



From the Team Leader

Dear Mahavirians and Children,

As the summer break approaches, it brings with it a wonderful opportunity to pause, refresh, explore, and grow. Holidays are not merely a break from school; they are a beautiful phase of learning beyond the classroom walls. While we all look forward to relaxation and family time, it is equally important that the continuum of learning is maintained in meaningful and joyful ways.

With this thought in mind, the Holiday Homework has been thoughtfully designed for each class. The purpose of this work is to keep the young minds engaged, curious, creative, and connected to learning in an enjoyable manner.

Dear children, summer vacations are a wonderful time to discover yourselves, strengthen your interests, and create memories that last forever. Learning happens in many forms – helping your parents with household chores, reading every day, pursuing a hobby, learning a new skill, exploring nature, spending quality time with family, and engaging in creative activities. Each experience teaches something valuable and contributes to your growth as confident, responsible, and independent learners.

Therefore, I encourage every Mahavirian to:

- Read at least two pages of any book every day.
- Pursue a hobby that brings happiness and creativity.
- Learn a new skill such as swimming, skating, dancing, painting, playing a musical instrument, gardening, cooking, or anything that excites and inspires you.
- Devote at least one hour daily to self-study so that the continuity of learning is maintained.

At the same time, spend quality time with your family, stay physically active, play outdoors, appreciate nature, and take care of your health and well-being.

I would also like to lovingly remind all children that the Holiday Homework should be done independently and sincerely. When you complete your work on your own, you develop confidence, responsibility, creativity, and problem-solving skills. Independent work nurtures originality of thought and helps you become a self-reliant learner – a quality that will benefit you throughout life.

Dear parents, your encouragement and gentle guidance during the holidays will go a long way in helping children develop healthy habits, time management, and a love for lifelong learning. More than perfection, we value participation, effort, and the joy of learning.

May this summer break be filled with happiness, learning, exploration, laughter, and beautiful experiences for all of you.

Wishing you a safe, productive, and joyful summer vacation!

Ruchika Sukhija

Principal

CHEMISTRY

Q-1- Complete Notes and Questions of NCERT of **Chapter-2 Structure of Atom** in your assignment register.

Q-2- Collect information for Chemistry Project as indicated by teacher and complete your Chemistry Practical File.

Q-3- (a) Prepare 3 D models of three covalent molecules assigned to you in the class using biodegradable materials (Roll Numbers 1 to 20).

(b) Prepare long form of the periodic table on the cardboard by using some innovative and creative ideas as discussed in the class (Roll Numbers 21 to 40).

Q-4- Prepare Life History Sketch of any two famous scientists in the field of Chemistry on A-3 size sheet. Decorate it with Border.

PHYSICS

Q-1- Complete notes and questions of NCERT Chapter – **Motion In A Straight Line** in your Home Work copy.

Q-2- Bring ideas for Physics Project as instructed and complete the Practical File.

Q-3- Prepare a working model (in groups) on the topic given below:

Roll no. 1-10

* Smart Solutions for Real-Life Problems

Roll no. 11-20

* Sustainable Living

Roll no. 21-30

* Future World Technologies

Roll No. 31. -37

* Think Global, Act Local

All the guidelines for the model have already been discussed in class, and the students groups have been formed accordingly. Each group is expected to begin work on their model as per the assigned plan.

BIOLOGY

1. Complete notes and practical file.
2. Find matter for Project Report as indicated by the teacher.
3. Prepare collage (A-3 sheet) on Conservation on any of the following topics:

☞ Water conservation/pollution

☞ Green school Environment

4. Prepare a 3-D model of any one of the following:

☞ DNA helix on a stand,

☞ Mitosis/Meiosis on cardboard.

ENGLISH

1. News Reading and Presentation

- Students must read the newspaper daily during the summer break.
- Students ought to **collect and compile** the news items they find most important and urgent (minimum 15 items).
- On reopening; each student will give a presentation.
- Presentations should be **creative**: options include dramatic reading, role-play, mock news bulletin, or illustrated charts.
- A written portfolio of the collected news must also be submitted.

2. Practice questions and Assignment questions

Each chapter/poem has **three practice questions** (short-answer, 40–50 words) and **three assignment questions** (long-answer, 120–150 words).

A) We Are Not Afraid to Die...

Practice questions

1. What qualities of leadership does the narrator display during the storm?
2. How does the family's unity help them survive?
3. Identify one moment of irony in the narrative.

Assignment questions

1. Critically analyze the theme of courage in adversity.
2. Discuss the role of optimism in survival situations.
3. Evaluate the narrative style and its impact on the reader.

Practice questions

1. What is the central metaphor of the poem?
2. How does the rain describe its own journey?
3. Explain the significance of the dialogue form.

Assignment questions

1. Analyze the poem as a reflection on creativity.
2. Discuss the cyclical nature of rain and art.
3. Evaluate Whitman's style in blending science and poetry.

C) The Summer of the Beautiful White Horse

Practice questions

1. What values are highlighted in the Armenian community?
2. How do the boys justify their actions?
3. Identify the role of humor in the story.

Assignment questions

1. Critically analyze the theme of honesty versus temptation.
2. Discuss the significance of childhood innocence.
3. Evaluate the narrative's moral lesson.

D) Speech Writing

Practice questions

1. Write a short speech on "The Role of Youth in Nation-Building."
2. Draft a speech on "Digital Literacy in Schools."

Assignment question

1. Evaluate the effectiveness of speeches in social change.

3. Novel Reading

Students must read **any one** of the following novels during the summer holidays:

1. *To Kill a Mockingbird* by Harper Lee
2. *The Diary of a Young Girl* by Anne Frank
3. *The Kite Runner* by Khaled Hosseini
4. *Pride and Prejudice* by Jane Austen
5. *The Catcher in the Rye* by J.D. Salinger

4. Synopsis and Book Jacket Exhibition

- Students will prepare a **one-page synopsis** of the novel they read.
- They will design a **book jacket** including:
 - Title and author
 - Creative illustration
 - Blurb (summary + appeal)
 - Critical comment or quotation
- These will be exhibited in the **Book Alooza Summer Activity Exhibition**.
- Evaluation will be based on **creativity, comprehension, and presentation**.

Submission Guidelines

- Practice questions must be written in the practice register, and assignment questions must be written in the assignment register.
- Deadline: First day after summer vacation.
- Evaluation will consider **clarity, originality, depth of analysis, and presentation**.

PSYCHOLOGY

Q-1 Select one topic and make a project on it. The project/small study would involve the use of different methods of enquiry like observation, survey, interview, questionnaire related to the following topics:

- Bullying/Cyberbullying
- Mental health and wellbeing
- Impact of social media on the youth today
- Altruism and its impact on wellbeing
- Peer Pressure
- Anger management
- Sleep Hygiene
- Changing Gender roles and stereotypes
- Cooperation and Competition
- Compliance and Obedience

Aim: The aim of the study is to understand the underlying concepts through research .

Guidelines for submitting the Project:

- 1.The project must be handwritten.
- 2.The total length of the project must be 40-45 A4 size coloured sheets.
- 3.Students can paste colored pictures in accordance with the topic chosen.
- 4.The project must be presented in the following order:

a. Make a cover page of the Title/topic chosen from the list given.it must contain title, student's detail (full name of the student, class and section, Roll number), school's name and session.

b. Index: List of contents with page numbers.

S.No	Topic	Page No.	Teachers Signature

c. Certificate and Acknowledgement: Certificate should be attached and should be Printed Acknowledging the institution and the persons who helped.

d. Subject Matter/Content: Sub topics with relevant headings (refer to Checklist). e. Summary and conclusion.

f. Bibliography: It must have the names of books, websites along with their links from where the content is collected.

g. Photographs/Tables should be clearly labeled properly.

Certificate (For Reference)

This is to certify that _____(your name IN CAPITALS) of Class XI has worked and completed her Psychology Project File under my guidance and supervision.

This is for ALL INDIA SENIOR SECONDARY SCHOOL CERTIFICATE EXAMINATION (AISSCE) (SESSION: 2025-2026)

Place: Delhi

Date:

MS. _____

(Psychology Teacher)

MS. _____

(PRINCIPAL)

Acknowledgement (For Reference)

Many people have played an important role in the completion of my practical work.

I take this opportunity to express my profound gratitude and deep regards to my guide Ms.Aruna Malhotra -PSYCHOLOGY Teacher for her exemplary guidance, monitoring and constant encouragement throughout the course of this practical.

Also, I would like to thank all my friends who were subjects for various experiments and tests, without their time and support this would not have been possible.

I further extend my deepest gratitude to MS.Ruchika Sukhija, Principal for their help in my file work. Without their encouragement and support, it would not have been possible.

I would also like to thank my parents for helping me to go my own way. Last, but not the least, thanks to the almighty, who blessed me and made all things possible.

YOUR NAME

Headings/Topics to be covered in the project:-

1. Introduction/Basic Concept of topic/title.
2. Brief Historical background of the topic.
3. Types if any.
4. Methodology used to study like observation, questionnaire, survey or case study using movie analysis or research paper analysis etc.
5. Conclusion/Summary
6. Citation of the materials referred to, in the file in resource section/bibliography.

Modes of the presentation

At the end of the stipulated term for completion of the project, each student will present their work in the project file to the subject teacher. It will be followed by a viva in half yearly and at the end of the year so be very vigilant while making the project.

Q-2 Complete the assignment and back questions of Chapter-2 Method's of Enquiry in Psychology?

COMPUTER SCIENCE

A. Do it in your Computer Science Register:

1. Write Python statement to display your name.
2. Write Python command to display your school name, class, and section, separated by "\$".

(i) $(4 + 6) ** 3 - 12 / 4$

(ii) $(1 + 1.5) * 5 // 4 + (4 + 6.0) / 2$

(iii) $6 \% 5 * 3 + (2 * 6) // 4 * 4$

Evaluate the above expressions by using IDLE as a calculator and verify the results that you got manually.

4. Identify invalid variable names from the following, give reason for each:

int, total value, C.S., lume, tot_val, #TA, total#, 11B+C,@@

5. Find the output of the following code:

- (1) `x=3`
`y=x+2`
`x+=y`
`print(x,y)`
- (2) `x=-2`
`y=2; x+=y; y-=x ;print(x,y)`
- (3) `a=5`
`b=2*a ;a+=a+b; b*=a+b; print(a,b)`

6. Write Python expressions to represent the following situations:

a. Add remainder of 10/7 to the product of 10 and 7.

b. Find the square root of the sum of 8 and 43.

7. 'Python is an interpreted high level language'. What does it mean to you?

8. What is the difference between interactive mode and script mode in Python?

9. What is the difference between a keyword and an identifier?

10. What is the error in following Python program with one statement?

```
print ("My name is ", name)
```

Suggest a solution.

11. What will be the output of the following code?

```
x, y = 2, 6
```

```
x, y = y, x + 2
```

```
print(x,y)
```

Q12. What are data types? What are Python's built in core data types?

practical file.

(Note: Soft copy can be in the form of MS WORD software).

1. Python Program to Add Two Numbers
 2. Python Program to Calculate the Area and perimeter of a Triangle.
 3. Python Program to Make a Simple Calculator
 4. Python Program to Convert Celsius To Fahrenheit
 5. Python Program to Swap Two Variables
 6. Python Program to Find the Multiples of a Number
 7. Python Program to Display the multiplication Table
 8. Python Program to Swap Three Variables
 9. Python Program to Check if a Number is Odd or Even
 10. Write a program to input length of three sides of a triangle. Then check if these sides will form a triangle or not.
(Rule is: $a+b>c$; $b+c>a$; $c+a>b$)
 11. A shop charges ₹1200 per item if you buy less than 100 items. If you buy between 100 and 199 items, the cost is ₹1000 per item. If you buy 1000 or more items, the cost is ₹700 per item. Write a program that asks the user how many items they are buying and prints the total cost.
 12. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not.
- C. “Educational Game / Quiz Application/CHATBOT using Python or Scratch”

Design and develop an **educational game or quiz application** using **Python or Scratch**.

MATHEMATICS

Part A (Activity file)

1. Sets and Subsets
2. Operations on Sets using venn diagram
3. Graph of trigonometric function

Part B (Working Model) :- Prepare a working model based on any Mathematical concepts (integration with Computational Thinking and AI).

Part C (Practice Worksheet)- Worksheets Based on Sets, Relation and function and trigonometric Functions (in form of DPP)

VERY SHORT ANSWER TYPE QUESTIONS

1. Write the radian measure of $5^{\circ}37'30''$.
2. Write the degree measure of $\frac{11}{16}$ radian.
3. Write the value of $\tan\left(\frac{19\pi}{3}\right)$.
4. What is the value of $\sin(-1125^{\circ})$,
5. Write the value of $2\sin 75^{\circ}\sin 15^{\circ}$.
6. What is the maximum value of $3 - 7\cos 5x$.
7. Express $\sin 12\theta + \sin 4\theta$ as the product of sines and cosines.
8. Express $2\cos 4x\sin 2x$ as an algebraic sum of sines and cosines.
9. Write the maximum value of $\cos(\cos x)$ and also write its minimum value.
10. Write is the value of $\tan \frac{\pi}{12}$.

SHORT ANSWER TYPE QUESTIONS

11. Find the length of an arc of a circle of radius 5 cm subtending a central angle measuring 15° .
12. If $\sin A = \frac{3}{5}$ and $\frac{\pi}{2} < A < \pi$ Find $\cos A, \sin 2A$.

13. What is the sign of $\cos x/2 - \sin x/2$ when
 (i) $0 < x < \pi/4$ (ii) $\frac{\pi}{2} < x < \pi$
14. Prove that $\cos 510^\circ \cos 330^\circ + \sin 390^\circ \cos 120^\circ = -1$.
15. Find the maximum and minimum value of $7\cos x + 24\sin x$.
16. Evaluate $\sin(\pi + x)\sin(\pi - x)\operatorname{cosec}^2 x$.
17. Find the angle in radians between the hands of a clock at 7: 20PM.
18. If $\cot \alpha = \frac{1}{2}, \sec \beta = \frac{-5}{3}$ where $\pi < \alpha < 3\pi/2$ and $\frac{\pi}{2} < \beta < \pi$. Find the value of $\tan(\alpha + \beta)$.
19. If $\cos x = \frac{-1}{3}$ and $\pi < x < \frac{3\pi}{2}$. Find the value of $\cos x/2, \tan x/2$
20. If $\tan A = \frac{\alpha}{\alpha+1}$ and $\tan B = \frac{1}{2\alpha+1}$ then find the value of $A + B$
21. A horse is tied to a post by a rope. If the horse moves along a circular path, always keeping the rope tight and describes 88 metres when it traces 72° at the centre, find the length of the rope.
22. Find the minimum and maximum value of $\sin^4 x + \cos^2 x; x \in R$
23. Find x if $\tan(x - 15^\circ) = \tan(x + 15^\circ)$
24. If $\sec x = \sqrt{2}$ and $\frac{3\pi}{2} < x < 2\pi$, find the value of $\frac{1 - \tan x - \operatorname{cosec} x}{1 - \cot x - \operatorname{cosec} x}$
25. If $f(x) = \frac{\cot x}{1 + \cot x}$ and $\alpha + \beta = \frac{5\pi}{4}$ then find $f(\alpha) \cdot f(\beta)$.
26. Prove that $\tan 70^\circ = \tan 20^\circ + 2\tan 50^\circ$
27. Prove that $\tan 13x = \tan 4x + \tan 9x + \tan 4x \tan 9x \tan 13x$.
 [Hint: $13x = 9x + 4x$]
 Prove the following Identities
28. $\frac{\tan 5\theta + \tan 3\theta}{\tan 5\theta - \tan 3\theta} = 4\cos 2\theta \cdot \cos 4\theta$. [Hint: Break into \sin and \cos]
29. $\frac{\cos x + \sin x}{\cos x - \sin x} - \frac{\cos x - \sin x}{\cos x + \sin x} = 2\tan 2x$.

$$30. \frac{\cos 4x \sin 3x - \cos 2x \sin x}{\sin 4x \cdot \sin x + \cos 6x \cdot \cos x} = \tan 2x .$$

[Hint: Transformation formula from product to sum or different]

$$31. \frac{1 + \sin \theta - \cos \theta}{1 + \sin \theta + \cos \theta} = \tan \frac{\theta}{2} . \text{ [Hint: Use half angle formula]}$$

$$32. \tan \alpha \cdot \tan(60^\circ - \alpha) \cdot \tan(60^\circ + \alpha) = \tan 3\alpha .$$

$$33. \sqrt{2 + \sqrt{2 + 2\cos 4\theta}} = 2\cos \theta . \text{ [Hint: Use half angle formula]}$$

$$34. \frac{\cos x}{1 - \sin x} = \tan \left(\frac{\pi}{4} + \frac{x}{2} \right) .$$

$$35. \cos 10^\circ + \cos 110^\circ + \cos 130^\circ = 0 .$$

$$36. \frac{\sin(x+y) - 2\sin x + \sin(x-y)}{\cos(x+y) - 2\cos x + \cos(x-y)} = \tan x$$

$$37. \sin x + \sin 2x + \sin 4x + \sin 5x = 4\cos \frac{x}{2} \cdot \cos \frac{3x}{2} \cdot \sin 3x \quad \text{[Hint: Use transformation formula from sum of product.]}$$

$$38. \frac{\sec 8\theta - 1}{\sec 4\theta - 1} = \frac{\tan 8\theta}{\tan 2\theta}$$

$$39. \text{ Find the value of } \sqrt{3}\operatorname{cosec}20^\circ - \sec 20^\circ$$

40. Draw the graph of $\cos x$, $\sin x$ and $\tan x$ in $[0, 2\pi]$.

41. Draw $\sin x$, $\sin 2x$ and $\sin 3x$ on same graph and with same scale.

$$42. \text{ Evaluate: } \tan \left(\frac{13\pi}{12} \right)$$

$$43. \text{ If } \tan A - \tan B = x, \cot B - \cot A = y \text{ prove that } \cot(A - B) = \frac{1}{x} + \frac{1}{y}$$

$$44. \text{ If } \frac{\sin(x+y)}{\sin(x-y)} = \frac{a+b}{a-b} \text{ then prove that } \frac{\tan x}{\tan y} = \frac{a}{b} .$$

45. Find the range of $5\sin x - 12\cos x + 7$.

$$46. \text{ Show that } \cos^2 + \cos^2 \left(x + \frac{2\pi}{3} \right) + \cos^2 \left(x - \frac{2\pi}{3} \right) = \frac{3}{2}$$

[Hint: Use $\cos 2\theta = 2\cos^2 \theta - 1$]

47. Show that $\sin \alpha + \sin \beta + \sin \gamma - \sin(\alpha + \beta + \gamma)$

$$= 4\sin\left(\frac{\alpha + \beta}{2}\right)\sin\left(\frac{\beta + \gamma}{2}\right)\sin\left(\frac{\alpha + \gamma}{2}\right)$$

[Hint: Use transformation formula sum to product]

LONG ANSWER TYPE QUESTIONS

48. Find $\cos \pi/8$

49. Prove that $\sin 10^\circ \sin 30^\circ \sin 50^\circ \sin 70^\circ = \frac{1}{16}$.

50. $\cos \frac{\pi}{5} \cdot \cos \frac{2\pi}{5} \cdot \cos \frac{4\pi}{5} \cdot \cos \frac{8\pi}{5} = \frac{1}{16}$

51. $\cos 20^\circ \cdot \cos 40^\circ \cdot \cos 80^\circ = \frac{1}{8}$

52. Evaluate: $\cos^4 \frac{\pi}{8} + \cos^4 \frac{3\pi}{8} + \cos^4 \left(\frac{5\pi}{8}\right) + \cos^4 \left(\frac{7\pi}{8}\right)$

[Hint: Use $\cos 2\theta = 2\cos^2 \theta - 1$]

53. If $\cos x = \cos \alpha \cdot \cos \beta$ then prove that $\tan\left(\frac{x+\alpha}{2}\right) \cdot \tan\left(\frac{x-\alpha}{2}\right) = \tan^2 \frac{\beta}{2}$

54. If $\tan(\pi \cos \theta) = \cot(\pi \sin \theta)$ then prove that $\cos\left(\theta - \frac{\pi}{4}\right) = \pm \frac{1}{2\sqrt{2}}$.

55. If $\sin(\theta + \alpha) = a$ and $\sin(\theta + \beta) = b$ then prove that $\cos 2(\alpha - \beta) - 4abc \cos(\alpha - \beta) = 1 - 2a^2 - 2b^2$

56. If α and β are the solution of the equation, $a \tan \theta + b \sec \theta = c$, then show that $\tan(\alpha + \beta) = \frac{2ac}{a^2 - c^2}$.

57. Prove that $\cos^2 x + \cos^2 y - 2\cos x \cdot \cos y \cdot \cos(x + y) = \sin^2(x + y)$

58. Prove that: $2\sin^2 \beta + 4\cos(\alpha + \beta)\sin \alpha \sin \beta + \cos 2(\alpha + \beta) = \cos 2\alpha$

59. Prove that: $\cos A \cos 2A \cos 4A \cos 8A = \frac{\sin 16A}{16 \cdot \sin A}$.

[Hint: Use transformation formula]

60. Evaluate: $\left(1 + \cos \frac{\pi}{8}\right)\left(1 + \cos \frac{3\pi}{8}\right)\left(1 + \cos \frac{5\pi}{8}\right)\left(1 + \cos \frac{7\pi}{8}\right)$

61. Prove that: $4\sin \alpha \cdot \sin\left(\alpha + \frac{\pi}{3}\right) \cdot \sin\left(\alpha + \frac{2\pi}{3}\right) = \sin 3\alpha$.

[Hint: Use transformation formula of product to sum or diff.]