



**DAV PUBLIC SCHOOL, BISTUPUR,  
JAMSHEDPUR, JHARKHAND**

**2026-27**

**SUMMER HOLIDAY HOME WORK**

**STD - IX**



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1.	ENGLISH
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# ENGLISH

## 1. CREATIVE ASSIGNMENT: COMIC STRIP DESIGN

**Objective:** To enable students to comprehend and artistically represent the thematic progression and emotional depth of the prescribed prose through the medium of visual narrative.

**Task:** Prepare a 6 to 8-panel comic strip illustrating the transformative journey of the protagonist, the grandmother, as depicted in the chapter How I Taught My Grandmother to Read.

### Mandatory Scenes to be Incorporated:

- The grandmother attentively listening to the serialised story Kashi Yatra as narrated by her granddaughter, Sudha.
- The departure of Sudha to attend a wedding, resulting in the grandmother's profound sense of helplessness due to her illiteracy.
- The grandmother's resolute request to Sudha to instruct her in the Kannada alphabet.
- The grandmother diligently practising reading and writing on the auspicious occasion of Saraswati Puja.
- The culminating scene wherein the grandmother, having achieved literacy, pays reverence to Sudha by touching her feet in recognition of her as her Guru.

**Note:** A title shall be assigned to the comic strip, and a moral of the story shall be stated in a box at the conclusion.

**Assessment Parameters:** Content accuracy, sequential coherence, artistic creativity, neatness of presentation, and adherence to the theme.

## 2. ASSIGNMENT: INTERDISCIPLINARY PROJECT

**Topic:** Major Geographical Features of India

**Objective:** To facilitate an understanding of India's physiographic diversity and to enable students to analyse the interdependence between physical environment, human life, cultural practices, and economic activities through descriptive and cartographic study.

**Selection of Features: (On Physical Map)** Select any two major geographical features from the following categories for comprehensive study: Mountains, Rivers, Deserts, Valleys, Islands, or Plateaus.

For each of the two selected features, the project shall include the following components:

**a. Description of the Region:** A detailed account of the location, extent, and salient physiographic characteristics.

**b. Importance in Human Life:** An analytical explanation of the feature's significance with regard to climate, agriculture, economy, settlement, and ecological balance.

**c. Socio-Cultural Aspects:** A description of the principal languages spoken, staple food, traditional dress, folk dance forms, and distinctive cultural traditions prevalent among the inhabitants of the region.

**Cartographic Work:**

- A Physical Map of India shall be affixed. All selected features and examples must be marked accurately using standard cartographic symbols, legends, and colour coding.
- The submission must include a Title Page, Index, Introduction, Main Content, Conclusion.

**Learning Outcomes:** Upon completion, the student shall be able to correlate physical features with regional lifestyles and appreciate the role of geography in shaping India's cultural diversity.

**Assessment Parameters:** Conceptual accuracy, analytical clarity, cartographic precision, originality, creativity in presentation, and adherence to the theme.

**Note:**

The work shall be executed hand written in Scrap Book. The work must include artistic elements such as hand-drawn illustrations, origami paper cut-outs, picture pasting, and decorative borders to enhance visual appeal.

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## हिंदी

- 1.) संज्ञा , सर्वनाम , निपात , समानार्थी शब्द, मुहावरे ( परिभाषा लिखकर, भेद और उपभेद के नाम सहित उनके कम से कम 5-5 उदाहरण भी लिखें।)
- 2.) "रैदास के पद" कविता कंठस्थ करें।
- 3.) अनौपचारिक पत्र - अपने मित्र को पत्र लिखकर बताएं कि आपने गर्मी की छुट्टियों में क्या-क्या किया?
- 4.) अनुच्छेद लेखन - रोजगार उन्मुख हिंदी

\*नोट-\* उपर्युक्त दिए गए सभी लेखन कार्य को हिंदी की उत्तर-पुस्तिका (काँपी) में करें।

\*( प्रश्न संख्या 3 और 4 के उत्तर छात्र यथासंभव अपने शब्दों में लिखें।)\*

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## संस्कृतम्

- (१) सन्धिः - दीर्घ सन्धिः , गुणसन्धिः, यण् सन्धिः, अयादि सन्धिः, विसर्गसन्धेः उदाहरणानि खातिकायां लिखन्तु ।
- (२) शब्दरूपाणि - बालक, लता, साधु, मुनि, नदी, फल, अस्मद्, युष्मद् शब्दरूपाणि खातिकायां लेखनीयानि ।
- (३) धातुरूपाणि - पठ्, गम्, अस्, कृ, सेव्, लभ् धातुरूपाणि पञ्चलकारेषु खातिकायां लिखन्तु पठन्तु च ।
- (४) संख्या - १०० पर्यन्तम् लेखनम् पठनम् च ।

## MATHEMATICS

Number Systems • Coordinate Geometry • Polynomials

**Note:** Please complete all questions of these 3 chapters from NCERT CBSE Class 9 Textbook and refer the same for solving this homework.

UNIT A, B, C to be solved in Homework Copy. Activity 3 to be solved in graph copy and Activity 1, 2 to be done in chart paper.

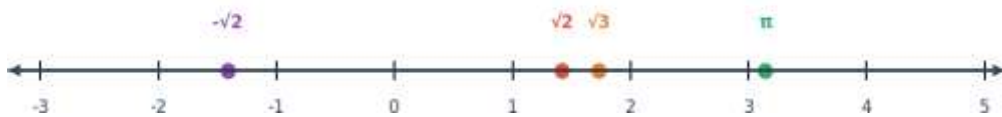
### UNIT A – NUMBER SYSTEMS

#### Section I: Case-Based Study Questions

#### Case Study A1

Riya is learning about the real number line in class. Her teacher draws a number line and asks her to locate various numbers. She observes that every point on the number line corresponds to exactly one real number, and every real number corresponds to exactly one point on the number line. She also learns that some numbers cannot be expressed as  $p/q$  form where  $p, q$  are integers and  $q \neq 0$ .

Number Line showing Rational and Irrational Numbers



1. Which of the following numbers is irrational? [1 mark]

- (a)  $\frac{3}{7}$
- (b)  $\sqrt{16}$
- (c)  $\sqrt{5}$
- (d) 0.252525...

2. The decimal expansion of  $\frac{17}{6}$  is: [1 mark]

- (a) 2.833... (non-terminating repeating)
- (b) 2.5 (terminating)
- (c) Non-terminating non-repeating
- (d) 0.2833

3. Riya needs to locate  $\sqrt{5}$  on the number line. Which theorem does she use to construct the required length? [1 mark]

- (a) Mid-point theorem
- (b) Pythagoras Theorem
- (c) Basic Proportionality Theorem
- (d) Angle Bisector Theorem

4. Between any two rational numbers, which of the following is true? [1 mark]

- (a) There is exactly one rational number
- (b) There is no rational number
- (c) There are infinitely many rational numbers
- (d) There are only two rational numbers

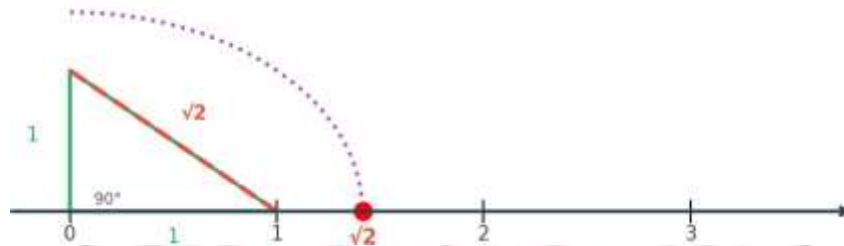
### Case Study A2

During a science experiment, a student records temperature readings as:  $-3.5^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$ ,  $2.7^{\circ}\text{C}$ ,  $\sqrt{3}^{\circ}\text{C}$  and  $\sqrt{8}^{\circ}\text{C}$ . Her teacher asks her to classify these as rational or irrational and to simplify the surds. The teacher also introduces laws of exponents for real numbers, including rules like  $a^m \times a^n = a^{m+n}$  and  $(a^m)^n = a^{mn}$ .

1. Simplify  $\sqrt{8}$ . Which of the following is correct? [1 mark]

- (a)  $4\sqrt{2}$
- (b)  $2\sqrt{2}$

Locating  $\sqrt{2}$  on the Number Line using Pythagoras Theorem



- (c)  $\sqrt{4} \times \sqrt{2}$  (cannot simplify further)
- (d)  $3\sqrt{2}$

2. Which of the readings is irrational? [1 mark]

- (a)  $-3.5$  and  $2.7$
- (b)  $0^\circ\text{C}$  only
- (c)  $\sqrt{3}$  and  $\sqrt{8}$
- (d) All readings are irrational

3. The value of  $2^0 + 3^{-1} + (1/2)^{-2}$  is: [1 mark]

- (a) 5
- (b)  $5\frac{1}{3}$
- (c) 6
- (d)  $4\frac{2}{3}$

4. Which law justifies:  $(5^2)^3 = 5^6$ ? [1 mark]

- (a)  $a^m \times a^n = a^{m+n}$
- (b)  $(a^m)^n = a^{mn}$
- (c)  $a^m / a^n = a^{m-n}$
- (d)  $a^m \times b^m = (ab)^m$

## Section II: Assertion–Reasoning Questions

**Directions:** Each question has an Assertion (A) and a Reason (R). 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.

1. [2 marks]

**Assertion:**  $0.999\dots = 1$  (the infinite repeating decimal equals exactly 1).

**Reason:** Let  $x = 0.999\dots$ , then  $10x = 9.999\dots$ , so  $10x - x = 9$ , giving  $x = 1$ . Also, between  $0.999\dots$  and 1 there is no real number, so they must be equal.

Which option is correct?

- (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.

2. [2 marks]

**Assertion:**  $2 + \sqrt{3}$  is irrational.

**Reason:** Rational numbers are closed under addition, so rational + irrational cannot be rational; if it were, subtracting the rational would make the irrational rational — a contradiction.

Which option is correct?

- (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.

## UNIT B – COORDINATE GEOMETRY

### Section I: Case-Based Study Questions

#### Case Study B1

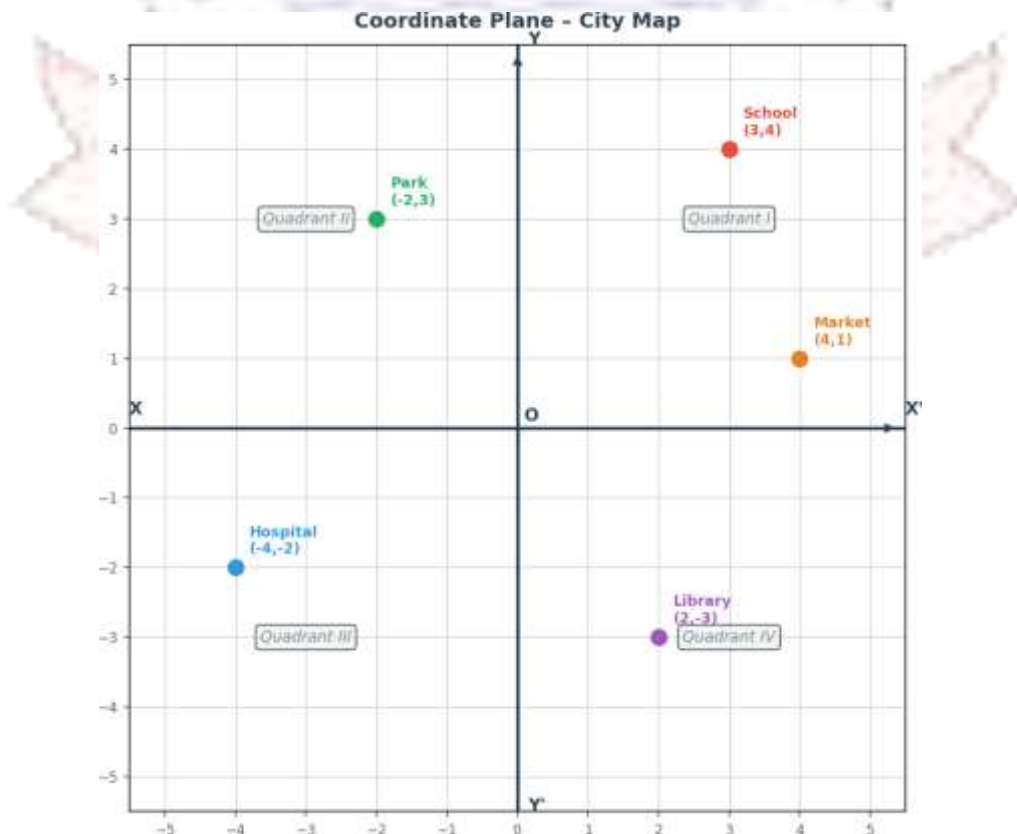
A city planner is designing a new township on a grid map. He places the Town Hall at the origin (0, 0) and marks key locations on the coordinate plane. The map is as follows:

- School → (3, 4)
- Park → (-2, 3)
- Hospital → (-4, -2)
- Library → (2, -3)
- Market → (4, 1)

Using this coordinate plane, answer the questions below.

1. The School is located at (3, 4). In which quadrant does it lie? [1 mark]

(a) Quadrant II



(b) Quadrant III

(c) Quadrant I

(d) Quadrant IV

2. The Hospital is at  $(-4, -2)$ . The perpendicular distance of the Hospital from the x-axis is: [1 mark]

(a) 4 units

(b) 2 units

(c) 6 units

(d)  $\sqrt{20}$  units

3. A point lies on the negative y-axis. Its coordinates are of the form: [2 marks]

(a)  $(x, 0)$  where  $x < 0$

(b)  $(0, y)$  where  $y < 0$

(c)  $(x, y)$  where  $x < 0, y > 0$

(d)  $(x, y)$  where  $x > 0, y < 0$

4. The Library  $(2, -3)$  and Park  $(-2, 3)$ : which is correct? [1 mark]

(a) Both lie in the same quadrant

(b) Both lie on the axes

(c) They lie in Quadrant IV and Quadrant II respectively

(d) They lie in Quadrant I and Quadrant III respectively

### Case Study B2

Students of Class IX are asked to mark points on a coordinate plane during a group activity. Riya marks point  $A(-5, 0)$ , Sam marks  $B(0, 4)$ , Priya marks  $C(3, -2)$  and Mohit marks  $D(0, -3)$ . Their teacher asks them questions about the positions of these points.

1. Point  $A(-5, 0)$  lies: [1 mark]

(a) On the positive x-axis

(b) On the negative x-axis

(c) On the positive y-axis

(d) In Quadrant III

2. The distance of point C(3, -2) from the y-axis is: [1 mark]

- (a) 2 units
- (b)  $\sqrt{13}$  units
- (c) 3 units
- (d) 5 units

3. How many quadrants does the coordinate plane have, and what are the signs of (x, y) in Quadrant III? [1 mark]

- (a) 4 quadrants; (+, +)
- (b) 4 quadrants; (-, -)
- (c) 2 quadrants; (-, +)
- (d) 4 quadrants; (+, -)

4. Which point lies on the y-axis? [1 mark]

- (a) A(-5, 0)
- (b) C(3, -2)
- (c) D(0, -3)
- (d) None of the above

### Section II: Assertion–Reasoning Questions

**Directions:** Same as Unit A — choose from options (a), (b), (c), or (d).

1. [2 marks]

**Assertion:** The origin O(0, 0) is not in any of the four quadrants.

**Reason:** The four quadrants are divided by the x-axis and y-axis. Points on the axes (including the origin) are not inside any quadrant.

Which option is correct?

- (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.

2. [2 marks]

**Assertion:** The point  $(-3, 5)$  lies in Quadrant II.

**Reason:** In Quadrant II, the x-coordinate is always negative and the y-coordinate is always positive; this is a defining property of Quadrant II.

Which option is correct?

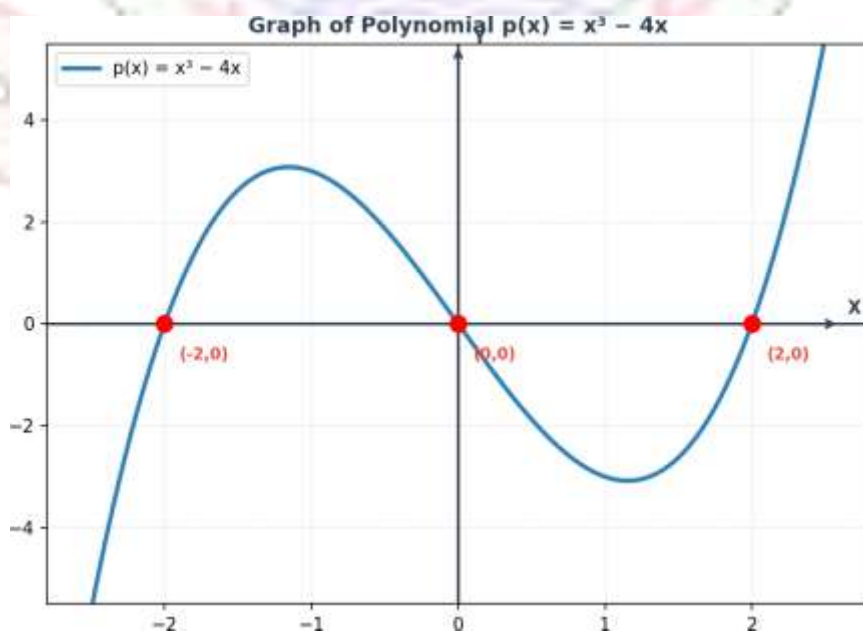
- (a) Both A and R are true, and R is the correct explanation of A.
- (b) Both A and R are true, but R is NOT the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

### UNIT C – POLYNOMIALS

#### Section I: Case-Based Study Questions

##### Case Study C1

A mathematics teacher is explaining the concept of polynomials to Class IX students using a real-life example. She asks students to consider the total area  $A$  (in  $\text{m}^2$ ) of a rectangular field that can be expressed as  $A(x) = x^2 + 7x + 12$ , where  $x$  is measured in metres. She then asks questions based on this polynomial and its properties.



1. What is the degree of the polynomial  $A(x) = x^2 + 7x + 12$ ? [1 mark]

- (a) 1
- (b) 3
- (c) 2
- (d) 12

2. The factors of  $A(x) = x^2 + 7x + 12$  are: [1 mark]

- (a)  $(x + 3)(x + 4)$
- (b)  $(x - 3)(x - 4)$
- (c)  $(x + 6)(x + 2)$
- (d)  $(x + 12)(x + 1)$

3. The zeroes of  $A(x)$  are: [1 mark]

- (a)  $x = 3$  and  $x = 4$
- (b)  $x = -3$  and  $x = -4$
- (c)  $x = -3$  and  $x = 4$
- (d)  $x = 3$  and  $x = -4$

4. If  $x = 2$ , the value of  $A(2)$  is: [1 mark]

- (a) 30
- (b) 26
- (c) 24
- (d) 28



### Case Study C2

A student, Arjun, is working on a project about polynomial identities. His teacher gives him the expression  $p(x) = x^3 - 4x$  and asks him to analyse it. The teacher further discusses the Remainder Theorem and Factor Theorem and how they help in finding zeroes and factors of polynomials efficiently without long division.

1. According to the Remainder Theorem, when  $p(x) = x^3 - 4x$  is divided by  $(x - 2)$ , the remainder is:

[1 mark]

- (a) -2
- (b) 4
- (c) 0
- (d) 8

2. The zeroes of  $p(x) = x^3 - 4x = x(x^2 - 4) = x(x-2)(x+2)$  are: [1 mark]

- (a)  $x = 0, 1, -1$
- (b)  $x = 2, -2$
- (c)  $x = 0, 2, -2$
- (d)  $x = 4, -4$

3. Using the Factor Theorem, is  $(x + 2)$  a factor of  $p(x) = x^3 - 4x$ ? [1 mark]

- (a) No,  $p(-2) \neq 0$
- (b) Yes,  $p(-2) = 0$
- (c) Cannot be determined
- (d) Yes, but only by long division

4. The identity  $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$  is used to expand  $(x + 1)^3$ . The coefficient of  $x^2$  in the expansion is: [1 mark]

- (a) 1
- (b) 3
- (c) 6
- (d) 9

### Section II: Assertion–Reasoning Questions

**Directions:** Same as before — choose from options (a), (b), (c), or (d).

1. [2 marks]

**Assertion:** When  $p(x) = 2x^3 - 3x^2 + x$  is evaluated at  $x = 1$ ,  $p(1) = 0$ .

**Reason:** By the Factor Theorem,  $(x - a)$  is a factor of  $p(x)$  if and only if  $p(a) = 0$ .

Which option is correct?

- (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.

2. [2 marks]

**Assertion:** A quadratic polynomial always has exactly 2 zeroes.

**Reason:** A polynomial of degree  $n$  can have at most  $n$  zeroes, but may have fewer (e.g.,  $x^2 + 1 = 0$  has no real zeroes).

Which option is correct?

- (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 false, but R is true.
- (d) Both A and R are false.

Example:  $p(x) = x^2 + 1$  has no real zeroes;  $p(x) = (x-2)^2 = x^2 - 4x + 4$  has only one distinct zero.

**Activities:**

1. **Construction of a Square Root Spiral (√1 to √10) – 5 Marks**

Construct a Square Root Spiral from  $\sqrt{1}$  to  $\sqrt{10}$  using geometrical methods. Students are required to draw successive right-angled triangles carefully and label each square root accurately. The activity will help in understanding the graphical representation of irrational numbers and improve concepts related to geometry, measurement, and mathematical construction.

2. **Working Model on Number Systems – 4 Marks**

Prepare a working model explaining different types of numbers in the Number System, including Natural Numbers, Whole Numbers, Integers, Rational Numbers, and Irrational Numbers. Students should include definitions, examples, classification, and real-life applications of each type of number. The model should be creative, informative, and interactive.

3. **Activity on Coordinate Geometry – Plotting of Points on the Cartesian Plane – 5 Marks** Prepare an activity-based model on Coordinate Geometry using a Cartesian Plane by drawing and labeling the X-axis, Y-axis, origin, and all four quadrants neatly on a chart paper or cardboard sheet. Plot at least 15 ordered pairs in different quadrants using colored markers or pins and label each point correctly. Students may also use threads, arrows, or movable markers to make the model interactive. The activity should clearly demonstrate the identification of coordinates  $(x, y)$ , understanding of positive and negative directions on both axes, location of points in different quadrants, and the distance and position of points from the origin. The model should be neat, accurate, creative, and properly labeled.
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## SCIENCE

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## PHYSICS

### 1. "From Motion to Graph: A Visual Exploration."

Make a project file on the above topic showing connection between physical motion and its graphical representation including

- \*Position-time graph ( for an object at rest, for constant velocity and changing velocity)
- \*Velocity-time graph ( for constant velocity, for increasing and decreasing velocity with constant acceleration )

Also write which physical quantities can be obtained from both the above graphs.

Graphs of all to done in graph papers only and stick in project file.

3. Derive the three kinematics equations for motion in a straight line with constant acceleration using velocity - time graph for an object whose initial velocity is not zero.

To be done in the same file.

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## CHEMISTRY

1. Write 20 chemical formula for any 10 acidic radical and 10 basic radical of your choice in thin notebook.
2. Make a portfolio which outlines the foundational methods used in chemistry and daily life to separate mixtures into their individual components based on physical properties.

# BIOLOGY

1. 'Cell City Project' (Roll no. 1-14)

Imagine a cell as a city. Match organelle with city parts.

Example: Nucleus – Mayor

Mitochondria – Power House

Cell Membrane – Security gate

2. Make Cell organelle Flash Cards ( Roll no. 15-28)

Each card should contain

- Name of organelle
- Function
- Small drawing

Note: Decorate Creatively

3. 'Journey inside the Cell' Story (Roll no. 29-42)

Write a short story. Imaginative story

"If I entered inside a cell"

Note: Word limit 150 – 200 words

4. Research corner (Roll no. 43-58)

Collect interesting facts about cells and cell organelles

Example: Largest cell, smallest cell

Mammalian RBCs do not have a nucleus when mature

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## SOCIAL SCIENCE

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## HISTORY AND CIVICS

1) Write about the life of early humans in any one age group

Paleolithic, Mesolithic or Neolithic. Include tools, shelter, for habits, clothing.

OR

Name the countries who follow Representative Democracy and those who follow Presidential form of government.

Write the difference between the above democracies.

Please do it in your copy.

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## GEOGRAPHY

A. Make any one of the following -

1. Poster on the "Forces that shape the Earth".( In a chart Paper).
  2. Comic Strip Showing how mountains and valleys are formed (Geography Notebook)
  3. Short Paragraph imagining " If I were a river....."(Geography Notebook)
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## ECONOMICS

**Topic : Scarcity of Resources**

**I. Read the case carefully and choose the correct answer for the given questions:**

A small village in Uttar Pradesh had fertile land and enough water for farming. Over time, factories were built nearby. Some farmers sold their land to industries because they earned more money. Due to less farmland and shortage of water, crop production decreased. Farmers now had to decide whether to grow rice, wheat or vegetables with the limited land and water available. The government also encouraged the use of modern machines to increase production with fewer resources.

Write the following questions and answers in Economics notebook

1. What is the main economic problem shown in the case?
  - a) Unlimited production
  - b) Scarcity of resources
  - c) Excess labour
  - d) Lack of industries

2. Why did crop production decrease in the village?
  - a) Farmers stopped working
  - b) Factories produced crops
  - c) Land and water became limited
  - d) Machines damaged the soil
3. If farmers choose to grow only rice instead of vegetables, what fundamental economic concept is applied?
  - a) Inflation
  - b) Opportunity cost
  - c) Import trade
  - d) Consumer rights
4. Why did the government encourage the use of machines?
  - a) To waste resources
  - b) To reduce production
  - c) To increase efficiency with limited resources
  - d) To stop farming completely
5. Which of the following best explains scarcity in the case study?
  - a) Human wants are limited
  - b) Resources are unlimited
  - c) Resources are limited but wants are unlimited
  - d) Factories do not need resources

**Topic : Central Problem**

**II. Why do central problems exist in an economy?**

**III. How are the central problems interrelated to each other?**

# COMPUTER

## Instructions:

Dear Students, for your holiday assignment, you are required to prepare a comprehensive project report on the topic "**Computer – A Boon or a Bane?**". Your project should explore both sides of the digital revolution.

Please structure your project using the following guidelines:

- **Introduction:** Briefly introduce the role of computers in the 21st century.
- **The Boon:** Explain at least 4 ways computers have positively impacted education, communication, and industry.
- **The Bane:** Detail at least 4 negative impacts, including health risks, cyber threats, and social isolation.
- **Comparison:** Include a neat comparison table summarizing the pros and cons.
- **Conclusion:** Conclude with your personal perspective on how students can maintain a healthy balance with technology.

*Note: The project should be neatly handwritten creative, and include relevant pictures or news clippings.*

