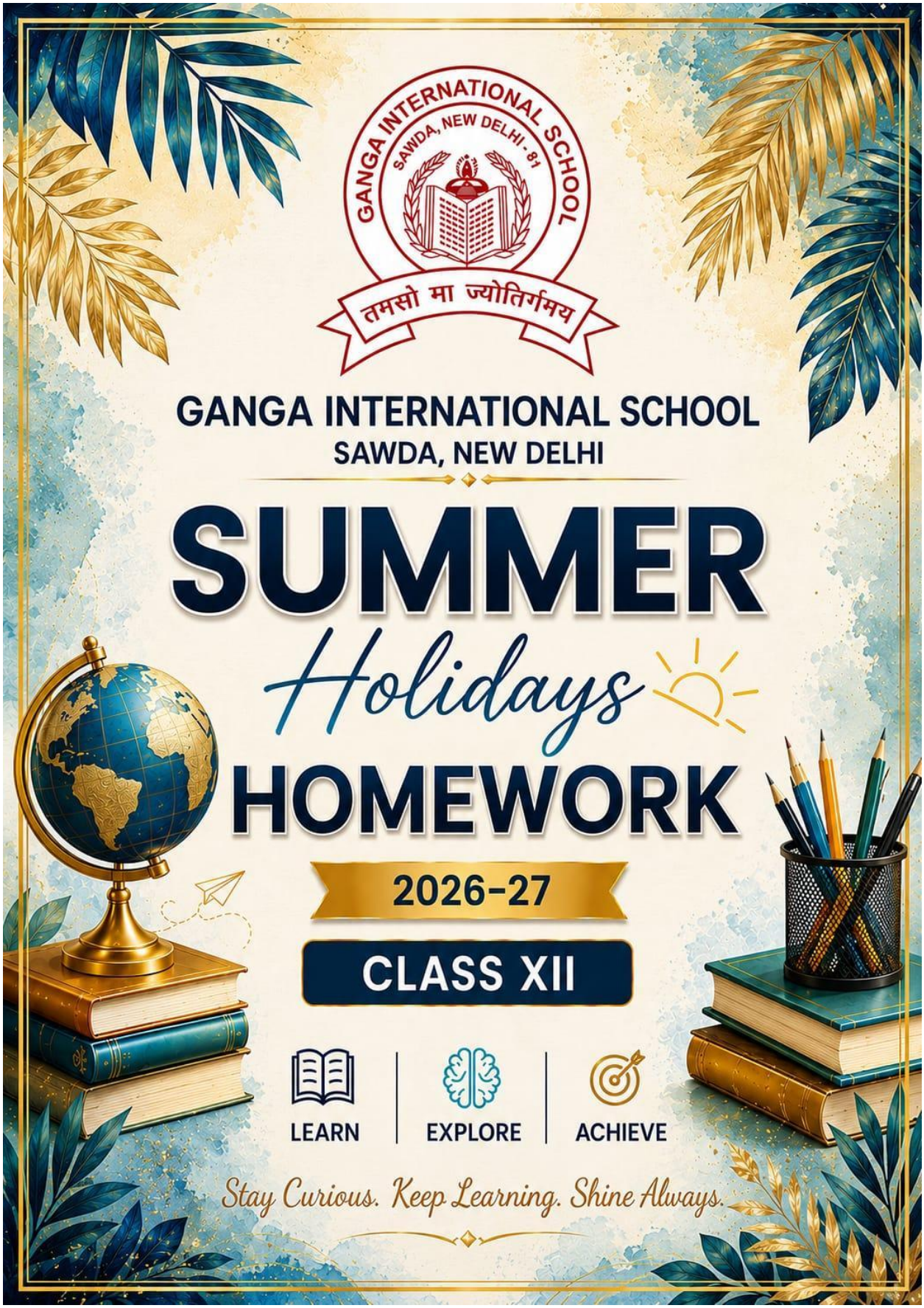

GANGA INTERNATIONAL SCHOOL
SAWDA, NEW DELHI - 81
तमसो मा ज्योतिर्गमय
GANGA INTERNATIONAL SCHOOL
SAWDA, NEW DELHI
SUMMER
Holidays
HOMEWORK
2026-27
CLASS XII
LEARN
EXPLORE
ACHIEVE
Stay Curious. Keep Learning. Shine Always.

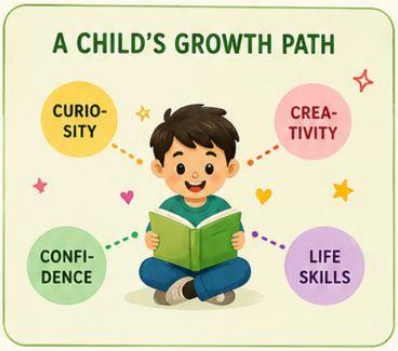
*Dear Parents,*

# Assignments are not meant to burden families — they are designed to inspire young minds.


A poster, a model, or a hands-on activity may appear straightforward, yet for a child, it transforms into a **powerful** opportunity to **discover through experience.**

Concepts that seem abstract in textbooks come alive when students engage with them through creation and exploration.


When children engage genuinely in these activities — guided lovingly by parents — learning transforms into something far more **meaningful, imaginative, and enduring.** ♥




Our aim is never to measure flawlessness — it is always to nurture **genuine effort** and **deeper comprehension.** ♡

*Thanking You,* ♥

**Ganga International School, Sawda**

— TEAM GIS SAWDA —

## General Instructions

**Dear Parents,**

This thoughtfully curated holiday homework has been designed to keep your child meaningfully engaged, intellectually stimulated, and closely connected with nature throughout the vacation. The activities provided are a balanced blend of academic enrichment, creative exploration, life skills, and character-building experiences aimed at fostering overall growth and development. We warmly encourage parents to actively support, guide, and participate in these learning experiences alongside their children. All completed tasks should be carefully documented through photographs, written observations, creative samples, or activity records and submitted upon reopening of the school. These enriching activities will play a significant role in nurturing the holistic development of your child while ensuring that learning remains joyful, purposeful, and memorable.

***Happy learning and happy holidays!***

### 1. Shlokas

- Learn and recite 5 shlokas — speak them aloud daily.

### 2. Moral Values

- Practise one moral value each day (kindness, honesty, gratitude, respect) and write a short reflection in a diary.

### 3. Grow & Adopt a Plant

- Plant a seed or sapling, water it daily, and maintain a photo diary of its growth through the holidays.

### 4. Create a Bird Nest

- Watch a YouTube tutorial and create a bird nest using natural materials; place it in a safe spot for birds to use.

### 5. Water Pots for Birds

- ✦ Place a shallow water pot on your terrace daily; observe which birds visit and click photographs as a field record.

## 🥬 6. Microgreens & Sprouts

- ✦ Grow microgreens at home, include them in your diet, and write a short note on what you learned about their nutritional value.

## 🧘 7. Yoga Ritual

- ✦ Practise yoga for 15–20 minutes every morning and maintain a daily yoga log.

## 🌟 8. Positive Affirmations

**Students are encouraged to include the following affirmations in their morning routine:**

- I am always happy.
- I am calm and stable in every situation.
- My memory and concentration are excellent.
- I eat healthy food; my body is perfect and disease-free.
- I use gadgets only for studying.
- I respect everyone. I respect nature.

*Wishing you a joyful, green, and purposeful holiday!* 🌼

# ENGLISH

***Theme: "Analyze, Articulate & Apply"***

1. **ASL PROJECT (Assessment of Speaking & Listening)**
   **SPEAKING TASK**
   prepare a 1–2 minute audio recording on any ONE: • Impact of Artificial Intelligence on Education • Gender Equality in Modern Society • Role of Youth in Nation Building • Is Social Media Making Us Less Social? INCLUDE: • Structured content (Intro–Arguments–Conclusion) • Examples / real-life references • Fluency, clarity, confidence
   **LISTENING TASK**
   Listen to a TED Talk / Podcast / News Analysis (8–10 minutes) WRITE: • Title & speaker/source • 6 key ideas • 5 advanced vocabulary words • Critical response (120 words)
2. **LITERATURE PROJECT (FLAMINGO + VISTAS)**
   **PROSE & POETRY ANALYSIS**
   **Prepare notes on:**
   **PROSE:** The Last Lesson ,The Lost Spring and The Enemy.
   POETRY: My Mother At Sixty-Six and Keeping quiet.
   • Theme • Character sketch • Literary devices • Important lines with explanation **LONG ANSWER PRACTICE**
   Write answers (120–150 words):
   . Lessons from The Last Lesson
   . Significance of Lost Spring
   . Character analysis from Deep Water

**3. WRITING SKILLS (BOARD PATTERN)**

Write ANY THREE: •

**I.ARTICLE**: "Challenges Faced by Students in today's world"

**II.SPEECH**: "Importance of Mental Health"

**III.FORMAL LETTER: JOB APPLICATION / COMPLAINT**

**A**.You are Riya/Rohan Sharma, a resident of 45, Green Park, New Delhi. You have seen an advertisement in a newspaper for the post of Content Writer at The Times of India. The company requires candidates with good communication skills, creativity, and basic computer knowledge.

**Note**:Write a job application letter to the HR Manager applying for the post. Also prepare a suitable resume including your educational qualifications, skills, achievements, hobbies, and contact details.

**B.REPORT WRITING**

You are the Cultural Secretary of your school, Delhi Public School. Your school recently organized an Inter-School Cultural Fest in which students from different schools participated enthusiastically. Write a report in about 120–150 words for your school magazine describing the event, activities conducted, participation, and the overall outcome of the programme.

**C.NOTICE WRITING**

You are the Head Boy/Head Girl of Sunrise Public School. Your school is organizing a Career Counselling Workshop for students of Classes XI and XII. Draft a notice in about 50 words informing students about the date, time, venue, and the importance of attending the workshop. Mention that interested students should register their names with the school counsellor before 20 May 2026.

**4. DOCUMENTARY ANALYSIS**

Watch anyone English documentary from the mentioned list.

**ENGLISH DOCUMENTARIES FOR STUDENTS**

**I.THE SOCIAL DILEMMA**

Topic: Social media awareness and technology.

**II. OUR PLANET**

Topic: Environment, wildlife, climate awareness.

**III. INSIDE BILL'S BRAIN: DECODING BILL GATES**

Topic: Innovation and problem-solving.

**IV. HE NAMED ME MALALA**

Topic: Education and women empowerment.

**V. BEFORE THE FLOOD**

Topic: Climate change and environment.

**WRITE**:

**• Central theme • Key issue raised • Character/real-life inspiration • Personal interpretation • Ratings.**

**5. VOCABULARY & LANGUAGE ENRICHMENT**

Wriye 60 advanced words in your communication notebook. Include: • Meaning • Synonym • Usage in sentence

**ART INTEGRATED PROJECT**

**6. "Voices from the Himalayas" – How do Sikkimese writers preserve culture and traditions through literature?**

## PHYSICAL EDUCATION

**1. One game of Specialization (Volleyball/ Hockey/ Football/ kabaddi, Etc):**

- History (world & India), governing bodies, court dimensions, fundamental skills, terminology, rules, equipment, notable awards (Arjun, Dronacharya, Dhyan Chand), and tournaments.
- Include a marked court diagram or photo.
- Highlight famous Indian and international players**.**

**2. One Fitness Test:**

- Brock port Test or Sai khelo India Test
- Purpose, equipment, procedure, scoring.
- Paste related photos on the left side.

**3. One common disease (Obesity/ Hypertension/ Low Back Pain/ Asthma/ Arthritis)**

- Define disease
- Cause of disease
- Symptoms of disease
- Yogic management of disease (Any 2 Asanas)
- Benefits of asanas

- Precautions during asanas

**4. Surya Namaskar (All 12 steps)**

- Benefits of Surya namaskar
- Precautions during Surya namaskar

***NOTE –***

- Prepare handwritten files.
- Game and Fitness tests should be written in the Practical Manual.
- Surya Namaskar and one common disease should be written in the Project File.
- Submit the practical files after the summer vacation.

## POLITICAL SCIENCE

1. **PROJECT WORK** -Suggested Topics

i. NAM- 1961 to present times.
ii. Division of Germany with special focus on the construction and dismantling of the Berlin Wall.
iii. CIS-Central Asian Republics
iv. Disintegration of USSR with special focus on Gorbachev.
v. Cover the negative as well as positive aspects of relationship between India and the following countries.
Focus on any one of the following (current updates should be highlighted):
a. Relationship between India and Russia
b. Relationship between India and China
c. Relationship between India and Pakistan
d. Relation between India and Bangladesh
vi..ASEAN
vii. .European Union and India
viii. .BRICS
ix. .SAARC
x. India's Nuclear Policy
xi. United Nations with focus on India's candidature in Security Council.
xii. .UN Agencies – UNICEF, UNESCO, WHO
xiii. .Partition of India-Theory behind it and its legacy
xiv. Comparison between NITI AAYOG and Planning Commission and their contribution in India's Development.
xv. Election 2019- Rise of BJP and Downfall of Congress (1989-2019).
xvi. Imposition of Emergency in India
xvii. NDA III and NDA IV – Social and Economic welfare programmes.
xviii. Election Commission of India and Electoral Roll and its revision.

**Project overview:**

● Students can use primary sources available in city archives, Primary sources can also include newspaper cuttings, photographs, film footage and recorded written/speeches. Secondary sources may also be used after proper authentication.

The marks will be allocated under the following heads:

| SL. NO. | COMPONENTS | MARKS ALLOTTED |
|---|---|---|
| 1 | INTRODUCTION / OVERVIEW | 2 |
| 2 | VARIETY OF COMPONENTS | 3 |
| 3 | PRESENTATION | 3 |
| 4 | CONCLUSION | 1 |
| 5 | BIBLIOGRAPHY | 1 |
| | TOTAL | 10 |

2. Prepare a **Cartoon file** using cartoon from both NCERT book. Each cartoon should be accompanied by 4four questions of 1 mark.

3. Do all the **maps** given in Book 2 (Politics in India since Independence) neatly in the fair notebook.

4. Do **NCERT Question** answers of the Chapter 'Era of one party Dominance' and 'Politics of planned Development in fair notebook.

5.**Assignment:**

i. **Contemporary South Asia**

- Explain the core issues in India-Pakistan relations?
- How has democracy functioned in Bangladesh?

**Ch 6: International Organisations**

- Why did the UN replace the League of Nations?
- Describe the role of the UN in promoting world peace.
- Explain the need for structural reforms in the UN Security Council.

**Ch 7: Security in the Contemporary World**

- Explain the concept of 'Security' and its two main dimensions (traditional/non-traditional).
- Differentiate between external and internal security.
- What is meant by the "new sources of threats" to security?

# HISTORY

**I PROJECT WORK:**

Make the handwritten Project file (To be assessed for 20 marks project work as per the guidelines of CBSE)

**Specification for Project file to be prepared for board exams:**

a) Individual Projects to be prepared as per the topics of your current syllabus.

b) Students are expected to conduct research work and show evidences for their research work for example they can conduct surveys, interviews, group discussions etc., show recordings as evidence in project

c) Data related to topics should not be just taken from Google & Wikipedia. Students are requested to read relevant books, journals, magazines, newspaper related to their topics.

**SOME SUGGESTED TOPICS FOR PROJECT WORK ARE-:**

1. The Indus Valley Civilization-Archaeological Excavations and New Perspectives
2. The History and Legacy of Mauryan Empire
3. "Mahabharat"- The Great Epic of India
4. A Comprehensive History of Jainism
5. Bhakti Movement- Multiple interpretations and commentaries.
6. Global legacy of Gandhian ideas
7. The Architectural Culture of the Vijayanagar Empire
8. Life of women in the Mughal rural society
9. Comparative Analysis of the Land Revenue Systems introduced by the Britishers in India
10. The Revolt of 1857- Causes; Planning & Coordination; Leadership, Vision of Unity
11. The Philosophy of Guru Nanak Dev
12. The Vision of Kabir
13. An insight into the Indian Constitution

**II MAP WORK:**

Fill the political map of India neatly on the following topics and paste in the map file:

(a) Sites of Harappan Civilisation

(b) Mahajanpadas

**III ARTIFACTS**:

Make any 2 Artifacts related to Theme 1,2 or 3.

**IV ART INTEGRATED PROJECT** Prepare a Project on the topic: Sikkim Comparative Study with Delhi (mainly in terms of Location, Formation and Characteristic features-Use of maps, illustrations ,images etc.)

**V ASSIGNMENT ( On A 4 ruled sheets)**

**Theme 1: Bricks, Beads and Bones**

1.Explain any three important features of Harappan town planning.

2.“Drainage system was the most distinctive feature of the Harappan Civilization.” Justify the statement with suitable examples.
3.Analyse the causes responsible for the decline of the Harappan Civilization.

**Theme 2: Kings, Farmers and Towns**

4. Describe the main features of Mauryan administration under Ashoka.
5.Explain the importance of inscriptions as a source for reconstructing ancient Indian history.
6.“The relationship between kings, farmers and traders strengthened urbanisation in ancient India.” Examine the statement.
7.Mention any four features of the administration of the Gupta period.

**Theme 3: Kinship, Caste and Class**

8. Explain the main features of the Mahabharata as an important source of ancient Indian history.
9.Analyse the position of women in ancient Indian society with reference to the Mahabharata.
10.Discuss the significance of caste and social hierarchy in early Indian society.

## INFORMATICS PRACTICES

1. **Python + Pandas Assignments:-**
   IPL Match Data Analysis
- Analyse runs, wickets, winning teams
- Create charts using Matplotlib

2. **Prepare an Assignment on following Topics:-**
   “Future Technology 2035” presentation
3. **Make short notes on the following:**
   - CSV File
   - Data Visualization
   - Matplotlib
4. (A) Online Fraud Awareness (B) Role of Data Science in Business Explain
5. **AI+IP integrated Assignment**
   - AI in Healthcare Research
   - Impact of AI in Education

## BIOLOGY

1.Create a colourful “Biology Wall” on chart paper using flowcharts, keywords, diagrams and mind maps from Unit–I. Make it creative and informative.

2.Prepare a creative model/poster related to Unit–I using eco-friendly or waste material. Write a few lines explaining its importance and working.

3.On the occasion of World Environment Day, perform any one activity:

- Plant a sapling
- Make a “Save Environment” poster
- Reuse old plastic/material creatively
- Spread awareness by writing eco-friendly slogans

Paste a picture/drawing and write your experience in 5–7 lines.

4.Prepare 20 interesting questions from Unit–I including MCQs, assertion-reason and case-based questions with answers in a creative manner

5.Prepare a project file on any one topic related to Human Health, Biotechnology, Genetics or Ecology with suitable diagrams and pictures.

## MATHEMATICS

**1. Read the case study carefully and answer the following questions in your assignment Register.**

1. Two schools P and Q want to award their selected students on the values of Tolerance, Kindness, and Leadership. The school P wants to award Rs x each, Rs y each and Rs z each for the three respective values to 3, 2 and 1 students respectively with total award money of Rs. 2200. School Q wants to spend Rs 3100 to award its 4, 1 and 3 students on the respective values (by giving the same award money to the three values as school P). If the total amount of award for one prize on each value is Rs1200, using matrices, find the following:

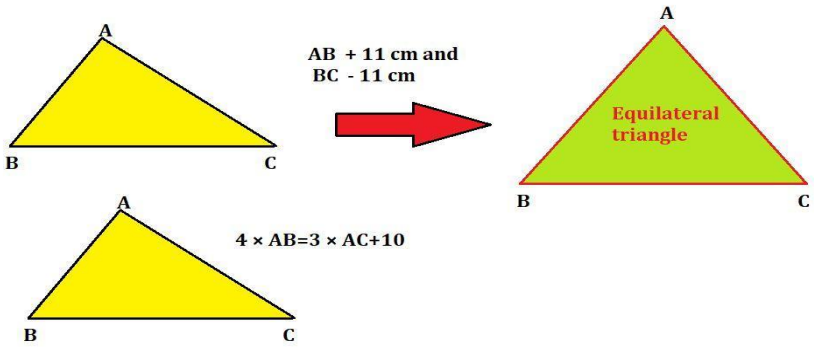
1. What is award money for Tolerance?
2. What is the award money for Leadership?
3. What is the award money for Kindness?
4. If a matrix A is both symmetric and skew-symmetric, then
5. If A and B are two matrices such that AB = B and BA = A, then find $B^2$?

**2.** Three friends Ravi, Raju and Rohit were buying and selling stationery items in a market. The price of per dozen of Pen, notebooks and toys are Rupees x, y and z respectively.
Ravi purchases 4 dozen of notebooks and sells 2 dozen pens and 5 dozen toys. Raju purchases 2 dozen toys and sells 3 dozen pens and 1 dozen of notebooks. Rohit purchases one dozen of pens and sells 3 dozen notebooks and one dozen toys. In the process, Ravi, Raju and Rohit earn ₹ 1500, ₹ 100 and ₹400 respectively.

**Answer the following questions using the matrix method:**

1. What is the price of one dozen of pens?
2. What is the total price of one dozen of pens and one dozen of notebooks?
3. What is the sale amount of Ravi?
4. What is the amount of purchases made by all three friends?
5. What is the price of sales made by all three friends?

3. Once a mathematics teacher drew a triangle ABC on the blackboard. Now he asked Jose," If I increase AB by 11 cm and decrease the side BC by 11 cm, then what type of triangle it would be?" Jose said, "It will become an equilateral triangle."




Again teacher asked Suraj," If I multiply the side AB by 4 then what will be the relation of this with side AC?" Suraj said it will be 10 cm more than the three times AC.

**Find the sides of the triangle using the matrix method and answer the following questions:**

1. What is the length of the smallest side?
2. What is the length of the largest side?
3. What is the perimeter of the triangle?
4. What is the side of the equilateral triangle formed?
5. What is the order of the matrix formed?

**4**. Three shopkeepers Ram Lal, Shyam Lal, and Ghansham are using polythene bags, handmade bags (prepared by prisoners), and newspaper envelopes as carrying bags. It is found that the shopkeepers Ram Lal, Shyam Lal, and Ghansham are using (20,30,40), (30,40,20), and (40,20,30) polythene bags, handmade bags, and newspapers envelopes respectively. The shopkeeper's Ram Lal, Shyam Lal, and Ghansham spent ₹250, ₹270, and ₹200 on these carry bags respectively.

1. What is the cost of one polythene bag?
2. What is the cost of one handmade bag?
3. What is the cost of one newspaper bag?
4. Keeping in mind the social conditions, which shopkeeper is better?
5. Keeping in mind the environmental conditions, which shopkeeper is better?

**5**. Ram purchases 3 pens, 2 bags, and 1 instrument box and pays ₹ 41. From the same shop, Dheeraj purchases 2 pens, 1 bag, and 2 instrument boxes and pays ₹29, while Ankur purchases 2 pens, 2 bags, and 2 instrument boxes and pays ₹44.

Read the above information and answer the following questions:

1. Find the cost of one pen.
2. What are the cost of one pen and one bag?
3. What is the cost of one pen & one instrument box?
4. What is the cost of one bag & one instrument box?
5. Find the cost of one pen, one bag, and one instrument box.

**6**. Manjit wants to donate a rectangular plot of land for a school in his village. When he was asked to give dimensions of the plot, he told that if its length is decreased by 50 m and breadth is increased by 50m, then its area will remain same, but if length is decreased by 10m and breadth is decreased by 20m, then its area will decrease by 5300 $m^2$

Based on the information given above, answer the following questions:

1. The equations in terms of x and y are :
2. Represent the given information in the form of Matrix.
3. The value of x (length of rectangular field) and y (breadth of rectangular field) is?
4. The area of the rectangular field is:

**2**. **Strengthen your analytical thinking by solving the Assertion–Reason questions below**.

**DIRECTIONS :-** Each of these questions contains two statements : **Assertion (A)** and **Reason (R)** . Each of these questions also has four alternative choices , any one of which is the correct answer . You have to select one of the choices (a), (b) , (c) and (d) given below

**(a) A is true ,R is true :R is a correct explanation for A.**

**(b) A is true ,R is true; R is not a correct explanation for A.**

**(c) A is true :R is false .**

**(d) A is false : R is true .**

**1**. **Assertion ( A**) Objective function Z=13x -15y, is minimized subject to constraints $x + y \leq 7$, $2x - 3y + 6 \geq 0$ , $x \geq 0$, $y \geq 0$ occur at corner point ( 0, 2 ) .

**Reason (R)** If the feasible region of the given LPP is bounded, then the maximum or minimum values of an objective function occur at corner points.

**2 . Assertion (A)** Maximize Z= 3x+ 4y subject to constraints: $x+ y \leq 1$, $x \geq 0$, $y \geq 0$. Then maximum value of Z is 4 .

**Reason (R)** If the shaded region is not bounded then maximum value cannot be determined

3. **Assertion (A)** If $A = [2\ 1+2i\ 1-2i\ 7]$ then $det(A)$ is real.
   **Reason (R).** If A== $[a_{11}\ a_{12}\ a_{21}\ a_{22}]$ $aij$ being complex numbers then $|A|$ is always real.
4. **Assertion (A)** If A=$[1\ 2\ 5\ -1]$,then $|A|$= -11
   **Reason (R).** If A=$[a_{11}\ a_{12}\ a_{21}\ a_{22}]$,then $|A|$= $a_{11}a_{22} - a_{12}a_{21}$.
5. **Assertion (A)** Determinant of a skew-symmetric matrix of order 3 is zero.
   **Reason (R)** For any matrix A,$|A^T| = |A|$ and $|-A| = -|A|$
6. **Assertion (A)** The points A(a,b+c), B (b,c+a) and C(c,a+b) are collinear.
   **Reason (R**) Area of a triangle with three collinear points is zero.
7. **Assertion (A)** : For two square Matrices A & B of order3 , if |A|=4 & |B|=3 ,then |-5AB|=1500
   **Reason (R)** : For asquare matrices A&B of order 'n' , and for a scalar 'k', |kA|=$k^n$ |A| and |AB|=|A| |B|
8. **Assertion( A)** : For a Matrix A= $[a_{ij}]_{4x4}$ if det (adjA) =1331 , then det( A ) =11
   **Reason ( R )** : For a square Matrix A of order 'n' , | adj A | = $|A|^{n-1}$
9. **Assertion (A)** : The value of Cos [ $\pi/2 + \sin^{-1}(-1/2)$] = 1 /2
   **Reason (R )** : $\sin^{-1}(-\theta) = -\sin^{-1}(\theta)$
10. **Assertion (A)** : Domain of the function $\sin^{-1}(2x-1)$ is [0,1]
    **Reason ( R )** : Domain of $\sin^{-1} x$ is $[-\pi/2, \pi/2]$

**3. PROJECT WORK (Art integrated Project)**

Make a power point presentation (10 slides ) related to Sikkim
You can keep the following areas in your presentation –

1.Introduction
2. Rainfall rate along the year ( use bar graph)
3. Pie chart of population
4. Ratio of area of Delhi to SIKKIM
5. Major language spoken ( bar graph with diagram)
6. Density of population ( Area/ population)
7. Population Trend ( Bar graph)
8. Average death rate (Ratio)

4. Create a **creative formula dictionary** that includes all the important formulas from Grade 12 Mathematics, along with necessary formulas from Grade 11.
5. Revise all the chapters done in class and solve the **assignment** in your Assignment notebook.

Q1. If $\begin{bmatrix} 2x & 5 \\ 8 & x \end{bmatrix} = \begin{bmatrix} 6 & -2 \\ 7 & 3 \end{bmatrix}$, find the value of $x$.

Q2. If $\begin{vmatrix} 3x & 7 \\ -2 & 4 \end{vmatrix} = \begin{vmatrix} 8 & 7 \\ 6 & 4 \end{vmatrix}$, find the value of $x$.

Q3. If $A$ is a $3 \times 3$ matrix, $|A| \neq 0$and $|3A| = k|A|$, then write the value of $k$.

Q4. Write the value of the determinant $\begin{vmatrix} \rho & \rho+1 \\ \rho-1 & 1 \end{vmatrix}$.

Q5. Write the value of $\begin{vmatrix} 2 & 7 & 65 \\ 3 & 8 & 75 \\ 5 & 9 & 86 \end{vmatrix}$.

Q6. If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$, then write the value of $6x$.

Q7. If $\begin{vmatrix} 2x & x+3 \\ 2(x-1) & x+1 \end{vmatrix} = \begin{vmatrix} 1 & 5 \\ 3 & 3 \end{vmatrix}$, then write the value of $x$.

Q8. Find the equation of the line joining A(1, 3) and B (0, 0) using determinants and find the value of k if D(k, 0) is a point such that area of $\Delta ABD$ is 3 square units.

Q9. Find the cofactors of all the elements of $\begin{bmatrix} 1 & -2 \\ 4 & 3 \end{bmatrix}$.

Q10. If $A = \begin{bmatrix} 5 & 6 & -3 \\ -4 & 3 & 2 \\ -4 & -7 & 3 \end{bmatrix}$, then write the cofactor of the element $a_{21}$ of its 2nd row.

Q11. If $A_{ij}$,is the cofactor the element $a_{ij}$ of the determinant $\begin{bmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{bmatrix}$ then write the value of $a_{32}.A_{32}$

Q12. The inverse of $\begin{bmatrix} -4 & 3 \\ 7 & -5 \end{bmatrix}$ is

(a) $\begin{bmatrix} -5 & 3 \\ 7 & -4 \end{bmatrix}$ (b) $\begin{bmatrix} 5 & 3 \\ 7 & 4 \end{bmatrix}$ (c) $\begin{bmatrix} -5 & 7 \\ 3 & -4 \end{bmatrix}$ (d) $\begin{bmatrix} -5 & -3 \\ -7 & -4 \end{bmatrix}$

Q13. If $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 59 & 69 & -1 \end{bmatrix}$, then $A^{-1}$

(a) is $A$ (b) is$(-A)$ (c) is $A^2$ (d) does not exist

Q14. If $A = \begin{bmatrix} 1 & -2 & 4 \\ 2 & -1 & 3 \\ 4 & 2 & 0 \end{bmatrix}$is the adjoint of a square matrix $B$,then $B^{-1}$ is equal to

(a) $\pm A$ (b) $\pm\sqrt{2}A$ (c) $\pm\frac{1}{\sqrt{2}}B$ (d) $\pm\frac{1}{\sqrt{2}}A$

Q15. If exist $\begin{bmatrix}1 & -tan\theta\\ tan\theta & 1\end{bmatrix}\begin{bmatrix}1 & tan\theta\\ -tan\theta & 1\end{bmatrix}^{-1} = \begin{bmatrix}a & -b\\ b & a\end{bmatrix}$, then

(a) $a = 1 = b$ (b) $a = \cos 2\theta,\ b = \sin 2\theta$

(c) $a = \sin 2\theta,\ b = \cos 2\theta$ (d) $a = \cos\theta,\ b = \sin\theta$

Q16. If $A = \begin{bmatrix}-2 & 0 & 0\\ 0 & -2 & 0\\ 0 & 0 & -2\end{bmatrix}$, then find $|adj\ A|$ is

(a) 64 (b) 16 (c) 0 (d) -8

Q17. If $A = \begin{bmatrix}2 & 0 & 0\\ -1 & 2 & 3\\ 3 & 3 & 5\end{bmatrix}$, then find $A(adj\ A)$.

Q18. If $A$ is a square matrix of order 3 with $|A| = 9$, then write the value of $|2.adj\ A|$

Q19. If $A$ is a $3 \times 3$ invertible matrix, then what will be the value of

$k$ if $\det(A^{-1}) = \det(A)^k$ ?

Q20. If for any $2 \times 2$ square matrix $A$, $A(adj\ A) = \begin{bmatrix}8 & 0\\ 0 & 8\end{bmatrix}$, then write the value of $|A|$.

Q21. If $= \begin{bmatrix}1 & 2 & -3\\ 3 & 2 & -2\\ 2 & -1 & 1\end{bmatrix}$, then find $A^{-1}$ and use it to solve the following system of the equations:

$x + 2y - 3z = 6,\ 3x + 2y - 2z = 3,$

$2x - y + z = 2$

Q22. If $= \begin{bmatrix}2 & -3 & 5\\ 3 & 2 & -4\\ 1 & 1 & -2\end{bmatrix}$, then find $A^{-1}$. Using $A^{-1}$, solve the following system of equations :

$2x - 3y + 5z = 11,\ 3x + 2y - 4z = -5$

$x + y - z = -3$

Q23. If $= \begin{bmatrix}1 & 1 & 1\\ 1 & 0 & 2\\ 1 & 1 & -2\end{bmatrix}$, then find $A^{-1}$. Hence, solve the system of equations

$x + y + z = 6,\ x + 2z = 7, 3x + y + z = 12.$

Q24. Use product $\begin{bmatrix}1 & -1 & 2\\ 0 & 2 & -3\\ 3 & -2 & 4\end{bmatrix}\begin{bmatrix}-2 & 0 & 1\\ 9 & 2 & -3\\ 6 & 1 & -2\end{bmatrix}$ to solve the system of equations

$x+3z=9,\ -x+2y-2z=4,\ 2x-3y+4z=-3$

Q25. Determine the product $\begin{bmatrix}-4 & 4 & 4\\ -7 & 1 & 3\\ 5 & -3 & -1\end{bmatrix}\begin{bmatrix}1 & -1 & 1\\ 1 & -2 & -2\\ 2 & 1 & 3\end{bmatrix}$ and use it to solve the system of equations

$x-y+z=4,\ \ x-2y-2z=9,\ 2x+y+3z=1.$

## ECONOMICS

**1. Project Work-Investigatory Project (Any One)**

1. Role of Reserve Bank of India in the Indian Economy
2. Digital Banking and Financial Inclusion in India
3. Impact of Inflation on Common People
4. Government Budget and Its Components
5. Sustainable Development and Green Economy
6. Unemployment among Youth in India
7. Consumer Awareness and Consumer Rights
8. Globalisation and Indian Economy

**2. Survey Based Activity**

Household Economic Survey

Conduct a survey of 10 families and collect information about:

Occupation, Monthly income , Savings , Expenditure pattern ,Use of banking services

Digital payment methods

**Prepare: Pie chart/bar graph showing expenditure pattern**

- Comparative analysis of savings and spending
- Conclusion based on survey findings

**3. Data Interpretation Activity**

**Collect recent newspaper or magazine articles related to:**

- Inflation
- GDP growth
- Unemployment
- Banking reforms
- Government Budget
- Poverty

**Paste the articles and answer:**

1. What is the issue discussed?
2. How does it affect the economy?
3. Suggest possible solutions.

**4. Competency base questions**

**1.** A country's GDP increased from ₹150 lakh crore to ₹165 lakh crore in one year, but the prices of goods also increased sharply during the same period.
Explain whether the increase in GDP always means improvement in people's welfare.

2. A farmer sells wheat worth ₹50,000 to a flour mill. The flour mill sells flour worth ₹80,000 to a bakery, and the bakery sells bread worth ₹1,20,000 to customers.
Calculate the value added at each stage and find the total contribution to National Income.

3. Suppose many people in a country start using unpaid household services such as cooking and cleaning at home instead of hiring workers.
How would this affect the calculation of National Income? Give reasons.

4. During a particular year, the government increased spending on roads, schools and hospitals.
Explain how this may affect employment, income and economic growth in the country.

5. A student says, "Higher per capita income always means a better standard of living."
Do you agree? Give reasons with suitable examples.

**5.** Do numericals on measurement of national income with output method, income method and expenditure method

# Applied Art

**General Instructions**

Complete all work neatly and creatively.

Use A2 size sheets for all practical work.

Maintain a separate folder/file for submission.

Originality, presentation, composition, and colour harmony will be considered for assessment.

Mention your name, class, and section on every sheet.

**PART A – POSTER MAKING**

Prepare any 3 Posters on the following themes:

1. Save Environment

2. Mental Health Awareness

3. Women Empowerment

4. Road Safety Awareness

5. Digital India

**Instructions:**

- Use attractive slogans and bold lettering.

- Medium: Poster colours, water colours, acrylic colours, or mixed media.

- Sheet Size: A2

**PART B – ILLUSTRATION WORK**

Prepare any 3 Illustrations on the following topics:

1. Indian Festival Celebration

2. Village Life Scene

3. Street Market in India

4. Musicians Performing Folk Music

5. Childhood Memories

6. A Rainy Day

## Instructions:

- Focus on composition, perspective, colour scheme, and human figures.

- Use any colouring medium of your choice.

- Sheet Size: A2

**PART C – ART HISTORY ASSIGNMENT**

Answer the following questions neatly in your notebook/file:

**Rajasthan Miniature Painting**

1. What are the main characteristics of Rajasthan Miniature Painting?

2. Explain the features of the Mewar School of painting.

3. Write a short note on the Kishangarh School.

4. Who painted the famous painting “Bani-Thani”? Why is it famous?

5. Describe the colours and themes commonly used in Rajasthan Miniature paintings.

**Pahari Miniature Painting**

6. What is Pahari Miniature Painting?

7. Explain the characteristics of the Basohli School.

8. Describe the style and beauty of the Kangra School.

9. Differentiate between Rajasthan and Pahari Miniature paintings.

10. Name any two famous Pahari paintings and explain them briefly.

**PART D – CREATIVE FOLK ART ACTIVITY**

Create one Folk Art Composition inspired by any one of the following:

- Madhubani Art

- Warli Art

- Gond Art

- Pattachitra Art

- Kalamkari Art

**Instructions:**

- Use traditional motifs, patterns, and decorative borders.

- Colour the artwork neatly and creatively.

- Sheet Size: A2

**Submission Guidelines**

Submit all sheets in a handmade portfolio folder.

Work should be neat, colourful, and original.

## CHEMISTRY

1. Prepare notes of the chapter Solution and Biomolecules and solve NCERT text book exercise of each Chapter.

2**. Prepare a handwritten project (8–10 pages) with diagrams and applications.**

**Choose any one:-**

- Sterilisation of Water Using Bleaching Powder
- Analysis of Fertiliser
- Presence of Oxalate Ions in Guava Fruit and Different Stages of Ripening
- Effect of Potassium Bisulphate as a Food Preservative
- Quantitative Presence of Casein in Different Samples of Milk
- Extraction of various essential oils present in Ajwain (Carum), Elaichi (Cardamom), and Saunf (Fennel Seeds)
- Surface Chemistry Colloidal Solutions
- Paper Chromatography

3. Test for functional group present in organic compounds, Write in practical notebook.

Unsaturation, Alcoholic, aldehydic , Kenotic, carboxylic acid and amino groups.

4. **Solve: MCQ's and Assertion Reason** Type of Questions from NCERT Exemplar of the following Chapters: a) Solutions b) Biomolecules

5. **ASSIGNMENT - CHAPTER (SOLUTION).**
**COMPLETE THE FOLLOWING ASSIGNMENT IN FAIR NOTEBOOK.**

1. Calculate the freezing point of a solution containing 60 g of glucose . (Molar mass = 180 g mol-1) in 250 g of water. ( Kf of water = 1.86 K kg mol-1) (-2.48oC)

(i). Give reasons for the following:

(i)Measurement of osmotic pressure method is preferred for the determination of molar masses of macromolecules such as proteins and polymers.

(ii)Aquatic animals are more comfortable in cold water than in warm water.

(iii)Elevation of boiling point of 1M KCl solution is nearly double than that of 1 M sugar solution.

2. A 10% solution (by mass) of sucrose in water has freezing point of 269.15 K. Calculate the freezing point of 10% glucose in water, if freezing point of pure water is 273.15 K.

Given : (Molar mass of sucrose = 342 g mol–1 , Molar mass of glucose = 180 g mol–1)

3. State the formula relating pressure of a gas with its mole fraction in a liquid solution in contact with it. Name the law and mention its two applications.

4. Two liquids A and B boil at 1450C and 1900C respectively. Which of them has a higher vapor pressure at 800C?

5. (a) Why is the vapour pressure of a solution of glucose in water lower than that of water?

(b) A 6.90 M solution of KOH in water contains 30% by mass of KOH. Calculate the density of the KOH solution? ( molar mass of KOH = 56 g/mol)

(1.288 g/ml)

6. Define azeotropes. What type of azeotrope is formed by positive deviation from Raoult's law? Give an example.

7. Explain with suitable examples in each case why the molar masses of some substances determined with the help of colligative properties are (i) higher (ii) lower than actual values.

8.Out of 1 M glucose and 2 M glucose, which one has a higher boiling point and why?

b) What happens when the external pressure applied becomes more than the osmotic pressure of solution ?

9. State Raoult's law for solutions of volatile liquids. Taking suitable examples explain the meaning of positive and negative deviations from Raoult's law. What is the sign of $\Delta H_{mix}$for positive deviation?

10. a) Define the term osmotic pressure. Describe how the molecular mass of a substance can be determined by a method based on measurement of osmotic pressure.

b) Determine the osmotic pressure of a solution prepared by dissolving 0.025g of K2SO4 in 2L of water at 25oC, assuming that is completely dissociated.

(R=0.0821 L atm/K/mol, molar mass of K2SO4= 174g/mol)

11. 15 g of an unknown molecular material was dissolved in 450 g of water. The resulting solution was found to freeze at -0.34oC. What is the molar mass of this material? Kf for water = 1.86 K Kg mol-1). (182 g mol-1)

12. A solution is prepared by dissolving 1.25g of oil of winter green (methyl salicylate) in 99.0g of benzene has a boiling point of 80.310C. Determine the molar mass of this compound. (B.P. of pure benzene = 80.100C and Kb for benzene = 2.530C kg mol-1)

(152.21 g/mol)

13. A 1.00 molal aqueous solution of trichloroacetic acid ( CCl3COOH) is heated to its boiling point. The solution has the boiling point of 100.18oC. Determine the van't Hoff factor for trichloroacteic acid (Kb for water = 0.512 K Kg mol-1). ater is 3.64 KPa.

14. What type of azeotrope is formed on mixing nitric acid and water?

15.Why it is better to find molality of a solution than its molarity?

## PHYSICS

**Instructions for Students -**

**1.Complete all work in a separate Physics notebook/file.**

**2.Draw neat labeled diagrams wherever required.**

**3.Submit the homework after summer vacation.**

***PART A – THEORY ASSIGNMENT***

Chapter 1: Electric Charges and Fields.

Answer the following questions:

1.Define Coulomb's law.

2.Define electric field lines.

3.What is an electric dipole?

4.State Gauss's theorem.

5.Calculate electric field due to a charge of $5 \times 10^{-6}$ C at a distance of 2 m.

***PART B- DERIVATIONS PRACTICE*.**

Write and learn the following derivations:

i)Electric field due to point charge.

ii)Electric dipole on axial position.

iii)Capacitance of a parallel plate capacitor.

***PART C – PRACTICAL ACTIVITES***

**Activity**- Prepare a chart on:-

.Electric field lines

*OR*

.Capacitor combinations

***PART-D INVESTIGATORY PROJECT***

1.Applications of Capacitors

2.Household Wiring System

3.Physics Behind Electric Vehicles

4.Solar Energy and Electricity Generation

5.Contribution of Michael Faraday in Electricity.

***Project Guidelines***

1.Include diagrams/pictures

2.Write conclusion and bibliography

3.Use colored headings

**PART E– CREATIVE WORK**

Make any one:-

1.Circuit diagram chart

2.Poster on “Electricity in Daily Life”