



BIRLA PUBLIC SCHOOL GANGANAGAR SUMMER BREAK HOLIDAY HOMEWORK



CBSE AFFILIATION NO.
1730974

Session: 2025-26
Class: XI A (Science)



General Instructions:

- Complete all the work in the Class work Note Book.
- Maintain cleanliness and avoid spelling mistakes.
- Write in good handwriting.
- Complete the work neatly with proper numbering.
- Draw diagrams neatly and label them.
- Please Write the entire task with blue/ black pen.
- Use your own creativity to make it look attractive.

Subject- English

Q.1: Summer Journey into Timeless Wisdom

Have you ever wondered how ancient words spoken thousands of years ago still whisper truths into our modern lives?

This summer, step into the world of timeless wisdom through the Bhagwad Gita and the Guru Granth Sahib Ji.

Reflect, imagine, and create as you listen to the voice of ages – and discover the warrior and sage within you!

Objective:

- To cultivate wisdom, reflection, and creativity by engaging with the teachings of the Bhagwad Gita and the Guru Granth Sahib Ji through reading or listening.

Compulsory Tasks:

1. Wisdom Diary (Daily Entry)

2. Podcast Homework: (Weekly Task)

Choose any ONE Additional Task:

3. Dialogue Across Ages: (Weekly Task)

4. The Path of Warriors and Saints: (Weekly Task)

General Requirements:

- **The homework must be done neatly in English notebook.**
- Language: Simple, clear, correct, and reflective English.
- Presentation: Neatly handwritten or typed, using headings, margins, and proper structure.
- Creativity: Add small decorative elements like simple borders, motifs, or scripture-related symbols.
- Authenticity: Personal thoughts and reflections are highly valued.

Date of Submission: 1st July 2025

Evaluation Criteria:

Depth of understanding and reflection

Creativity and original expression

Language and articulation

Neatness and presentation

Important Note:

- You may refer to simple English translations.
- Choose teachings that truly inspire you.
- Let your entries reflect your own voice, thoughts, and feelings.
- Plagiarism will not be entertained – originality will be appreciated.

COMPULSORY TASKS:

You have to attempt both the tasks given in this section.

Section 1- (a) Wisdom Diary (Writing Assignment - Daily Reflection Task)

(Duration: 15 min/day)

Daily Task:

- Read one Shloka (Bhagwad Gita) OR one Hymn (Guru Granth Sahib Ji). **(You are free to choose any other scripture.)**
- Listen to simple explanation if needed from digital audio & video platforms.
- Write your reflections by answering:

Weekly Wisdom Diary Questions:

1. Quote the Shloka/Hymn.
2. What does this Shloka/Hymn teach me? (2-3 lines)
3. How can I apply this teaching in my life today? (One real situation)
4. Draw a small symbol or doodle related to the idea.

5. Reflecting on the teachings from either the Bhagwad Gita or the Guru Granth Sahib Ji, **write a rhyming poem** that captures a core message from one of their verses. (Weekly Task)

Section 1- (b) Podcast Homework (Speaking Assignment - Every Week)

Podcast Recording Task:

- Select one Shloka or Hymn every week.
- Record yourself answering these points:

Podcast Guiding Questions:

1. Recite the Shloka or Hymn (try with correct pronunciation).
2. What is the central idea? (Explain simply in English.)
3. Why did you choose this today? (One personal reason)
(Record in English)
4. Send your podcast videos to your subject teacher's mail id: ankur090176@bpsg.edu.in

OPTIONAL TASK: Choose any ONE

Section 2- (a) Dialogue Across Ages (Weekly Creative Task)

(1 dialogue per week - total 7 dialogues in holidays)

Weekly Task:

Imagine a conversation between:

- Krishna and a 21st-century youth,
OR
- Guru Nanak Dev Ji and a class XI student,
OR
- A warrior and a saint.

Dialogue Starter Questions:

- What advice would Krishna give me today if I were to become the best human being?
- If Guru Nanak Dev Ji visited my school, what advice would he offer for modern challenges?
- What conversation would happen between Courage (as a warrior) and Peace (as a saint)?

Output:

Write the dialogue in English (5-7 short exchanges).

Add simple illustrations if you like.

Section 2- (b) The Path of Warriors and Saints (Weekly Analytical Work)

(One table per week)

Weekly Task:

- Select one virtue/idea every week (e.g., Duty, Courage, Compassion, Humility).

Find:

- What Bhagwad Gita says about it.
- What Guru Granth Sahib Ji says about it.
- Prepare a table according to the example given below.

Example:

WEEK	VALUE LEARNT	What Shrimad Bhagwad says/ What Guru Granth Sahib ji says	My Understanding
1			

	Selfless Service		
2	Fearlessness		

(Simple 4-column table, handwritten beautifully. Extend this table as required.)

Bonus Optional Task (Creative Touch):

- Make a decorated cover page for the project:
- "My Journey Through Ancient Wisdom: Summer 2025"

Use traditional motifs like Peacock Feather (Krishna) and Ik Onkar symbol (Sikhism).

Q2. (Art Integration Project – Explore Through Brochures)

Explore the Wonders of Rajasthan and Assam!

Ever wondered what it's like to explore the royal palaces of Rajasthan or the serene landscapes of Assam?

Now's your chance to showcase these incredible destinations in your very own travel brochure!

Objective: To create a creative and informative Travel Brochure that showcases the art, culture, heritage, festivals, sports, culinary richness, or jewellery traditions of Rajasthan and Assam through engaging writing and presentation.

Design and create any two brochures from the following six exciting options.

Each brochure should be creative, colourful, and written using engaging and persuasive language.

Choose ANY TWO from the following brochure types:

- 1. Cultural Travel Brochure** – Showcasing Rajasthan and Assam's vibrant art, dance, music, and traditional crafts.
- 2. Heritage Tour Brochure** – Highlighting historical sites, monuments, and UNESCO heritage spots from both states.
- 3. Festivals and Fairs Travel Brochure** – Featuring famous festivals like Bihu (Assam) and Desert Festival (Rajasthan).
- 4. Culinary Journey Brochure** – Exploring the popular cuisines, street food, and traditional dishes of Rajasthan and Assam.
- 5. Eco-Tourism and Adventure Travel Brochure** – Presenting wildlife sanctuaries, eco-parks, trekking and river activities.
- 6. Jewellery Trail Brochure** – Showcasing the traditional jewellery art of Rajasthan and Assam, famous styles, significance, and global influence.
- 7. Sports Brochure** – Promoting indigenous and traditional sports of Rajasthan and Assam (e.g., Camel Polo, Dhopkhel, Kabaddi, Boat Racing).

Objective:

To create a creative and informative Travel Brochure that showcases the art, culture, heritage, festivals, sports, culinary richness, or jewellery traditions of Rajasthan and Assam through engaging writing and presentation.

Brochure Design Requirements:

- Pages: 1 sheet for 1 brochure. Fold it 3 times to create 4 panels.
- Size: Use A4 sheets accordingly. You can use coloured plain sheets or chart paper.
- Format: Folded like a travel pamphlet or booklet style.
- Use the given links for help: https://youtube.com/shorts/sTMt38_hdu8?si=F-CxHSfumpkV1BMy
https://youtu.be/ukLIYgRloWU?si=dCxQ_1H975YhcrMS
<https://youtu.be/ARlhshQf8v0?si=fvWNIQmjJWB5E3df>
- Title and Slogan: Every brochure must have a catchy title and a short slogan.
- Sections: Proper sections like Introduction, Highlights, Interesting Facts, and Conclusion.
- Pictures: Include hand-drawn pictures, printed images, borders, or traditional patterns.
- Language: Use persuasive, engaging, and grammatically correct English.
- Neatness: Keep the layout clean and colourful. Avoid overcrowding text.
- Creativity: Design the brochure to look attractive and professional.

What to Include in Your Brochure:

- Introduction to Rajasthan and Assam (as per the theme you select)
- Highlight 3-4 major places, events, or products for each state
- Fun/interesting facts to grab attention
- Short captions, slogans, and attractive lines
- Maps, traditional motifs, or cultural symbols (optional but appreciated)

Presentation:

- Use colours, designs, headings, and bullet points to make the brochure look beautiful.
- **You may make it digitally (using Canva/PowerPoint) or by hand (recommended for Art Integration).**
- Decorate without overcrowding the information. Balance visuals and text.

Submission Instructions:

- Submit your project neatly compiled.
- Write your Name, Class, Section, Roll Number clearly on the first page.
- Last Date of Submission: 1st July 2025

Evaluation Criteria:

Content accuracy and coverage

Creativity and presentation

Language and expression

Neatness and effort

Important Note:

Original work will be appreciated.

Avoid copying large content from the internet.

Let your brochure reflect your creativity and understanding!

Q.3 Summer Life Skills Journal: Learn, Practice, and Shine!

Instructions:

Every day, learn or practice one home-related skill (examples: folding clothes, cooking a simple dish, cleaning a shelf, planting a seed, fixing small things, managing a grocery list, etc.).

Maintain your daily record in the given table.

Take a picture of yourself while practicing each skill as proof of your journey toward becoming self-dependent.

Daily Learning Table:

Date	Skill/ Task Learned	How I did it?	What I learnt?	Feeling (Happy/ Proud/Challenged)	Picture attached (Yes/No)

(Extend the table for all days of the vacation.)

Weekly Reflection Table:

Week Number	Most Interesting Task This Week	Lesson Learnt (in 3-4 lines)
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		

Final Showcase:

- Create a poster on a A4 sheet, titled "How I Became a Little More Independent!"
- Make a photo collage showing pictures (at least 7-8) of you, practicing different tasks.
- Submit the project along with the report given below.
- Project must be done in English notebook.
- **Poster and the report must be pasted neatly in English notebook.**

REPORT

Summer Life Skills Journal - Final Reflection

Name: _____

Class & Section: _____

Roll Number: _____

My Journey of Growth

1. The most useful skill I learned:

2. The most challenging task for me was:

3. My proudest achievement during this project:

4. A memorable moment I captured:

5. One lesson I will always remember:

Final Declaration

"I hereby declare that I have completed my Summer Life Skills Journal honestly and learned valuable lessons for becoming more independent."

Signature of Student: _____

Signature of Parent/Guardian: _____

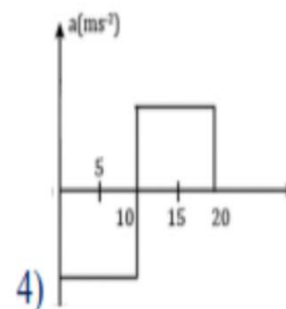
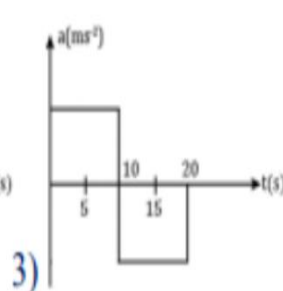
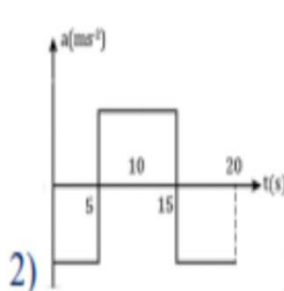
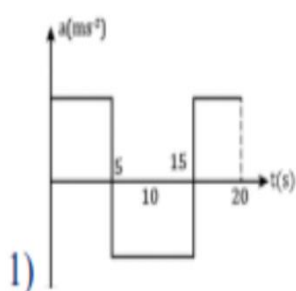
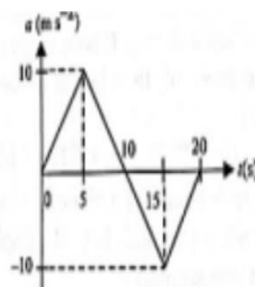
Physics

General Instruction:

1. Complete all questions as given in the Holiday Homework
2. Solve each question in your school notebook.
3. Do neat and clean work.
4. Write each question before its solution.
5. Ensure the solutions are presented in a proper and organized manner.

- If frequency (F), velocity (v) and density (D) are considered as fundamental units, the dimensional formula for momentum will be:
(a) DVF^2 (b) DV^2F^{-1} (c) $D^2V^2F^2$ (d) DV^4F^{-3}
- During a short interval of time the speed v in m/s of an automobile is given by $v = at^2 + bt^3$, where the time t is in seconds. The units of a and b are respectively,
(a) ms^2 ; ms^4 (b) s^3/m ; s^4/m (c) m/s^2 ; m/s^3 (d) m/s^3 ; m/s^4
- The largest mass (m) that can be moved by a flowing river depends on velocity and acceleration due to gravity (g). The correct relation is
(a) $m \propto \frac{\rho^2 v^4}{g^2}$
(b) $m \propto \frac{\rho v^6}{g^2}$
(c) $m \propto \frac{\rho v^4}{g^3}$
(d) $m \propto \frac{\rho v^6}{g^3}$
- Which of the following sets have different dimensions?
(a) Pressure, Young's modulus, stress
(b) Emf, potential difference, electric potential
(c) Heat, work, energy
(d) Dipole moment, electric flux, electric field
- The time dependence of a physical quantity p is given by $p = p_0 \exp(-\alpha t^2)$, where α is a constant and t is the time. The constant α
(a) Is dimensionless (b) Has dimensions $[T^{-2}]$
(c) Has dimensions $[T^2]$ (d) Has dimensions of p.
- The significant figures of the number 6.0023 are
(a) 1 (b) 5 (c) 4 (d) 2
- A cube has a side of length 1.2×10^{-2} m. Calculate its volume.
(a) $1.7 \times 10^{-6} m^3$ (b) $1.73 \times 10^{-6} m^3$ (c) $1.0 \times 10^{-6} m^3$ (d) $1.732 \times 10^{-6} m^3$
- The sum of 6.2g, 4.33g, 17.456g expressed in appropriate number of significant figures is
(a) 28.0g (b) 27.9g (c) 27.98g (d) 27.986g
- For the motion with uniform velocity, the slope of the velocity-time graph is equal to
a. 1 m/s b. Zero c. 10m/s d. 5m/s
- The displacement time graph for two particles A and b are straight lines inclined at 30 and 60 degrees respectively with time axis. The ratio of velocities $V_A:V_B$ is
a) 1:2 b) $1:\sqrt{3}$ c) $\sqrt{3}:1$ d) 1:3
- The numerical ratio of average speed to average velocity is
(a) always less than one (b) always equal to one
(c) always more than one (d) equal to or more than one
- What is the acceleration if the body starts from rest and travels a distance of 's' m in 2 seconds?
a. $\frac{2}{3} s m/s^2$ b. $\frac{3}{2} s m/s^2$ c. $\frac{1}{3} s m/s^2$ d. $\frac{1}{2} s m/s^2$
- An athlete finishes a round of circular track of radius R in 40 sec. What is his displacement at the end of 2 min 20 sec?
a. 2R b. $2\pi R$ c. $7\pi R$ d. Zero

14. A body moves in a straight line along Y-axis. Its distance y (in metre) from the origin is given by $y = 8t - 3t^2$. The average speed in the time interval from $t = 0$ second to $t = 1$ second is
 (1) -4 ms^{-1} (2) zero (3) 5 ms^{-1} (4) 6 ms^{-1}
15. Plot the acceleration –time graph of the velocity – time graph given in the figure.



16. The area under acceleration-time graph gives
 (1) Distance travelled (2) Change in acceleration (3) Force acting (4) Change in velocity

Assertion And Reasoning Questions

In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- If both assertion and reason are true and reason is a correct explanation of the assertion
 - If both assertion and reason are true but reason is not a correct explanation of the assertion
 - If assertion is true but reason is false.
 - If assertion and reason both are false
- 17 **ASSERTION:** Radian is the SI unit of plane angle.
REASON : One radian is the angle subtended at the centre of the circle by an arc whose length is equal to the radius of the circle.
- 18 **ASSERTION:** When we change the unit of measurement of a quantity, it's numerical value changes.
REASON : Smaller the unit of measurement smaller is its numerical value.
- 19 **ASSERTION:** 16.4 cm, 0.164 m and 0.000164 km all have three significant figures.
REASON : The number of significant figures does not depend on the system of units.

SHORT ANSWER QUESTIONS

20. The distance covered by a particle in time is given by $X = a + bt + ct^2 + dt^3$ find the dimensions of a , b , c , and d .
21. If the unit of force is 1 kN , unit of length 1 km and the unit of time is 100 s , what will be the unit of mass?
22. Give position time graph for one object moving with negative velocity, moving with positive velocity and at rest.

23. A body thrown vertically upwards. Draw its i) velocity time graph ii) acceleration time graph.
24. Check the correctness of the given equations by dimensional analysis
(i) $S = ut + \frac{1}{2}at^2$ (ii) $mgh = \frac{1}{2}mv^2$
- SHORT ANSWER QUESTIONS
25. The wave length λ associated with a moving electron depends on its mass m , velocity v and Plank's constant h . Prove dimensionally that $\lambda \propto h/mv$.
26. By the method of dimensions, obtain an expression for the centripetal force F acting on a particle of mass m moving with a velocity v in a circle of radius r . Take dimensionless constant $K = 1$.
27. The frequency ' ν ' of vibration of a stretched string depends upon:
(i) the length ' l ' of the string
(ii) its mass per unit length ' m ' and
(iii) the tension T in the string.
28. Draw the following graphs for an object under free fall
i) Variation of acceleration with respect to time
ii) variation of velocity with respect to time
iii) variation of distance with respect to time

Chemistry

General instructions

- Complete all the work in the Chemistry fair notebook.
- Maintain cleanliness and avoid spelling mistakes.
- Write in good handwriting.
- Complete the work neatly with proper numbering.
- Use your own creativity to make it look attractive.
- Submit the entire task in class notebook only.

Q1. Choose any traditional Indian dish and write its ingredients in:

- Moles, grams, and number of particles.
- Present as a decorated *recipe card* or *mini poster* with illustrations.

Q2. Design a **flipbook** or **comic strip** showing evolution of atomic models:

- Dalton $\rightarrow$ Thomson $\rightarrow$ Rutherford $\rightarrow$ Bohr.

Q3. Calculate the number of moles in:

- a) 10 g of H_2SO_4 b) 50 g of $CaCO_3$ c) 22 g of CO_2

Calculate the mass of:

- a) 0.5 mol of $NaOH$ b) 2 mol of Cl_2 c) 0.2 mol of CH_4

Q4. Find the number of molecules in:

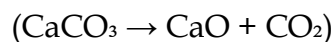
- a) 5 moles of water b) 0.25 mole of O_2 c) 1 mole of glucose

Q4. A compound contains 40% carbon, 6.7% hydrogen, and 53.3% oxygen. Its molar mass is 60 g/mol. Calculate its empirical and molecular formula.

Q5. A. How many grams of oxygen are required to completely react with 32 g of methane (CH_4)?

(Balanced Equation: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$)

B. What volume of CO_2 will be formed at STP when 10 g of CaCO_3 is decomposed?



C.If 20 g of hydrogen reacts with excess oxygen, what mass of water will be formed?

Q6. A. Write the four quantum numbers for the last electron in:

- a) Na ($Z=11$) b) Cl ($Z=17$) c) Ca ($Z=20$)

B. How many orbitals are possible when:

- a) $n = 2$ b) $n = 3$

C.Calculate the maximum number of electrons in:

- a) $n = 3$ b) $n = 4$

Q.7 Write the number of significant figures in the following:

- a) 0.00250 b) 2500 c) 2500.0 d) 3.400×10^{-4} e) 100.0 f) 6.022×10^{23}

NOTE: -Complete practical 1 to 5 in lab manual

[Investigatory project\(Art integrated projects Rajasthan and Assam\)](#)

Handwritten Format:

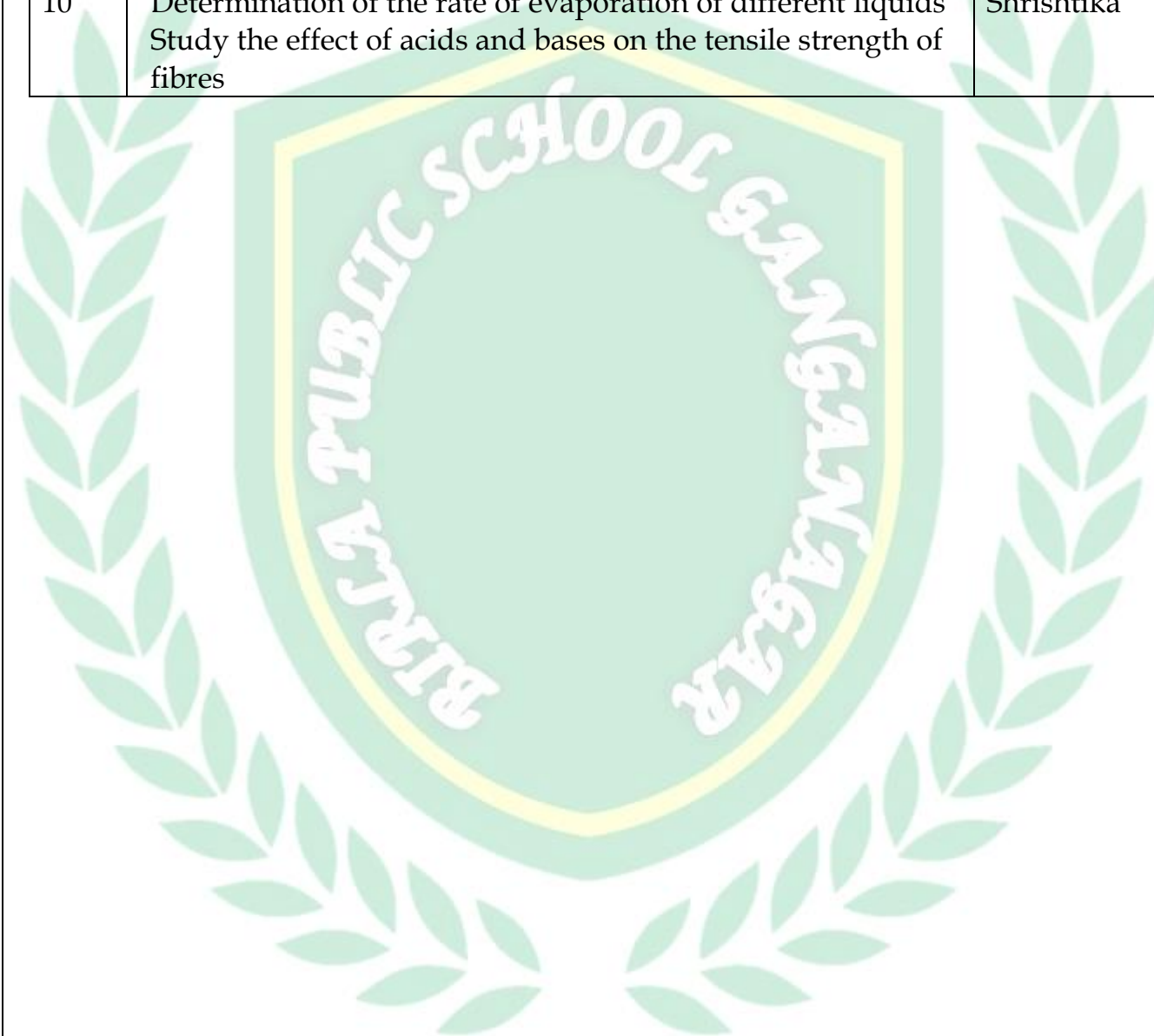
1. Write neatly and legibly. Use a **black and blue pen** for all the text (avoid coloured pens, unless specifically required).
2. Avoid **cutting, overwriting**, or using **correction fluid**.
3. **Margins:** Maintain equal margin on both sides of the page. This helps in keeping the work organized.
4. **Page Numbering:** Number your pages at the bottom-centre or bottom-right corner for easy reference.

Following things must be included in your project

1. Title Page
2. Certificate
3. Acknowledgment
4. Table of Contents (Index)
5. Main Content (Introduction, Objective, Materials, Methods, Results, Discussion, Conclusion)
6. Summary
7. Diagrams and Pi-Charts (if applicable)
8. Bibliography

S.No.	Project name	Student Name
1	Checking the bacterial contamination in drinking water by testing sulphide ion.	Aanya
2	Hess law and Thermochemistry	Chitrakshi
3	Equilibrium	Devika
4	Food adulteration	Dheeraj
5	Study of the methods of purification of water	Harsh hari nandan
6	Testing the hardness, presence of Iron, Fluoride, Chloride, etc., depending upon the regional variation in drinking	Manavjeet

	water and study of causes of presence of these ions above permissible limit	
7	Investigation of the foaming capacity of different washing soaps and the effect of addition of Sodium carbonate on it	Nandika
8	Study the acidity of different samples of tea leaves.	Rajat
9	General organic chemistry	Sainyveer
10	Determination of the rate of evaporation of different liquids Study the effect of acids and bases on the tensile strength of fibres	Shrishtika



ESTD. 2019

Subject -Mathematics

General Instructions:

1. Complete the holiday homework **neatly** in your **Maths class notebook**.
2. Use **sharp pencils** for diagrams and **blue/black pen** for writing (if allowed).
3. Maintain **proper presentation** – headings, margins, and neat handwriting are important.
4. Write the **question first**, and then solve it.
5. Submit the work on the **first day after holidays** without fail.

Revise the concepts regularly for better understanding.

1. If $\lim_{x \rightarrow 2} \frac{x^n - 2^n}{x - 2} = 80$ then n is:
(a) 1 (b) 3 (c) 5 (d) 7
 2. If $f(x) = \begin{cases} x^2 + 1, & x \geq 1 \\ 3x - 1, & x < 1 \end{cases}$ then the value of $\lim_{x \rightarrow 1} f(x)$ is:
(a) 2 (b) -2 (c) 1 (d) -1
 3. The value of $\lim_{x \rightarrow 0} \left(\frac{\tan^2 3x}{x^2} \right)$ is:
(a) 0 (b) 3 (c) ∞ (d) 9
 4. If $f(x) = \begin{cases} x^2 - 1, & 0 < x < 2 \\ 2x + 3, & 2 \leq x \leq 3 \end{cases}$ then the quadratic equations, whose roots are $\lim_{x \rightarrow 2^-} f(x)$ and $\lim_{x \rightarrow 2^+} f(x)$ is:
(a) $x^2 - 6x + 9 = 0$ (b) $x^2 - 7x + 8 = 0$
(c) $x^2 - 14x + 49 = 0$ (d) $x^2 - 10x + 21 = 0$
 5. $\lim_{x \rightarrow 0} \frac{\tan 2x - x}{3x - \sin x}$ is:
(a) 2 (b) 1/2 (c) -1/2 (d) 1/4
 6. Derivation of $\sin^3 x$ is:
(a) $\cos^3 x$ (b) $3 \sin^3 x$ (c) $3 \sin^2 x \cos x$ (d) 0
 7. If $f(x) = x^2 - 5x + 7$, then $f'(3) = \dots\dots\dots$:
(a) 11 (b) 1 (c) 4 (d) 0
 8. If $\sin(x + y) = \log(x + y)$ then $\frac{dy}{dx}$ equals
(a) 0 (b) 1 (c) -1 (d) none of these
-
-

For Q9 and Q10, a statement of assertion (A) is followed by a statement of reason (R). Choose the correct answer out of the following choices.

- (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.

9. Assertion (A): The derivation of $f(x) = x^3$ is x^2 .

Reason (R): The derivation of $f(x) = x^n$ is nx^{n-1} .

10. Assertion (A): $\lim_{x \rightarrow 0} \frac{\sin ax}{bx}$ is equal to $\frac{a}{b}$.

Reason (R): $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$

SECTION – B

11. Evaluate: $\lim_{z \rightarrow 1} \left(\frac{z^{1/3} - 1}{z^{1/6} - 1} \right)$

12. Evaluate: $\lim_{x \rightarrow 0} \left(\frac{\sin ax + bx}{ax + \sin bx} \right)$, $a, b, a + b \neq 0$

13. For some constants a and b find the derivative of $(x - a)(x - b)$.

14. Find the derivative of $(5x^3 + 3x - 1)(x - 1)$

OR

Find the derivative of $\sin x \cos x$

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Prove that the derivative of $\sin x$ with respect to x is $\cos x$ using first principle of derivative.

16. Find $\lim_{x \rightarrow 0} f(x)$ and $\lim_{x \rightarrow 1} f(x)$ where $f(x) = \begin{cases} 2x+3, & x \leq 0 \\ 3(x+1), & x > 0 \end{cases}$

OR

Evaluate: $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan 2x}{x - \frac{\pi}{2}}$

17. Find the derivative of $\frac{2}{x+1} - \frac{x^2}{3x-1}$

OR

If $y = \sqrt{x} + \frac{1}{\sqrt{x}}$ then show that $2x \frac{dy}{dx} + y = 2\sqrt{x}$.

SECTION – D

18. Evaluate: $\lim_{x \rightarrow 0} \frac{\tan x + 4 \tan 2x - 3 \tan 3x}{x^2 \tan x}$

OR

Evaluate: $\lim_{y \rightarrow 0} \frac{(x+y) \sec(x+y) - x \sec x}{y}$

SECTION – E (Case Study Based Questions)

19. A function f is said to be a rational function, if $f(x) = \frac{g(x)}{h(x)}$, where $g(x)$ and $h(x)$ are polynomial functions such that $h(x) \neq 0$.

Then, $\lim_{x \rightarrow a} f(x) = \lim_{x \rightarrow a} \frac{g(x)}{h(x)} = \frac{\lim_{x \rightarrow a} g(x)}{\lim_{x \rightarrow a} h(x)} = \frac{g(a)}{h(a)}$

However, if $h(a) = 0$, then there are two cases arise,

(i) $g(a) \neq 0$ (ii) $g(a) = 0$.

In the first case, we say that the limit does not exist.

In the second case, we can find limit.

Based on above information, answer the following questions.

(a) Evaluate: $\lim_{x \rightarrow -1} \left(\frac{x^{10} + x^5 + 1}{x - 1} \right)$ (1)

(b) Evaluate: $\lim_{x \rightarrow -1} \frac{(x-1)^2 + 3x^2}{(x^4 + 1)^2}$ (1)

(c) Find the value of $\lim_{x \rightarrow 2} \left(\frac{x^2 - 4}{x^3 - 4x^2 + 4x} \right)$ (2)

20. Let f and g be two functions such that their derivatives are defined in a common domain. We define the derivative of product of two functions is given by the product rule i.e.,

$$\frac{d}{dx} [f(x) \cdot g(x)] = g(x) \cdot \frac{d}{dx} f(x) + f(x) \cdot \frac{d}{dx} g(x)$$

The derivative of quotient of two functions is given by quotient rule i.e.,

$$\frac{d}{dx} \left[\frac{f(x)}{g(x)} \right] = \frac{g(x) \cdot \frac{d}{dx} f(x) - f(x) \cdot \frac{d}{dx} g(x)}{[g(x)]^2}; g(x) \neq 0$$

Based on above information, answer the following questions.

(a) Find the derivative of $x(x+2)$. (1)

(b) Find the value of $f'(x)$, if $f(x) = \sin x \cdot \cos x$ (1)

(c) Find $\frac{d}{dx} \left(\frac{x+1}{x-1} \right)$ (2)

OR

(c) Find the value of derivative of $\frac{x^2 \cos\left(\frac{\pi}{4}\right)}{\sin x}$ at $x = \frac{\pi}{2}$. (2)

.....

Biology

1. Why is reproduction not considered a defining property of all living organisms? Give examples.
2. How does metabolism prove that viruses are non-living?
3. If a living organism is not growing, how can we confirm it is alive?
4. Why is it essential to standardize scientific names in taxonomy?
5. Define taxonomy and systematics. Differentiate between the two.
6. What is binomial nomenclature? Write rules with examples.
7. Differentiate between species and genus with suitable examples.
8. What are the basic steps of taxonomic studies?
9. List the major characteristics that define life.
10. Why are cyanobacteria placed under Monera and not Protista?
11. Viruses are considered a link between living and non-living. Justify.
12. Why are slime moulds considered organisms of dual nature?
13. How would you differentiate between a true nucleus and a nucleoid?
14. Describe the five-kingdom classification given by R.H. Whittaker.
15. Differentiate between Archaeobacteria and Eubacteria.
16. What are the major characteristics of Protista? Mention two examples.
17. List distinguishing features of Fungi. How are they different from Plantae?
18. Classify viruses based on their genetic material.
19. How are Bryophytes amphibians of the plant kingdom?
20. Why are Pteridophytes better adapted to terrestrial life than Bryophytes?
21. Explain how gymnosperms survive in extreme conditions with examples.
22. What are the evolutionary trends seen from algae to angiosperms?
23. Write the general characteristics of Algae. Give examples of each type (Chlorophyceae, Phaeophyceae, Rhodophyceae).
24. Compare and contrast Bryophytes and Pteridophytes.
25. Describe the characteristic features of Gymnosperms with two examples.
26. List the main differences between monocots and dicots.
27. Describe the life cycle pattern of Pteridophytes and explain alternation of generations.

Activity Work-

- (1) Prepare herbarium sheets by collecting ten plants present in surrounding and Mention their common name ,botanical names and classifications.
- (2) Tabulate the Scientific names and common names of plants and animals mentioned in Chapters plant and animal kingdom.
- (3) **Make collection of 10 mango seeds.**
(To donate mango seeds -Gram Samridhi Foundation)

Procedure : After eating mangoes wash the seeds properly(3-4 times to remove all the traces of pulp).Let the seeds to dry in bright sunlight for 7-8 days.

When the seeds are thoroughly dried, wrap them in a sheet of paper and store at room temperature.

Precautions: seeds should be washed properly, there should be no trace of pulp over them if persists, it can cause fungal infection in seeds. If seed turned black after drying, remove that particular seed, Don't store the infected seeds.

(4) **Art Integration Project** – prepare art integrated project based on state Assam under the theme (Choose any one)

(a) Biodiversity of Assam's wildlife sanctuaries

(b) Traditional medicinal plants of Assam.

Art

Instruction:

- Use white paper (A3 Size) and Medium –Colour (Water colour, Pastel colour)

Make one Landscape painting and still life painting Reference – Impressionism landscape and still life composition.

Subject-Psychology

HAPPY SUMMER VACATIONS! ENJOY AND LEARN

General Instructions:

- Summer Break Holiday Homework is a part of ***internal assessment*** which carries marks.
- Maintain neatness and avoid spelling mistakes. Write in good handwriting.
- Complete the entire task with blue pen only.
- Use your own creativity to make it look attractive.
- Submit the entire task in a stick file/clear bag. In case a stick file /clear bag are not available, you may use string to compile the entire task.

Once more, it's that time of year.

When the temperature rises and there is no rain, only homemade juice can soothe the pain; however, the magic of summer vacations can drive one insane.

It appears that the only rational terrain is having fun.

The proverb that has been said for ages enters the head, but one must refrain from any other thoughts.

No progress without toil and suffering

Therefore, let's combine work and play and produce masterpieces with our ready-to-slay pens.

ASSIGNMENT:

Q. An **autobiography** is story of your life. Using the three psychological processes That is mental processes, experiences and behavior. Share a significant event that You have experienced and what you learned from it. You may write it in a Conversation or story style.

OR

Q. You can choose any **branch of psychology**, gather information in an organized Manner and present in your own unique style

(Power -point presentation 8-10 slides).

This should also include recent researches done in that particular area.

"Remember, the goal of homework is not just to complete tasks, But to maintain and improve your skills and knowledge.

Approach these assignments with a growth mindset and a positive attitude."

MUSIC Summer Break Homework

There are **Three topics** and **10 MCQs** that students will complete during the Summer Vacation.

(Homework should be done either in the Music Notebook or in an Assignment File – your choice.)

Topic 1: Musical Study

- Write a brief study on Musical Elements in *"Natya Shastra"*.

(Around 1 full page; Search reference: Type *"Musical Elements in Natya Shastra in Music Research"*).

Topic 2: Life Sketch and Contribution

Write a life sketch and musical contribution of **any one** of the following musicians in about 300 words:

- Tansen (Search reference: e.g., Type : *"Tansen in Music Research"*).
- V.N. Bhaskhande
- V.D. Paluskar

Topic 3: Talas Study

Write a detailed description of **any one** of the following Talas:

- Teentala (Single, Double, Chaugun) (Mark vibhag and sam clearly.)
- Ektala (Single, Double, Chaugun) (Mark vibhag and sam clearly.)
- Chautala (Single, Double, Chaugun) (Mark vibhag and sam clearly.)

MCQ Creation Task and Instructions:

- After completing your homework, create **10 MCQs** (Multiple Choice Questions) based on the topics you selected including topic 1 too.
- Each MCQ should have four options, and write the correct answer clearly.
- **Your MCQs must be different from other students (no copying).**
- **You may discuss with your music classmates to take a hint about which MCQs they are preparing, in order to avoid creating the same questions.**

Computer Science Summer Holiday Homework



SECTION A: Conceptual Understanding

I. Answer the following in 100–150 words each:

1. What is a digital footprint? Differentiate between active and passive footprints.
2. Explain the importance of strong passwords and multi-factor authentication.

II. Multiple Choice Questions:

1. What is a digital footprint?
A) A type of malware
B) The digital trail left by online activity
C) A new form of password
D) A cyber threat
2. Which is an example of a passive digital footprint?
A) Posting on Instagram
B) Submitting a form
C) Browsing a site that tracks you
D) Uploading a document
3. What does "netizen" mean?
A) A digital virus
B) Responsible internet user
C) Network protocol
D) Cybersecurity tool
4. A good communication etiquette is:
A) Using all caps
B) Ignoring replies

- C) Using polite, clear language
5. Proper social media etiquette includes:
A) Sharing fake news
C) Tagging without consent
6. IPR protects:
A) Only physical goods
C) Data in RAM
7. Plagiarism refers to:
A) File backup
C) Encrypting passwords
8. Creative Commons is:
A) Malware
C) Hacking method
- D) Sending spam
B) Respecting privacy
D) Posting abusive content
B) Creative and intellectual works
D) Pirated content
B) Copying someone's work
D) Scanning for viruses
B) Open-source license
D) Copyright tool



SECTION B: Practical Activity

Poster or Infographic Design (ART INTEGRATION PROJECT)

Topic: "Cybersecurity: Protecting Your Digital World"

Create a Visual Representation of Cybersecurity as a **shield** protecting important digital assets like data, privacy, and personal information.

INSTRUCTIONS:

- Use sharp lines and bold colors to represent security and protection.
- Add labels around the shield for each concept with simple definitions and relevant symbols.
- Use creative background designs like digital circuit patterns or glowing data streams to emphasize the theme of cybersecurity.
- Paste your colored hardcopy of the design in your Computer Science notebook. Ensure that all key terms are explained clearly next to the illustrations.

Sports

Physical Task

Maintain a Daily Fitness Log (at least 15 days):

- **Record your daily fitness activities such as:**
- **Morning walk or jog (duration/time)**
- **Exercises (push-ups, skipping, yoga, etc.)**
- **Sports played (football, badminton, etc.)**

Yoga Practice: Learn and practice any 3 yoga asanas, draw their diagrams, and write their benefits.

ESTD. 2019