BABA BANDA BAHADUR PUBLIC SCHOOL

Jind Road, Rohtak, Haryana

SUMMER VACATION HOLIDAY HOMEWORK

SESSION 2026–27

SUMMER EXCELLENCE PROGRAMME

Theme:

"No Screen Learning – Learn, Create, Explore & Grow"

★ STUDENT DETAILS ★

Name : _____

Class & Section : _____

Roll No. : _____

House : _____

★ MY SUMMER VACATION GOALS

- ☐ I will follow a proper study routine.
- ☐ I will reduce unnecessary mobile usage.
- ☐ I will read daily.
- ☐ I will help my parents at home.
- ☐ I will stay healthy and active.
- ☐ I will complete my work sincerely.

★ SUMMER EXCELLENCE ASSESSMENT ★

ASSESSMENT STRUCTURE

Assessment Area	Marks
Written Work / Subject Practice	60 Marks
Presentation / Activity / Project Work	20 Marks
Parent Feedback & Student Discipline	20 Marks

Total = 100 Marks

- Holiday Homework marks will be reflected in Term Assessments.
- Focus will be given not only to written work but also to discipline, presentation, creativity, consistency and self-study habits.

★ HOLIDAY SCORE ★

Marks Obtained : _____

Teacher's Remarks :

_____

_____

_____

"Success is the result of discipline, consistency and hard work"

Holidays Homework (Class-XI)

Physics

Conceptual Questions

Motion in a Straight Line – Conceptual Questions

Very Short Answer / Basic Conceptual Questions

1. Can displacement be zero even when distance travelled is not zero? Explain with an example.
2. Is it possible for displacement to be greater than distance travelled?
3. A particle moves from A to B and then returns to A. What is its total displacement?
4. Why is speed always positive while velocity can be positive or negative?
5. What does negative velocity indicate?
6. Can a body have:
    - zero velocity but non-zero acceleration?
    - zero acceleration but non-zero velocity?
7. Why is acceleration considered a vector quantity?
8. What is the physical meaning of uniform velocity?
9. A car moves with constant speed around a circular path. Is its velocity constant?
10. Can the average velocity of a moving body be zero? Give an example.

Moderate Level Conceptual Questions

11. Differentiate between:

- distance and displacement
- speed and velocity
- average speed and average velocity

12. Under what condition are distance and displacement equal?
13. Why does the slope of a displacement–time graph represent velocity?
14. What does the area under a velocity–time graph represent?
15. What information does the slope of a velocity–time graph provide?
16. A body is moving with constant velocity. What can you say about its acceleration?
17. Can acceleration and velocity act in opposite directions? Explain.
18. Why does a freely falling body have constant acceleration near Earth's surface?
19. During upward motion of a ball thrown vertically upward, what is the direction of:

- velocity?
- acceleration?

20. Why does the velocity become zero at the highest point during vertical upward motion?

Higher Order Thinking (HOTS) Questions

21. A person walks 3 m east and then 4 m north. Why is the displacement not equal to 7 m?
22. Two cars move with the same speed. Can their velocities be different? Explain.
23. A train starts from rest and moves with uniform acceleration. Why does the distance covered in successive seconds increase?
24. Why is average speed always greater than or equal to the magnitude of average velocity?
25. A particle has constant speed. Can it still be accelerating? Justify.
26. If the acceleration of a body is zero, does it mean the body is at rest? Explain.
27. Why do passengers fall backward when a bus suddenly starts?
28. Why do passengers move forward when a moving bus stops suddenly?
29. Can a body move in one direction and still have acceleration in another direction?
30. Explain why motion is relative.

Motion in a Plane – Conceptual Questions

Basic Conceptual Questions

31. Why is displacement in a plane represented by a vector?
32. What is meant by two-dimensional motion?
33. Why are vectors necessary in describing motion in a plane?
34. Differentiate between scalar and vector quantities with examples.
35. Why can’t ordinary algebra be used directly for vectors?
36. What is the significance of vector resolution?
37. Why are perpendicular components of vectors independent?
38. Can the magnitude of a vector be negative?
39. What happens to the resultant of two equal vectors acting in opposite directions?
40. When is the magnitude of the resultant vector maximum?

Projectile Motion Conceptual Questions

41. Why is projectile motion considered two-dimensional motion?
42. Which component of projectile velocity remains constant during motion?
43. Why does the horizontal acceleration of a projectile remain zero?
44. At the highest point of projectile motion:
    - which velocity component becomes zero?
    - which component remains unchanged?
45. Why is the trajectory of a projectile parabolic?
46. Why do heavy and light objects fall with the same acceleration in vacuum?
47. A ball is thrown horizontally from a height. Why does it hit the ground at the same time as a ball dropped vertically from the same height?
48. Why does the angle of projection affect the range of a projectile?
49. For what angle of projection is the horizontal range maximum?

50. Why do complementary angles produce the same horizontal range?

Advanced / HOTS Conceptual Questions

51. A river flows eastward while a swimmer swims northward. Why does the swimmer move along a diagonal path?
52. Why is vector addition important in real-life motion problems?
53. Can the resultant of two vectors be zero? Under what condition?
54. Why does a projectile continue moving horizontally even while falling vertically?
55. Can the direction of velocity change even if speed remains constant? Explain.
56. Why is circular motion an accelerated motion even at constant speed?
57. A cricketer moves backward while catching a ball. Why?
58. Why is the motion of a satellite around Earth considered accelerated motion?
59. Why is acceleration due to gravity always vertically downward irrespective of the direction of motion?
60. Explain why independent motions along x-axis and y-axis do not affect each other in projectile motion.

Assertion–Reason Type Conceptual Questions

61. **Assertion:** Velocity can be negative.
    Reason: Velocity has direction.
62. **Assertion:** Average speed is never less than magnitude of average velocity.
    Reason: Distance travelled is always greater than or equal to displacement.
63. **Assertion:** At the highest point of projectile motion, acceleration becomes zero.
    Reason: Velocity becomes zero there.
64. **Assertion:** Circular motion is accelerated motion.
    Reason: Velocity continuously changes direction.
65. **Assertion:** A body may have constant speed but variable velocity.
    Reason: Velocity depends on direction.

Important Graph-Based Conceptual Questions

66. How can you identify a body at rest from a displacement–time graph?
67. What does a straight-line velocity–time graph indicate?
68. What does a horizontal line on a velocity–time graph represent?
69. Why does a curved displacement–time graph indicate non-uniform motion?
70. How can acceleration be determined from a velocity–time graph?

CBSE Important Conceptual Questions

71. Why is the path length always positive?
72. Why is velocity called the rate of change of displacement?
73. Explain the significance of relative velocity.
74. Why is projectile motion independent in horizontal and vertical directions?
75. Why does the acceleration due to gravity not depend on the mass of the body?
76. Why is vector representation important in physics?

77. Explain why motion in a circle is periodic but not linear.
78. Why does a moving object continue in motion if no external force acts on it?
79. Explain why displacement depends only on initial and final positions.
80. Why is time considered a scalar quantity?

Motion in a Straight Line & Motion in a Plane

2-Mark Questions

Motion in a Straight Line

1. Differentiate between distance and displacement.
2. Define speed and velocity.
3. Can displacement be zero even if distance travelled is not zero? Explain.
4. What is acceleration? State its SI unit.
5. What is retardation? Give one example.
6. Explain why velocity is a vector quantity.
7. What does the slope of a displacement–time graph represent?
8. What does the area under a velocity–time graph represent?
9. Can a body have zero velocity and non-zero acceleration? Explain.
10. Why is acceleration due to gravity taken negative in upward motion?
11. Define uniform and non-uniform motion.
12. State the conditions when distance and displacement become equal.
13. Why is average speed always greater than or equal to average velocity?
14. Explain free fall motion.
15. Draw velocity–time graph for uniform acceleration.

Motion in a Plane

16. Define scalar and vector quantities with examples.
17. What is meant by resolution of vectors?
18. State triangle law of vector addition.
19. Why is projectile motion two-dimensional?
20. Which component of velocity remains constant in projectile motion?
21. What happens to the vertical velocity at the highest point?
22. Why is circular motion accelerated motion?
23. Define resultant vector.
24. State the condition for maximum resultant of two vectors.
25. State the condition for minimum resultant of two vectors.
26. Why is the path of a projectile parabolic?
27. Why are horizontal and vertical motions independent?
28. Define centripetal acceleration.
29. What is relative velocity?
30. Why does a swimmer crossing a river move along a slanting path?

3-Mark Questions

Motion in a Straight Line

1. Differentiate between:
    - distance and displacement
    - speed and velocity
2. Explain displacement–time graph and velocity–time graph.
3. Derive the first equation of motion.
4. Derive the second equation of motion.
5. Derive the third equation of motion.
6. Explain the motion of a ball thrown vertically upward.
7. Explain positive, negative, and zero acceleration with examples.
8. Why do passengers fall backward when a bus starts suddenly?
9. Explain the significance of slope and area in motion graphs.
10. Explain average speed and average velocity with examples.

Motion in a Plane

11. Explain scalar and vector quantities with examples.
12. State and explain parallelogram law of vector addition.
13. Resolve a vector into rectangular components.
14. Explain projectile motion.
15. Prove that projectile trajectory is parabolic.
16. Derive expression for horizontal range.
17. Derive expression for maximum height.
18. Explain independence of horizontal and vertical motion.
19. Explain why circular motion is accelerated motion.
20. Explain relative velocity with one practical example.

5-Mark Questions

Motion in a Straight Line

1. Derive all three equations of motion for uniformly accelerated motion.
2. Explain displacement–time and velocity–time graphs for different types of motion.
3. Derive expressions for:
    - maximum height
    - time of flight
    - total time during vertical upward motion
4. Explain the difference between speed, velocity, acceleration, and retardation with examples.
5. Derive the second equation of motion graphically.
6. Explain relative motion with suitable examples.
7. A body starts from rest and moves with uniform acceleration. Draw and explain all motion graphs.
8. Explain free fall and derive equations of motion under gravity.

Motion in a Plane

9. State and explain parallelogram law of vector addition with derivation.
10. Explain resolution of vectors into rectangular components.
11. Explain projectile motion and derive expressions for:
- time of flight
- maximum height
- horizontal range
12. Prove that the path of a projectile is a parabola.
13. Explain why horizontal and vertical motions are independent in projectile motion.
14. Define uniform circular motion and derive centripetal acceleration.
15. Explain vector addition using:
- triangle law
- parallelogram law
16. Explain applications of vectors in physics and daily life.
17. Explain why a cricketer pulls his hands backward while catching a ball.
18. Discuss projectile motion in detail with diagrams and equations.
19. Explain relative velocity in river-boat problems.
20. Explain why complementary angles give the same horizontal range in projectile motion.

Chapter: Units & Measurements – Important Questions

2 Mark Questions

1. Differentiate between fundamental quantities and derived quantities with examples.
2. Define least count. Why is it important in measurements?
3. Distinguish between accuracy and precision.
4. What are significant figures? State any two rules for counting them.
5. Explain systematic errors and random errors.
6. Why are SI units internationally accepted? Give two reasons.
7. What is dimensional analysis? Mention any two uses of it.
8. Define percentage error and relative error.
9. Why are dimensions important in physics?
10. State the principle of homogeneity of dimensions.
11. Why are angles considered dimensionless quantities?
12. Write the dimensional formula of:
    a) Force
    b) Pressure
13. What are dimensional constants? Give examples.
14. Why is repeated measurement preferred in experiments?
15. Differentiate between mass and weight in terms of dimensions and units.

3 Mark Questions

1. Explain the different types of errors in measurements.
2. Discuss the rules for rounding off significant figures with examples.
3. Explain the importance of SI system of units.
4. Distinguish between systematic error, random error, and gross error.
5. Explain how dimensional analysis helps in checking the correctness of equations.
6. Derive the dimensional formula of work done.
7. Explain the limitations of dimensional analysis.
8. Why is scientific notation useful in expressing physical quantities? Explain with examples.
9. Explain the difference between accuracy, precision, and least count with examples.
10. Derive the dimensional formula for gravitational constant.
11. Explain why every experimental measurement contains uncertainty.
12. Discuss any three applications of dimensional analysis.

5 Mark Questions

1. Explain different types of errors in measurements and methods to minimize them.
2. What are significant figures? Explain all rules for counting and rounding off significant figures with suitable examples.
3. Explain dimensional analysis in detail. State its applications and limitations.
4. Describe the SI system of units and explain its advantages over other systems.
5. Explain the principle of homogeneity of dimensions with examples.
6. Derive the dimensional formula of:
   a) Universal gravitational constant
   b) Planck's constant
7. Explain the importance of measurements in physics. Discuss uncertainties associated with measurements.
8. Differentiate between accuracy and precision. Explain with suitable examples and diagrams.
9. Explain the methods used to reduce experimental errors.
10. Discuss the role of least count in measuring instruments like vernier caliper and screw gauge.

Case Study-Based Questions

1. Units & Measurements – Case Study Questions

Case Study 1: Measuring the Thickness of a Wire

Riya used a screw gauge to measure the diameter of a copper wire. The pitch of the screw gauge was 1 mm and there were 100 divisions on the circular scale. While taking readings, she observed:

- Main scale reading = 2 mm
- Circular scale reading = 45 divisions

- Zero error = –0.02 mm

Questions:

1. What is the least count of the screw gauge?
2. Calculate the observed diameter of the wire.
3. Determine the corrected diameter after applying zero correction.
4. Why is zero error correction important in measurements?

Case Study 2: Laboratory Experiment

A student performed an experiment to calculate the density of a metal cube. The measured values were:

- Mass =
- Side of cube =

The student used the formula:

Questions:

1. Find the volume of the cube.
2. Calculate the density of the cube.
3. Identify the significant figures in the final answer.
4. Name the SI unit of density.

2. Motion in a Straight Line – Case Study Questions

Case Study 1: Train Journey

A train starts from rest and accelerates uniformly at for 20 seconds. It then moves with constant velocity for 30 seconds before slowing down uniformly to rest in 10 seconds.

Questions:

1. Calculate the maximum velocity attained by the train.
2. Find the distance covered during acceleration.
3. Calculate the distance covered during constant velocity motion.
4. Draw the velocity-time graph for the motion.
5. Find the total distance travelled by the train.

Case Study 2: Athlete Running on a Track

An athlete runs along a straight track. His position-time data is given below:

Time (s)	**Position (m)**
0	0
2	10
4	20
6	30
8	30

Questions:

1. Determine the velocity during the first 6 seconds.
2. What is the velocity from 6 s to 8 s?

3. Is the athlete in motion during the last interval? Explain.
4. Plot the position-time graph for the motion.
5. What does the slope of a position-time graph represent?

3. Motion in a Plane – Case Study Questions

Case Study 1: Projectile Motion

A football is kicked with a velocity of at an angle of with the horizontal.

The horizontal and vertical components are:

Questions:

1. Calculate the horizontal component of velocity.
2. Calculate the vertical component of velocity.
3. What type of path does the football follow?
4. Which component of velocity remains constant during projectile motion?
5. Name the force acting on the ball during flight.

Case Study 2: Boat Crossing a River

A river is flowing eastward with a speed of . A boat moves northward relative to water with a speed of .

Questions:

1. Represent the velocities using vector form.
2. Find the resultant velocity of the boat.
3. In which direction will the boat move?
4. Calculate the magnitude of resultant velocity.
5. Why is vector addition important in motion in a plane?

HOTS (Higher Order Thinking Skills) Case Study

A pilot flies an airplane horizontally with a speed of . A packet is dropped from the airplane for relief work.

Questions:

1. What type of motion does the packet follow after being dropped?
2. Why does the packet continue moving horizontally after release?
3. Which physical quantity remains constant horizontally?
4. Draw the trajectory of the packet.
5. Name the principle involved in this motion.

Prepare a model on any topic of physics

Chemistry

Written practice work

Solve Ncert exercise for

1.Ch-1(Some basic concepts of chemistry)

2.Ch-2(Atomic structure)

Solve at least 10 numerical of each topic

3.Mole concept

4.Stichiometric coefficient
5.Empirical formula and molecular formula
6.Redberg's formula
7.De Broglie equation
8.Heisenberg uncertainty principle
9.Quantum number
10.Practice of writing the electronic configuration of different elements and also Learn atomic number of elements
11.Compare and differentiate
Orbit and orbital
Shell and subshell
Photons and electrons
Emission and absorption spectra
12. Find out 10 assertion reason from ch-1(some basic concept of chemistry) and ch-2(atomic structure)

Activity work

1 .Make any one model using waste material

- Rutherford model
- Bohr model

Mathematics

Activity:- Make working model as according to given in class on topic

1) Sets (Subset,Power set , venn diagram)
2) Relation & Function(Cartesian product, function and it's type)
3) Complex number

Questions practice :- Solve 7 Questions (HOTS) from Element book of each chapter :- Set , relation and function, complex number and linear inequality.

And 10-10 MCQ questions .

Biology

General Instructions

1. Read all chapters carefully from NCERT.
2. Revise class notes and important diagrams.
3. Prepare all diagrams with proper labelling.

Part A – Multiple Choice Questions (MCQs)

1) Who proposed the five kingdom classification?

a) Aristotle b) Linnaeus c) R.H. Whittaker d) Darwin

2) Which kingdom includes unicellular eukaryotes?

a) Monera b) Protista c) Fungi d) Plantae

3) Bryophytes are known as:

a) Amphibians of plant kingdom b) Flowering plants c) Vascular plants d) Seed plants

4) The basic structural and functional unit of life is:
a) Tissue b) Organ c) Cell d) Organ system
5) Which cell organelle is known as the powerhouse of the cell?
a) Ribosome b) Mitochondria c) Nucleus d) Golgi body
6) Animals belonging to phylum Arthropoda possess:
a) Jointed legs b) Soft body c) Water vascular system d) Notochord
7) Cell wall in plants is mainly made up of:
a) Protein b) Cellulose c) Lipid d) Chitin
8) Which group contains naked seeds?
a) Angiosperms b) Bryophytes c) Gymnosperms d) Pteridophytes
9) The study of classification is called:
a) Morphology b) Taxonomy c) Anatomy d) Ecology
10) Which organelle contains digestive enzymes?
a) Lysosome b) Vacuole c) Plastid d) Centrosome

Part B – Very Short Answer Questions

1. Define taxonomy.
2. Name the scientist who gave binomial nomenclature.
3. What are prokaryotic cells?
4. Name the locomotory organ of Amoeba.
5. What is plasmolysis?
6. Define tissue.
7. Name the cell organelle responsible for protein synthesis.
8. What are lichens?
9. Write one characteristic of fungi.
10. Define biodiversity.

Part C – Short Answer Questions

1. Differentiate between prokaryotic and eukaryotic cells.
2. Explain the importance of classification.
3. Write the characteristics of kingdom Monera.
4. Differentiate between Bryophytes and Pteridophytes.
5. Explain the structure of plasma membrane.
6. Write short notes on Golgi apparatus.
7. Differentiate between plant cell and animal cell.
8. Explain the functions of nucleus.

Part D – Long Answer Questions

1. Explain Whittaker's Five Kingdom Classification in detail.
2. Describe the major characteristics of Plant Kingdom with examples.
3. Explain the hierarchy of classification.
4. Describe the structure and functions of different cell organelles.

5. Explain Animal Kingdom classification up to phylum level with characteristics and examples.

Part E – Diagram Practice

- Plant Cell
- Animal Cell
- Prokaryotic Cell
- Bacterial Cell
- Euglena
- Amoeba
- Structure of Mitochondria
- Golgi Apparatus
- Different Types of Plant Kingdom Groups

Part F – Activity Based Work

Activity 1

Prepare a colourful chart/model on any one topic:

- Five Kingdom Classification
- Plant Kingdom
- Animal Kingdom
- Cell Organelles
- Difference between Plant Cell and Animal Cell

Activity 2

Collect pictures of 10 organisms and classify them into their respective kingdoms. Paste them neatly in scrapbook/chart paper.

Activity 3

Make a comparison table between:

- Prokaryotic Cell vs Eukaryotic Cell
- Plant Cell vs Animal Cell

Part G – Case Study / HOTS Questions

1. Why are viruses placed at the border line of living and non-living organisms?
2. Why are Bryophytes called amphibians of the plant kingdom?
3. What would happen if lysosomes burst inside a cell?
4. Why are mitochondria called semi-autonomous organelles?
5. How does classification help in studying biodiversity?

English

1.you are the General Manager of a leading industrial concern. You need a Chartered Accountant for your office. Draft an advertisement in not more than 50 words to be published in the Times of India.

2) Games play an important role in our lives. They are not only a means of entertainment but also keep us physically fit. Write a speech in 250-300 words for your school's morning assembly on the topic "The importance of games in our life."
3) Solve any two passages for note making and summarization.
4) - Poster making with slogans Topic "Digital India"
5) Read Poem 'Voice of the Rain' and Identify Poetic Devices.
6) Practice daily reading by spending 10-15 minutes reading an English newspaper or a short story.
7) Note down new words you encounter in your reading and write their meaning and ex sentences.
8) Solve the assignment given to you.
9) Solve any 2 Comprehension passage -
10) Read chapters. (The Address, We're not afraid to die...) and write detailed summaries or character sketches.
11) Practice identifying parts of speech, and editing exercises to build a stronger foundation.
12) Descriptive writing - Activity My dream vacation
Imagine you could go anywhere in the world for a holiday. Write a descriptive paragraph describing your dream vacation.
Prepare a project on any one of the following Topics including these points (theme, background, explanation, literary devices, difficult words meaning,draw or paste pictures to make it visually appealing)
Topics A Photograph, The Laburnum Top, The voice of the Rain

Fine art

Part A: Practical work
Theme: "Contemporary Issues Through Traditional Lens"
1. Nature Study - Full Sheet: Make 2 studies on half imperial size sheet, 22"x15".
- Object 1: Drapery with folds + metallic object like steel glass/kettle
- Object 2: Vegetables/fruits bunch with basket
Medium: Watercolour or Poster colour. Focus on light, shadow, texture, and composition.
2. Composition - Imaginative Painting: 1 painting on half imperial sheet.
Topics - choose any 1:
- "Festival in My Street"
- "Life After School Hours"
- "Digital India"
Medium: Any. Minimum 5-6 human figures. Show perspective, movement, and mood.
3. Indian Folk Art Exploration: On A2 sheet, create a painting inspired by any 1 folk art - Madhubani, Warli, Gond, Pattachitra, or Kalamkari.
Task: Modernize the theme. Ex: Warli figures using laptops.

Write 100 words at back explaining the art form and your concept.

4. Sketching - 15 Sketches: Maintain an A4 sketchbook.

- 5 quick sketches of human figures in action - 5-10 mins each
- 5 sketches of hands/feet in different poses
- 5 memory sketches of places you visited in vacation

Medium: Pencil, charcoal, or pen. Date each sketch.

Part B: Theory

Write ch- 1 to 5 Q/A

5. Art Portfolio File: Collect and arrange all above work neatly in a handmade folder. Cover page should be self-designed. Include index.

Instructions:

Submission: First week after vacation. Practical + File + Sketchbook to be submitted together.

Music

In written

Nada, shruti, swara, saptak, thaat, jati, laya, tala

Margi and Desi sangeet

Raga (unit 1)

Dhrupad, khayal and tarana

(Unit 2)

Biography of Tansen and V.N. Bhatkhande (unit 3)