜ ମନରୁ ଭାବି ୫୦ ଟି ବିପରୀତ ଶବ୍ଦ ଲେଖ ।

୭) ନିମ୍ନ ଲିଖିତ ବିଷୟରେ ପ୍ରବନ୍ଧ ଲେଖ ।

- କ) ମୋ ପ୍ରିୟ ଶିକ୍ଷକ/ ଶିକ୍ଷୟିତ୍ରୀ
- ଖ) ଭାରତୀୟ ସଂସ୍କୃତି
- ଗ) ସମାଜରେ ନାରୀ ଶିକ୍ଷାର ଭୂମିକା
- ଘ) ପରିଭ୍ରମଣର ଆବଶ୍ୟକତା
- ଙ) ସମ୍ବାଦ ପତ୍ରର ଉପକାରିତା

SAINIK SCHOOL BHUBANESWAR 2025-26

AUTUMN VACATION TASK

CLASS- IX

HINDI

1. 'अग्निपथ' कविता से प्राप्त प्रेरक संदेश को लिखिए अपने शब्दों में लिखिए ।
2. 'रमन प्रभाव' के विषय में बताते हुए विज्ञान के क्षेत्र में चंद्रशेखर वेंकेट रामन के योगदान को 250 शब्दों में लिखिए ।
3. निम्नलिखित विषयों पर पत्र लिखिए -
 - शैक्षिक भ्रमण के रोचक अनुभव बताते हुए अपने छोटे भाई / बहन को एक पत्र लिखिए ।
 - आपके मित्र ने परीक्षा में प्रथम स्थान प्राप्त किया है; उसे बधाई देते हुए पत्र लिखिए ।
4. निम्नलिखित विषयों पर अनुच्छेद लिखिए -
 - 'तब पछताए का होत है जब चिड़ियाँ चुग गई खेत'
 - परोपकार का महत्व
 - मन के हारे हार है मन के जीते जीत
5. निम्नलिखित विषयों पर संवाद लिखिए -
 - छुट्टियों के सदुपयोग कैसे करें ? - इस विषय पर माँ और बेटे के मध्य ।
 - छात्रों में दिन पर दिन घटते अनुशासन को लेकर दो शिक्षकों के मध्य ।
6. संधि की परिभाषा बताते हुए स्वर संधि के प्रत्येक भेद के 5 - 5 उदाहरण लिखिए ।
7. वाक्य और उसके प्रत्येक भेद के 5 - 5 उदाहरण लिखिए ।
8. मानव जीवन में पुस्तकालय के महत्व पर अपने विचार लिखिए ।
9. ओड़िशा की कला संस्कृति पर एक PPT बनाइए ।
10. कोई एक स्वरचित कविता या कहानी लिखिए ।

Dr GN Pandey

INFORMATION TECHNOLOGY

Part A – Theory Questions

1. Explain the types of cell references: Relative, Absolute, and Mixed with examples.
2. What is the difference between a formula and a function in spreadsheets?
3. Write the syntax and example of the following functions:
 - SUM()
 - AVERAGE()
 - MAX()
 - MIN()
 - COUNT()
4. Define chart. List any three types of charts used in spreadsheets.
5. What are the advantages of using electronic spreadsheets over manual calculations?
6. Why are self-management skills important for students?
7. Explain any three characteristics of a good self-managed person.
8. What are the different types of stress? Give examples.
9. How does positive thinking help in self-management?
10. Explain the importance of time management in daily life..

Part B – Practical Work

1. Create a student marksheet for 10 students in 5 subjects. Calculate:
 - Total Marks
 - Average Marks
 - Highest Marks
 - Lowest Marks
2. Create a salary sheet of 8 employees showing:
 - Basic Salary
 - HRA = 20% of Basic
 - DA = 10% of Basic
 - Net Salary = Basic + HRA + DA
3. Create sales data for 6 months and:
 - Find total sales using SUM
 - Find average sales using AVERAGE
 - Find the highest and lowest sales month using MAX and MIN
 - Represent the data using Column Chart and Pie Chart

Part C – Project Work

1. Prepare a daily timetable for yourself balancing study, play, and rest.
2. Write 5 affirmations you can use to stay motivated.
3. Make a list of 10 things that cause you stress and how you can overcome them.
4. Maintain a time log diary for one day and analyze where you waste most of your time.
5. Prepare a poster on stress management techniques.

Practical and Project Report File (for Submission)

Each student should maintain a Project and Practical File with:

- Cover Page (with project title, student details)
- Certificate (signed by teacher)
- Acknowledgment
- Index
- Project Work (with screenshots if needed)
- Conclusion

LIBRARY

1. Write a 'Book Review' of your favourite book read from the School Library. Use A4 sheet for the activity. Draw border and write neatly.

2. Answer the following question based on General Knowledge. Use your library note book for the assignment.

I. Draw the flags of the following international organizations and write a paragraph about them.

a) European Union (EU) b) United Nations(UN) c) Association of Southeast Asian Nations, ASEAN

II. Write Short notes on the following intergovernmental organizations:-----

a) BRICS b) NATO c) WHO d) WTO e) WMO

III. Write a paragraph on the following organizations:

a) Botanical Survey of India b) Survey of India

c) India Meteorological department d) Press trust of India

Among the above given organization which one has completed 150 years of service to the nation in the year 2025?

IV. Why and when do we celebrate National Technology day?What is the official theme for National Technology day 2025?How Operation shakti is associated with this National Technology day .

V. Write a note on Ramsar Convention. Name the sites with their locations from India which are added in the year 2025?

VI. Write short notes on the following

a) NITI Aayog b) MGNREGA Scheme c) Jalvihak Policy

VII. Write short notes on the following

a) NISAR b) INS NISTAR c) UNESCO declares 12 Maratha forts As World Heritage Sites

SAINIK SCHOOL BHUBANESWAR

CLASS IX (CHEMISTRY)

AUTUMN VACATION TASK FOR 2025

1. Choose one atom or molecule (like oxygen, CO_2 , water, glucose) and explain its role in daily life.
2. Differentiate between a molecule of an element and a molecule of a compound with examples.
3. Make a **3D model** of any one of the following molecules: H_2O , CO_2 , NH_3 , or CH_4 using clay, beads, or toothpicks. Show the **type of bond** in the molecule.
4. If 4 g of hydrogen combines with 32 g of oxygen, how many grams of water will be formed? Show the calculation.
5. Assertion–Reason
Assertion (A): All atoms of a given element are identical.
Reason (R): Atoms of different elements have different masses.
Choose the correct option:
 - (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.
6. Explain why H_2O is called a molecule, but NaCl is considered an ionic compound.
7. State and explain Rutherford's model of the atom and its drawbacks.

8. Draw a **timeline** showing the evolution of atomic models: Dalton → Thomson → Rutherford → Bohr. Include diagrams and key points.
9. Define atomic number and mass number. Calculate the number of neutrons in an atom of chlorine-35.
10. Draw the electron distribution of sodium (atomic number 11) and chlorine (atomic number 17) atoms.
11. Why do elements in the same group of the periodic table have similar chemical properties?
12. Assertion–Reason
Assertion (A): Isotopes of an element have identical chemical properties.
Reason (R): Isotopes have the same number of protons but different numbers of neutrons.
Choose the correct option:
(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.
13. An element Z has atomic number 6 and mass number 14.
(i) Determine the number of protons, neutrons, and electrons in Z.
(ii) Write its electronic configuration.
(iii) Identify the isotope of carbon to which it belongs.