



Estd. 1994

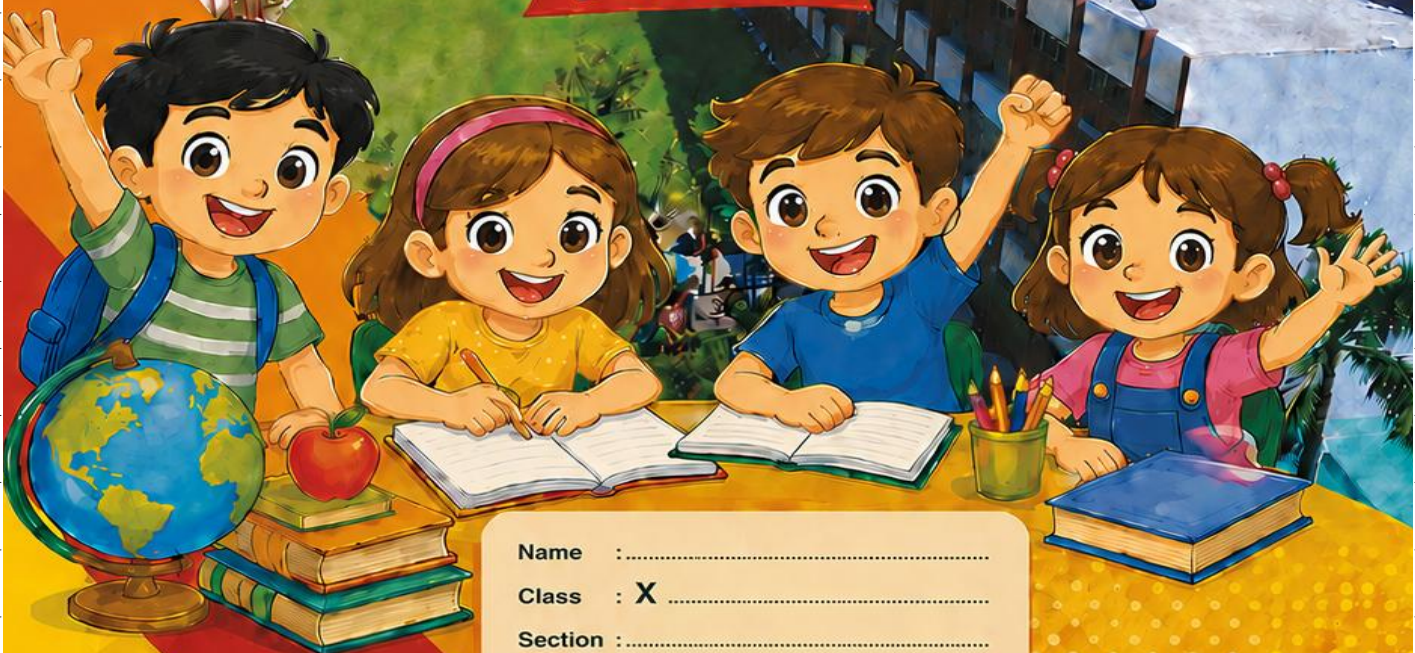
SANT NISCHAL ENGLISH PUBLIC SCHOOL

LADWA

CLASS X SUMMER HOLIDAYS'

HOMEWORK

2026-27



Name :

Class : X

Section :

Roll No. :

DEAR STUDENTS!

WISHING YOU A SEASON OF HAPPINESS, POSITIVITY, AND CHERISHED MEMORIES. IT'S THE TIME TO RECHARGE YOUR SPIRITS, AND COME BACK REFRESHED. THE PURPOSE OF HOLIDAY'S HOMEWORK IS TO MAKE YOU INDEPENDENT, EFFICIENT IN TIME MANAGEMENT AND TO DEVELOP LIFE SKILLS SUCH AS RESEARCHING, CRITICAL THINKING, AND PROBLEM-SOLVING.

ENGLISH

 Q1. Art Integrated Project

 Description:

Students will explore the rich folklore and poetry of Telangana and create an artistic presentation

 (poster, comic strip, short skit, or illustrated book) based on the stories or poems they study.

Steps & Components:

1 Select any two folktales or folk poems from Telangana, such as:

 Burra Katha or Oggu Katha stories

 Tales of Bala Nagamma, Sarala, or Potaraju

2 Activity Work

 Rewrite the story in your own words (in English), highlighting the moral values or messages.

****OR****

 Create a comic strip, storyboard, or poster to visually narrate the tale.

 Literature Task

 Write the summaries of the chapters from the book Footprints Without Feet completed in class.

 Reading Enrichment Activity

 Read the chapter Glimpses of India thoroughly.

After reading the chapter, prepare an insightful presentation  or a well-structured write-up  highlighting the historical, cultural, and spiritual significance of Kurukshetra, drawing parallels with the rich heritage and diversity portrayed in the chapter.

 Reading Section

 Do Practice Assignments (1–5) from Page No. 27–47.

 Writing Section

 Complete Page No. 151–159 neatly in the notebook/module.

 General Instructions

*Maintain neatness and creativity in all work. 

*Submit the homework on time. 

*Use colourful illustrations wherever required. 

*Encourage independent reading and creative expression.  

HINDI

*पाठ्य पुस्तक स्पर्श के गद्य खंड में से मुहावरे छांटकर उनके अर्थ लिखिए तथा उन मुहावरों का प्रयोग करते हुए वाक्य बनाइए।

*योग शिविर 'अथवा' 'पर्यावरण बचाओ अभियान' में से किसी एक विषय पर आकर्षक विज्ञापन तैयार कीजिए।

*हरियाणा और तेलंगाना के विख्यात कवि का तुलनात्मक अध्ययन करते हुए उनका जीवन परिचय और उनकी एक-एक कविता सचित्र लिखिए।

*Revise all chapters and poems done in class

*Complete all the work neatly on A4 sheets

SCIENCE

Art integrated project:

“Exploring Science Through Photography” Let your creativity shine! Feel free to experiment with: Editing techniques, Collage layouts, Creative captions, Artistic backgrounds, Different angles and lighting effects.

Students may arrange their photographs in an attractive and visually appealing manner along with short scientific explanations for each picture.

Topic Selection. Choose one or more Science concepts from Class 10 Science and explore them through photography. You may focus on a single concept or combine multiple concepts creatively in your work.

Interdisciplinary Integration : This project should creatively integrate:

Science – Scientific concepts, principle and explanations

Social Science – Environment, Agriculture, Natural resources, Human activities, Sustainable development, Society and economy

English – Creative captions, slogans, poems, short write-ups, or descriptive paragraphs

Guidelines

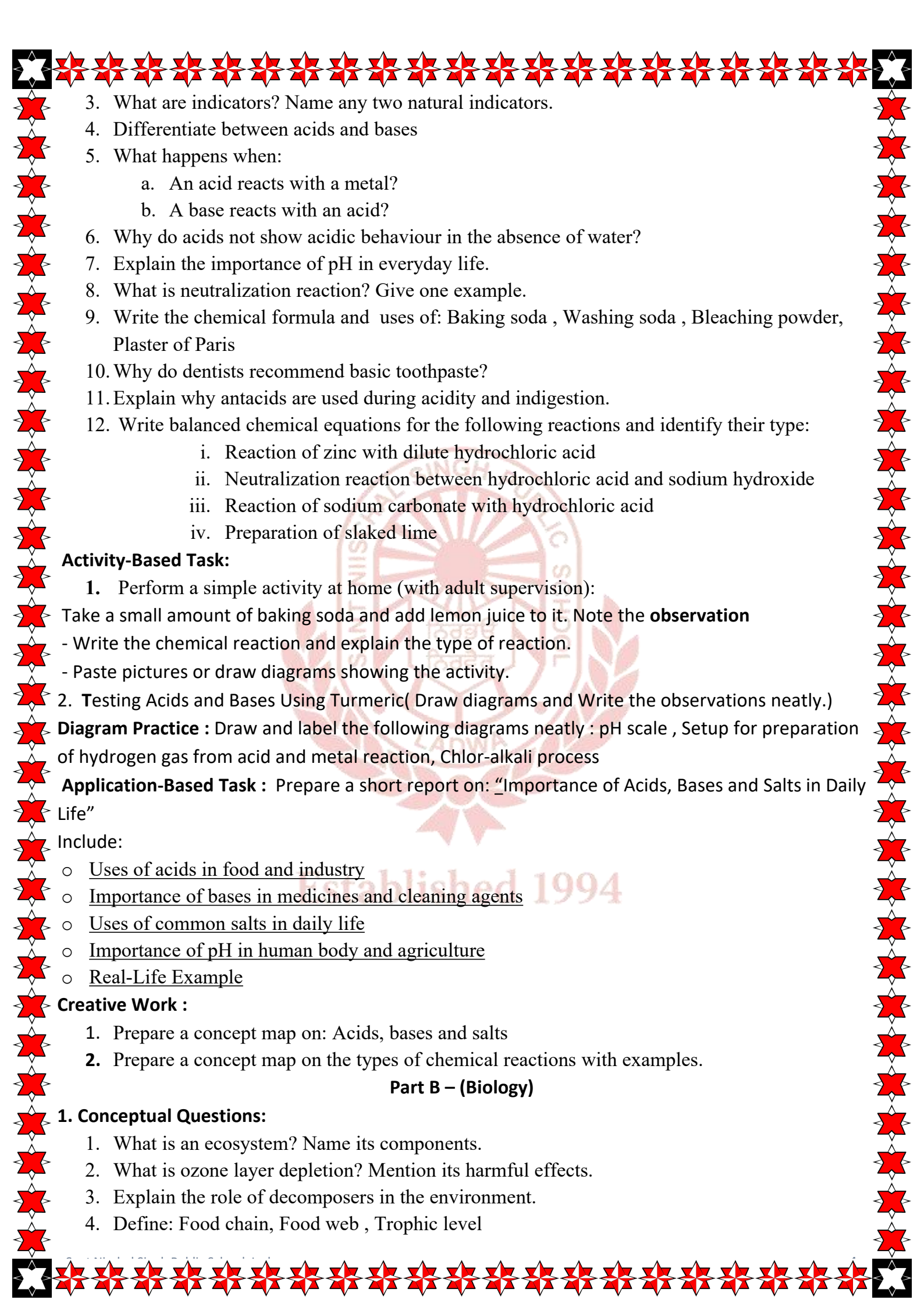
- Capture real-life examples related to the chosen concept.
- Add captions or 2–3 lines explaining the science behind each image.
- Students may use charts, handmade borders, or creative decorations.
- Use neat presentation and proper labelling.

Subject Enrichment activity :

Part A – Chemistry

1. Conceptual Questions:

1. Write balanced chemical equations for the following reactions:
 - Rusting of iron, Reaction of zinc with sulphuric acid, Decomposition of lead nitrate, Reaction of calcium oxide with water
 - Identify the type of reaction for each equation written above (e.g., combination, decomposition, displacement, etc.).
2. Define acids and bases with one example each.

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3. What are indicators? Name any two natural indicators.
 4. Differentiate between acids and bases
 5. What happens when:
 - a. An acid reacts with a metal?
 - b. A base reacts with an acid?
 6. Why do acids not show acidic behaviour in the absence of water?
 7. Explain the importance of pH in everyday life.
 8. What is neutralization reaction? Give one example.
 9. Write the chemical formula and uses of: Baking soda , Washing soda , Bleaching powder, Plaster of Paris
 10. Why do dentists recommend basic toothpaste?
 11. Explain why antacids are used during acidity and indigestion.
 12. Write balanced chemical equations for the following reactions and identify their type:
 - i. Reaction of zinc with dilute hydrochloric acid
 - ii. Neutralization reaction between hydrochloric acid and sodium hydroxide
 - iii. Reaction of sodium carbonate with hydrochloric acid
 - iv. Preparation of slaked lime

Activity-Based Task:

1. Perform a simple activity at home (with adult supervision):
Take a small amount of baking soda and add lemon juice to it. Note the **observation**
- Write the chemical reaction and explain the type of reaction.
- Paste pictures or draw diagrams showing the activity.
2. Testing Acids and Bases Using Turmeric(Draw diagrams and Write the observations neatly.)

Diagram Practice : Draw and label the following diagrams neatly : pH scale , Setup for preparation of hydrogen gas from acid and metal reaction, Chlor-alkali process

Application-Based Task : Prepare a short report on: “Importance of Acids, Bases and Salts in Daily Life”

Include:

- Uses of acids in food and industry
- Importance of bases in medicines and cleaning agents
- Uses of common salts in daily life
- Importance of pH in human body and agriculture
- Real-Life Example

Creative Work :

1. Prepare a concept map on: Acids, bases and salts
2. Prepare a concept map on the types of chemical reactions with examples.

Part B – (Biology)

1. Conceptual Questions:

1. What is an ecosystem? Name its components.
2. What is ozone layer depletion? Mention its harmful effects.
3. Explain the role of decomposers in the environment.
4. Define: Food chain, Food web , Trophic level

5. Why are food chains generally limited to 3–4 trophic levels?
6. What are the problems caused by plastic waste?
7. Why is waste management important?
8. Suggest ways to reduce environmental pollution.
9. Differentiate between aerobic and anaerobic respiration (at least 3 points).
10. Explain how energy is produced during respiration in cells.
11. Write the chemical equations for:
 - a) Aerobic respiration in humans
 - b) Anaerobic respiration in yeast
 - c) Anaerobic respiration in muscle cells

Diagram Practice: Draw and label: Human respiratory system, Terrestrial food chain , Aquatic food chain , Food web, Pyramid of energy

- Flowchart showing the process of respiration

Activity- Waste Segregation at Home (Prepare a table showing different types of household waste. Mention whether each is biodegradable or non-biodegradable.)

Application-Based Task:

- Prepare a report on: “Importance of respiration in day-to-day life and physical activities.” (Include at least one real-life example of how respiration affects performance in sports.)
- Prepare a short report on: “Importance of Protecting Our Environment”

Include:

- Importance of clean air and water
- Harmful effects of pollution
- Importance of recycling and waste management
- Methods to conserve natural resources
- Real-Life Example: Explain how excessive use of plastic affects animals, soil, and water bodies.

Part C – (Physics)

Conceptual Questions: Answer the following questions:

1. Define electric current and write its SI unit.
2. State Ohm’s Law. Write its mathematical formula.
3. Differentiate between resistance and resistivity.
4. Why are copper and aluminium commonly used for electrical wiring?
5. Define: Potential difference , Electric power , Electric energy
6. State the factors on which the resistance of a conductor depends.
7. What is the function of a fuse in an electric circuit?
8. Why is parallel connection preferred in domestic electric circuits?
9. State the Right-Hand Thumb Rule.
10. What happens to the magnetic field when:
 - a. Current increases?
 - b. Distance from conductor increases?
11. Explain the working of an electric fuse.
12. Define electromagnet. Write two uses of electromagnets.

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13. State Fleming's Left-Hand Rule.
 14. Differentiate between AC and DC current.
 15. Why is earth wire used in domestic circuits?

Numerical for Practice

1. An electric kettle is rated 230 V; 1000 W. Calculate the resistance of its heating element when in operation.
2. A voltage source sends a current of 2 A to a resistor of $40\ \Omega$ connected across it for 5 minutes. Calculate the electrical energy supplied by the source.
3. Four resistors, each of resistance $2.0\ \Omega$, are joined end to end to form a square ABCD. Using the appropriate formula, determine the equivalent resistance of the combination between its two ends A and B.
4. Two lamps, rated 100 W; 220 V and 60 W; 220 V, are connected in parallel to an electric main supply of 220 V. Find the current drawn by the two lamps from the supply.
5. The resistance of a wire of 0.01 cm radius is $14\ \Omega$. If the resistivity of the material of the wire is $44 \times 10^{-8}\ \Omega\text{ m}$, find the length of the wire. (Given $\pi = 22/7$)
6. Consider two lamps A and B of rating 50 W; 220 V and 25 W; 220 V respectively. Find the ratio of the resistances of the two lamps (i.e., $R_A : R_B$).
7. A current of 2 A flows through a resistor for 5 minutes. Calculate the charge flowing through the circuit.
8. A resistor of $5\ \Omega$ is connected to a 10 V battery. Find the current in the circuit.
9. Two resistors of $4\ \Omega$ and $6\ \Omega$ are connected: in series and in parallel
10. Find the equivalent resistance in both cases.
11. An electric iron draws a current of 5 A from a 220 V supply. Calculate: Power consumed and Energy consumed in 2 hours.

Diagram Practice : Draw and label the following diagrams neatly:

- Magnetic field lines around a bar magnet , Magnetic field around a straight conductor , Domestic electric circuit with fuse and earthing

Application-Based Task. Prepare a short report on: "Role of Electricity and Magnetism in Daily Life"

Creative Work : Prepare questions for quiz on chapter electricity.

Submission Guidelines

- Use A4 sheets .
- Draw neat and properly labelled diagrams.
- Use coloured pencils wherever required.
- Neat handwriting and creative presentation will carry extra marks.

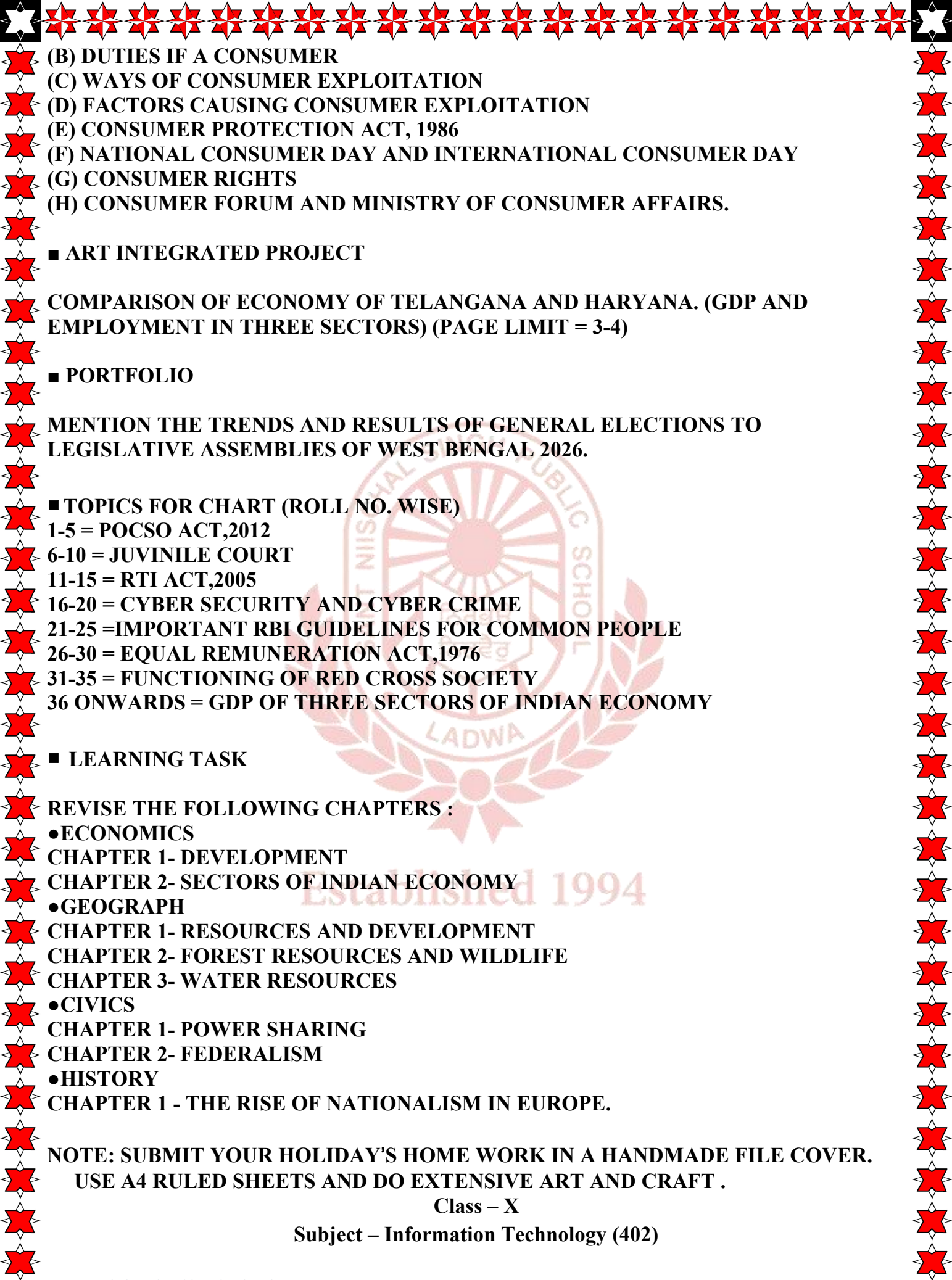
SOCIAL SCIENCE

■ SUBJECT ENRICHMENT ACTIVITY

PROJECT REPORT ON CONSUMER AWARENESS (PAGE LIMIT = 7-8)

HINTS-

(A) WHO IS A CONSUMER?

- 
- (B) DUTIES IF A CONSUMER
(C) WAYS OF CONSUMER EXPLOITATION
(D) FACTORS CAUSING CONSUMER EXPLOITATION
(E) CONSUMER PROTECTION ACT, 1986
(F) NATIONAL CONSUMER DAY AND INTERNATIONAL CONSUMER DAY
(G) CONSUMER RIGHTS
(H) CONSUMER FORUM AND MINISTRY OF CONSUMER AFFAIRS.

■ ART INTEGRATED PROJECT

COMPARISON OF ECONOMY OF TELANGANA AND HARYANA. (GDP AND EMPLOYMENT IN THREE SECTORS) (PAGE LIMIT = 3-4)

■ PORTFOLIO

MENTION THE TRENDS AND RESULTS OF GENERAL ELECTIONS TO LEGISLATIVE ASSEMBLIES OF WEST BENGAL 2026.

■ TOPICS FOR CHART (ROLL NO. WISE)

1-5 = POCSO ACT, 2012

6-10 = JUVINILE COURT

11-15 = RTI ACT, 2005

16-20 = CYBER SECURITY AND CYBER CRIME

21-25 = IMPORTANT RBI GUIDELINES FOR COMMON PEOPLE

26-30 = EQUAL REMUNERATION ACT, 1976

31-35 = FUNCTIONING OF RED CROSS SOCIETY

36 ONWARDS = GDP OF THREE SECTORS OF INDIAN ECONOMY

■ LEARNING TASK

REVISE THE FOLLOWING CHAPTERS :

● ECONOMICS

CHAPTER 1- DEVELOPMENT

CHAPTER 2- SECTORS OF INDIAN ECONOMY

● GEOGRAPH

CHAPTER 1- RESOURCES AND DEVELOPMENT

CHAPTER 2- FOREST RESOURCES AND WILDLIFE

CHAPTER 3- WATER RESOURCES

● CIVICS

CHAPTER 1- POWER SHARING

CHAPTER 2- FEDERALISM

● HISTORY

CHAPTER 1 - THE RISE OF NATIONALISM IN EUROPE.

NOTE: SUBMIT YOUR HOLIDAY'S HOME WORK IN A HANDMADE FILE COVER.
USE A4 RULED SHEETS AND DO EXTENSIVE ART AND CRAFT .

Class – X

Subject – Information Technology (402)

Prepare a report on the following topics according to your assigned roll number.

S.No.	Report Topic	Roll Numbers
1.	Emergency First Aid in Electrical Accidents	1 – 6
2.	Fire Safety Measures and Prevention at Workplace	7 – 12
3.	Healthy Computer Usage and Safety Guidelines	13 – 18
4.	Different Types of Emergencies and Evacuation Steps	19 – 24
5.	Importance of Health, Safety and Security at Workplace	25 onwards

Practical Activity (Home Assignment)

Design a one-page document on “Workplace Safety and Hygiene.” Insert a suitable image related to workplace safety and apply the following formatting features:

1. Change the picture style by applying any shadow effect.
2. Set the image position to centre alignment on the page.
3. Format the heading with Bold, Underline and Font Size 18.
4. Change the paragraph font colour and apply 1.5 line spacing.
5. Add a page border to make the document attractive.

ART & CRAFT

DRAW THE FOLLOWING TOPICS FROM YOUR BOOK IN DRAWING FILES USING COLOURS (ANY MEDIUM) -

- 1) ANY TWO STILL LIFE STUDY (FROM PAGE NO. 16 TO 19)
- 2) ANY TWO FOLK ART (FROM PAGE NO. 70 TO 73)
- 3) MAKE ONE SHEET ON ANIMAL STUDY
- 4) MAKE ONE SHEET ON BIRD STUDY.

HEALTH & PHYSICAL EDUCATION

- 1) Introduction and Importance of Health
- 2) Sports injuries (any 5)
- 3) SEWA -: •Introduction
 - Objectives
 - Guidelines for students

(Practical file)

- 1) Track :- draw diagram and write marking of the track
- 2) Write and draw any one field event – Throwing event or Jumping event
- 3) Write and draw about any one Favourite Game - Team game/individual game
- 4) Write and draw about Yoga Asana - any five (standing, sitting and laying)

MATHEMATICS

GENERAL HOMEWORK INSTRUCTIONS

- This assignment comprises 60 highly structured questions split evenly into 6 critical curriculum chapters (10 questions per chapter).
- All work must be solved chronologically in a separate, dedicated thin homework notebook.
- Ensure all step-by-step methodologies, standard formulas, and intermediate evaluations are stated explicitly.
- Draw precise geometric configurations or coordinate sketches using a sharp pencil and standard scale wherever required.
- Submission of this assignment is mandatory on the very first day of school reopening post summer break.

Chapter 1: Real Numbers

- Q1.** Explain comprehensively why the arithmetic expressions $7 \times 11 \times 13 + 13$ and $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ are categorized as composite numbers.
- Q2.** Determine the HCF and LCM of the integers 404 and 96 using the Prime Factorization Method. Verify the fundamental mathematical identity:
- $$HCF(a, b) \times LCM(a, b) = a \times b$$
- Q3.** Prove analytically through the method of contradiction that $\sqrt{5}$ is an irrational number.
- Q4.** Given that the greatest common divisor $HCF(306, 657) = 9$, evaluate the lowest common multiple $LCM(306, 657)$ by applying algebraic relationships.
- Q5.** Prove that the expression $3 + 2\sqrt{5}$ is irrational, given that $\sqrt{5}$ is pre-verified as an irrational number.

- Q6.** An army contingent of 616 members is scheduled to march directly behind an operational army band of 32 members in a synchronized parade. If both groups must march in the exact same number of columns, evaluate the maximum number of columns possible.
- Q7.** Find the largest possible positive integer that divides both 70 and 125, leaving a remainder of 5 and 8 respectively.



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Q8. Three bells toll simultaneously at fixed periodic intervals of 9, 12, and 15 minutes respectively. If they all toll together at an initial instant, calculate the exact elapsed time before they next toll simultaneously.

Q9. Show logically that any positive odd integer can be expressed in the form $6q + 1$, $6q + 3$, or $6q + 5$, where q represents some integer.

Q10. Using fundamental prime factor trees, determine the HCF and LCM parameters for the three-integer set: $\{12, 15, 21\}$.

Chapter 2: Polynomials

Q11. Find the zeroes of the quadratic polynomial expression $f(x) = x^2 - 2x - 8$, and rigorously verify the relationship between its zeroes and coefficients.

Q12. Formulate a quadratic polynomial for which the sum and product of its zeroes are given as -3 and 2 respectively.

Q13. If α and β represent the zeroes of the quadratic polynomial $f(x) = 6x^2 + x - 2$, evaluate the numerical value of the fractional expression $(\alpha/\beta) + (\beta/\alpha)$.

Q14. If one zero of the parameter-dependent quadratic polynomial $(k - 1)x^2 + kx + 1$ is known to be -3, calculate the exact numerical value of the constant k .

Q15. If α and β are zeroes of the polynomial expression $f(x) = x^2 - p(x + 1) - c$ satisfying the structural relation $(\alpha + 1)(\beta + 1) = 0$, compute the value of the constant c .

Q16. Find the zeroes of the irrational coefficient polynomial $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$ by executing the middle-term splitting method.

Q17. If the sum of the zeroes of the quadratic function $kx^2 + 2x + 3k$ is exactly equal to their product, determine the value of the scalar variable k .

Q18. Form a general quadratic polynomial whose roots/zeroes are the exact algebraic reciprocals of the zeroes of the standard polynomial $ax^2 + bx + c$ (where $a \neq 0$, $c \neq 0$).

Q19. If α and β constitute the roots of the polynomial $x^2 - 5x + k$ such that their difference

sat isfies $\alpha - \beta = 1$, evaluate the value of k .

Q20. Verify algebraically whether the linear expression $g(x) = x - 3$ is a clean factor of the cubic polynomial function $p(x) = x^3 - 4x^2 + x + 6$ by utilizing the Remainder Theorem.



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Chapter 3: Pair of Linear Equations in Two Variables

Q21. Solve the following system of linear equations using the substitution method:

$$7x - 15y = 2$$

$$x + 2y = 3$$

Q22. Solve the following simultaneous linear equations by executing the elimination method:

$$3x + 4y = 10$$

$$2x - 2y = 2$$

Q23. Find the specific value of the constant parameter k for which the following pair of linear equations yields no solution:

$$3x + y = 1$$

$$(2k - 1)x + (k - 1)y = 2k + 1$$

Q24. Determine the values of parameters a and b for which the linear system below yields an infinite number of matching solutions:

$$2x + 3y = 7$$

$$(a - b)x + (a + b)y = 3a + b - 2$$

Q25. Five years ago, Nuri's age was exactly three times that of Sonu. Ten years in the future, Nuri's age is projected to be double that of Sonu. Formulate the linear equations and compute their current ages.

Q26. The sum of a two-digit integer and the new number generated by reversing its digit positions is 66. If the individual digits differ from each other by 2, determine the number. How many such numbers fulfill this property?

Q27. A common fraction reduces to $\frac{9}{11}$ if 2 is added to both its numerator and denominator. If 3 is added to both components instead, the fraction becomes $\frac{5}{6}$. Formulate and solve the system to find the original fraction.

Q28. Two markers A and B are situated exactly 100 km apart on a straight highway. A car starts moving from A and another from B simultaneously. If they move in the identical direction at varied speeds, they cross paths in 5 hours. If they move directly towards each other, they meet in 1 hour. Calculate the speeds of both vehicles.

Q29. Plot the following system of equations graphically. Determine the coordinates of the vertices of the enclosed triangular region formed by these lines and the horizontal x-axis:

$$x - y + 1 = 0 \quad 3x + 2y - 12 = 0$$

Q30. Analyze algebraically whether the system of lines defined by $2x - 3y = 8$ and $4x - 6y = 9$ is consistent or inconsistent, and describe their graphical representation.



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Chapter 4: Quadratic Equations

Q31. Evaluate the roots of the quadratic equation $2x^2 - 7x + 3 = 0$ by using the standard Quadratic Formula.

Q32. Find the roots of the equation $6x^2 - x - 2 = 0$ by deploying the factorization method of middle-term decomposition.

Q33. Determine the discriminant value of the quadratic function $2x^2 - 4x + 3 = 0$, and draw a rigorous conclusion regarding the nature of its roots.

Q34. Find the non-zero value(s) of parameter k for which the quadratic equation $kx(x - 2) + 6 = 0$ possesses two real and identical roots.

Q35. Determine whether it is geometrically possible to construct a rectangular enclosure possessing a total perimeter of 80 m and an internal area of 400 m^2 . If feasible, compute its length and breadth via quadratics.

Q36. The combined area of two distinct squares is 468 m^2 . If the structural difference between their perimeters amounts to 24 m, form a quadratic equation to isolate the side dimensions of both squares.

Q37. A motorized vessel travels at a uniform speed of 18 km/h in stagnant water. It requires exactly 1 hour longer to navigate a 24 km distance upstream than to return downstream to the initial departure point. Set up a quadratic equation to compute the velocity of the stream.

Q38. Two water supply valves working concurrently can completely fill a reservoir tank in $9\frac{3}{8}$ hours. The valve with a larger cross-sectional diameter requires 10 hours less than the narrower valve when operating independently. Find the time required for each valve to fill the tank alone.

Q39. Isolate and solve for the real variable x in the following structured fractional quadratic equation:

$$[1 / (a + b + x)] = (1 / a) + (1 / b) + (1 / x)$$

where constraints satisfy $a, b, x \neq 0$ and $a + b + x \neq 0$.

Q40. An express train takes 1 hour less than a local passenger train to cover a fixed transit line of 132 km between Mysore and Bangalore. If the average velocity of the express line is 11 km/h faster than the passenger train, compute the average operational speed of both transits.

Chapter 5: Arithmetic Progressions

Q41. Calculate the 20th term evaluated from the final terminal end of the finite Arithmetic Progression given by: 3, 8, 13, ..., 253.

Q42. In a standard AP sequence, if the 3rd term evaluates to 12 and the 50th term evaluates to 106, compute the exact value of its 29th term.



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- Q43.** Evaluate the total sum of the first 22 terms of an Arithmetic Progression whose common difference is d
 $= 7$ and whose 22nd term is fixed at 149.
- Q44.** How many consecutive terms of the decreasing progression 24, 21, 18, ... must be accumulated so that their collective sum equals 78? Interpret the mathematical physical reason behind obtaining a double answer.
- Q45.** If the sum function of the initial n terms of an AP is structured as $S_n = 4n - n^2$, what constitutes the first term? What is the sum of the first two terms? Find the 3rd, the 10th, and the general n -th term of this progression.
- Q46.** Determine the aggregate sum of all three-digit natural numbers that are perfectly divisible by the prime integer 7.
- Q47.** The combined sum of the 4th and 8th terms of an AP series is 24, and the combined sum of its 6th and 10th terms equals 44. Isolate and present the first three consecutive terms of this sequence.
- Q48.** Subba Rao initiated professional employment in the year 1995 at a base annual salary of Rs 5000 and received a fixed annual increment of Rs 200 every subsequent year. Calculate the specific calendar year in which his annual income reached exactly Rs 7000.
- Q49.** If the m -th term of an AP is equal to $1/n$ and its corresponding n -th term equals $1/m$, prove algebraically that the total sum of its first (mn) terms must equal $(mn + 1)/2$.
- Q50.** A television manufacturing plant scales production uniformly by a fixed constant volume every fiscal year. The factory output records 600 sets in its 3rd year and 700 units in its 7th year. Find the factory's initial baseline output in year 1 and the total cumulative production over the first 10 years.

Chapter 6: Coordinate Geometry

- Q51.** Determine the coordinates of the internal point that partitions the line segment running between the coordinate points $(-1, 7)$ and $(4, -3)$ in the specific ratio 2:3.
- Q52.** Evaluate the precise ratio in which the vertical y -axis cuts through the line segment joining points $(5, -6)$

and $(-1, -4)$. Also, compute the coordinates of the resulting intersection point.

Q53. If the points $A(6, 1)$, $B(8, 2)$, $C(9, 4)$, and $D(p, 3)$ represent the sequential vertices of a parallelogram taken in strict cyclic order, determine the unknown scalar p using mid-point properties of diagonals.

Q54. Find the coordinates of the internal points of trisection for the line segment anchored by the coordinates $(4, -1)$ and $(-2, -3)$.

Q55. Establish a simplified linear relationship between variables x and y such that the moving point $P(x, y)$ remains perfectly equidistant from fixed coordinate points $A(7, 1)$ and $B(3, 5)$.



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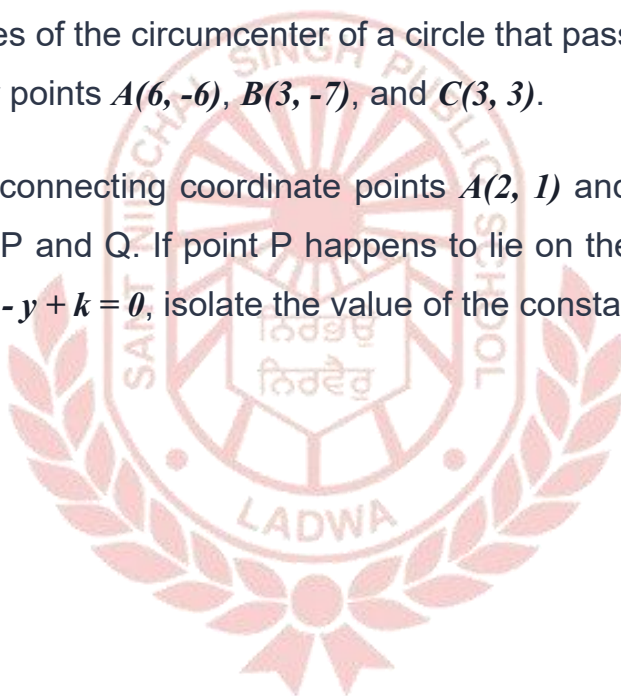
Q56. Determine the absolute linear distance between the algebraic coordinate pairs $A(a, b)$ and $B(-a, -b)$, stating your final simplified expression in its most elementary radical format.

Q57. Find the exact coordinates of point A, where the segment AB serves as the diameter of a circle whose center is located at $(2, -3)$ and where point B is given as $(1, 4)$.

Q58. Find the internal area enclosed by a rhombus whose sequential cyclic vertices are mapped at $(3, 0)$, $(4, 5)$, $(-1, 4)$, and $(-2, -1)$. (*Hint: Area equals half the product of its length of diagonals*).

Q59. Find the coordinates of the circumcenter of a circle that passes cleanly through the three non-collinear points $A(6, -6)$, $B(3, -7)$, and $C(3, 3)$.

Q60. The line segment connecting coordinate points $A(2, 1)$ and $B(5, -8)$ is internally trisected at points P and Q. If point P happens to lie on the infinite line mapped by the equation $2x - y + k = 0$, isolate the value of the constant k .



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PART 2: SUMMER HOLIDAY PROJECT WORK

Student Name	
Roll Number	
Session	2026-27
Subject	Mathematics

PROJECT 1: Mathematical Comparison of Haryana and Telangana

Objective: To compare Haryana and Telangana using mathematical concepts and real-life data.

Chapters Used: Real Numbers, Arithmetic Progression, Coordinate Geometry, Pair of Linear Equations, Statistics.

Core Activities:

- **Activity 1:** Collect population data of 5 cities of Haryana and 5 cities of Telangana. Represent the data using a bar graph and pie chart.
- **Activity 2:** Plot important cities on graph paper and calculate distances between them using coordinate geometry.
- **Activity 3:** Create travel budget equations for educational tours in both states and solve them mathematically.
- **Activity 4:** Observe yearly growth data and identify Arithmetic Progression patterns.

Creative Work: Design a mathematical rangoli or graph-paper art based on Haryana and Telangana maps.

Project 1 Evaluation Rubric

CRITERIA	MAXIMUM MARKS
Mathematical Accuracy	5
Presentation	5
Creativity	4
Graphs & Diagrams	3
Practical Understanding	3

Note:

Activity 1 for Roll No. 1 to 10

Activity 2 for Roll No. 11 to 20

Activity 3 for Roll No. 21 to 30

Activity 4 for Roll No. 31 to 40

SUBMISSION INSTRUCTIONS FOR PROJECT WORK

- Complete all project deliverables neatly inside a dedicated **A4 size file**.
- Utilize distinct colored headings, formatted titles, and clear geometric diagrams.

- Submit the finalized compiled project workbook immediately upon school reopening after the summer vacation.



**HAPPY
HOLIDAYS**



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