



**AMENITY PUBLIC SCHOOL
HOLIDAY HOMEWORK (2026-27)
CLASS XII SCIENCE**



Summer vacation is not only a time to relax, but also an opportunity to refresh your mind, discover new interests, and prepare yourself for the journey ahead. Use this break wisely to grow, recharge, and return stronger than before.

“The quiet moments of rest today often become the foundation of tomorrow’s success.”

Dear Students,

The long-awaited summer holidays are finally here! While it is important to enjoy and unwind, it is equally essential to remain productive and make meaningful use of your time. A healthy balance between enjoyment and learning will help you come back motivated, energetic, and ready for new challenges.

Here are a few suggestions to make your vacation enjoyable as well as valuable:

- 1. Strengthen Your Studies:** Revise important concepts and complete all pending assignments or projects on time.
- 2. Explore Your Interests:** Spend time developing hobbies such as sketching, dancing, reading, singing, photography, or creative writing.
- 3. Stay Active and Healthy:** Reduce unnecessary screen time and include physical activities like sports, exercise, yoga, or outdoor games in your routine.
- 4. Develop Reading Habits:** Read books, newspapers, journals, or magazines regularly to improve your knowledge and vocabulary.
- 5. Take Care of Your Well-being:** Practice meditation, mindfulness, or other calming activities. Spend meaningful time with family and friends and create beautiful memories together.

*Let your imagination shine bright,
Keep learning with curiosity and delight.
Stay healthy, active, and full of cheer,
And make this summer your best one this year.*

**Wishing You a Joyful and Refreshing
Summer Vacation!**

❖ ENGLISH CORE (301)

General Instructions:

- It is **mandatory** to prepare the **Project file**.
- **10 Marks** for the internal assessment are allotted for the ALS Project and Viva.
- Except for the cover page, the acknowledgement, and the certificate, the rest of the pages should be **handwritten**.
- Use an **A4-sized white/coloured sheet** for the project, and after compiling everything, it should be organised in a folder properly.
- **Plagiarism is strictly prohibited**.
- Refer to the **Annexure-1** for the **project topic allotted** to you.

Parameters of Assessment:

- Quality of Content
- Accuracy of Information
- Content in respect of spelling, grammar, and punctuation
- Clarity of thoughts and ideas
- Originality and Creativity
- Knowledge and Experience gained (**through Viva**)
- Adherence to the Specified Timeline (**1st week of July**)

Project File Layout: (The project should be summarised in 18-20 pages)

Page 1: COVER PAGE, WITH TITLE OF PROJECT, SCHOOL DETAILS OF STUDENT

Page 2: STATEMENT OF PURPOSE/OBJECTIVES/GOALS

Page 3: CERTIFICATE OF COMPLETION UNDER THE TEACHER'S GUIDANCE

Mid Pages: PROJECT/ REPORT DETAILS

It should include:

- Introduction
- Connection with the Chapter
- Real-Life Examples
- Case Studies or Survey
- Quotes by Famous Thinkers
- A Meme (satirical, informative, or thematic)
- A Comic Strip (hand-drawn)
- A Short Animated Storyboard
- A Poster (hand-drawn)
- An Article (200 words)
- A Report (200 words)
- A Letter to the Editor
- An Interview (with pictures of the interview being conducted)

- A Speech (200 words)
- Reflection (Your learning from the project, challenges you faced, evolution of the topic, etc.)

Note: Images/ charts/ newspaper clippings/ graphics/ pictures should be pasted on the left-hand side, and the handwritten content on the right-hand side of the page.

Last Page: LIST OF RESOURCES/ BIBLIOGRAPHY

LIST OF TOPICS AND SUGGESTED THEMES

I. THE LAST LESSON: LANGUAGE, IDENTITY & CULTURAL SURVIVAL

- Language as a Tool of Resistance
- Disappearing Languages: Causes and Consequences
- Mother Tongue vs. Medium of Instruction
- Language, Power & Colonial Legacy
- Case Studies on Language Suppression or Revival
- Media & Linguistic Diversity
- Nationalism and the Politics of Language

II. LOST SPRING: POVERTY, CHILDHOOD & BROKEN DREAMS

- Living Conditions and Realities of Informal Settlements
- Educational Inequity: Access, Barriers, Solutions
- Role of NGOs and Civil Societies
- Children at Work: A Closer Look
- Dreams Amidst Debris: Stories of Hope
- Youth Engagement in Urban Welfare
- Case Study: Slum Redevelopment Projects

III. DEEP WATER: FEAR, TRAUMA & INNER STRENGTH

- Neuroscience Behind Fear
- Childhood Experiences That Shape Adult Behaviour
- Stories of Triumph Over Fear: From Phobia to Courage
- Therapy, Mental Health & Healing Journeys
- Sport Psychology and Mental Fortitude
- Biographies of Resilient Individuals
- Fear vs. Risk: A Psychological Dilemma

IV. MY MOTHER AT SIXTY-SIX: AGEING, LOVE & FEAR OF SEPARATION

- Ageing with Dignity: Challenges and Care Models
- The Psychology of Separation and Nostalgia
- Modern Family Structures & the Elderly
- Decline of Joint Families: Causes and Consequences

- Emotional Literacy and Intergenerational Bonds
- Changing Roles: When Children Become Caregivers

V. KEEPING QUIET: SILENCE, REFLECTION & HUMAN HARMONY

- The Culture of Silence: Power or Privilege?
- Mindfulness in Education and Workspaces
- The Art of Pausing: Reclaiming Mental Space
- War, Climate Crisis, and the Price of Human Progress
- Digital Detox: Myth or Necessity?
- Personal Narratives of Solitude and Growth

VI. THE THIRD LEVEL: FANTASY, ESCAPE & PSYCHOLOGICAL CONFLICT

- The Science of Fantasy and Daydreaming
- Time Travel in Literature and Psychology
- Coping Mechanisms: Past vs. Present
- Escapism in Digital Spaces (Gaming, VR, Social Media)
- Fiction vs. Reality in Modern Life
- Mental Health and Alternate Realities

VII. THE TIGER KING: ARROGANCE, DESTINY & POLITICAL SATIRE

- Satire in Literature: A Tool for Social Critique
- The Irony of Power and the Illusion of Control
- Environmental Conservation vs. Royal Hunting Practices
- Symbols and Symbolism: The Tiger as a Metaphor
- Blind Obedience and Bureaucracy in Monarchy
- Humour, Irony and Absurdity in Political Commentary
- Historical Obsession with Fame and Immortality

VIII. THE ENEMY: COMPASSION BEYOND BORDERS

- Moral Dilemmas in Times of War
- Civilians in Conflict Zones: Stories Untold
- The Psychology of the Soldier
- Humanitarianism Amid Hostility
- Cross-border Friendships and Peace Efforts
- War Memoirs and Literature as Resistance
- Role of Dialogue in Conflict Resolution

Annexure-1

NOTE: Refer to the table for your project topic.

Roll No.	Allocated Topics (Details are given above)
1, 9, 17, 25, 33, 41, 49, 57	I or VIII
2, 10, 18, 26, 34, 42, 50, 58	II or V
3, 11, 19, 27, 35, 43, 51, 59	III or IV
4, 12, 20, 28, 36, 44, 52, 60	IV or VI
5, 13, 21, 29, 37, 45, 53, 61	V or I
6, 14, 22, 30, 38, 46, 54, 62	VI or II
7, 15, 23, 31, 39, 47, 55, 63	VII or III
8, 16, 24, 32, 40, 48, 56, 64	VIII or VII

❖ MATHEMATICS (041)

- Do Question Bank given in your class group.
- Do four activities in Maths Lab Manual
 1. To verify the relation in the set of all lines in a plane defined by $R = \{(l,m): l \text{ is perpendicular to } m\}$ is symmetric but neither transitive nor reflexive }
 2. To demonstrate a function that is not one one but is onto.
 3. To demonstrate a function that is one one but is not onto.
 4. To verify the relation in the set of all lines in a plane defined by $R = \{(l,m): l \text{ is parallel to } m\}$ is an equivalence relation.

❖ BIOLOGY (044)

I. Prepare an Investigatory Project on the topics assigned to you in the class.

II. Complete the Biology Practical File.

III. WORKSHEET

Objective: To develop Reasoning and Analytical Skills

Topics: Principles of Inheritance & Variations Molecular Basis of Inheritance

- Q1.** A non-haemophilic couple was informed by their doctor that there is a possibility of a haemophilic child being born to them. Draw a checkerboard and find out the percentage of possibility of such a child among the progeny.
- Q2.** In a particular plant species, the majority of the plants bear purple flowers. Very few plants bear white flowers. No intermediate colours are observed. If you are given a plant bearing purple flowers, how would you ascertain that it is a pure breed for that trait? Explain.
- Q3.** Inheritance patterns of flower colour in garden pea plant and snapdragon differ. Why is the difference observed? Explain the difference with the help of crosses in their inheritance patterns.
- Q4.** AaBb was crossed with aabb. What would be the phenotypic ratio of the progeny?
- Q5.** A true breeding homozygous pea plant with green pods and axial flowers as dominant characters, is crossed with a recessive homozygous pea plant with yellow pods and terminal flowers. Work out the cross up to F₂ generation giving the phenotypic ratio of F₁ and F₂ generation respectively.
- Q6.** Name one autosomal dominant and one autosomal recessive Mendelian disorder in humans.
- Q7.** Why is Drosophila ideal for experiments in Genetics?
- Q8.** The map distance between genes A and B is 3 units, between B and C 10 units and between C and A 7 units. What is the order of the genes on the linkage map?
- Q9.** A man who is a PTC taster has a non-taster wife. They have a taster son and two nontaster daughters. Give the genotypes of the parents and children and represent them on a pedigree chart. Is this a sex linked character? Explain.
- Q10.** Suppose you begin with one molecule of DNA, after 4 replications, how many daughter DNA molecules would have original parental strands?

❖ CHEMISTRY (043)

INVESTIGATORY PROJECT:

- ✚ Make an investigatory project file which is required for final board examination for Chemistry practical. **Students should prepare investigatory project according to roll no as given below.**
- ✓ **Roll no:- 1, 7, 13, 19, 25, 31, 37, 43, 49, 55**
Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- ✓ **Roll no:- 2, 8, 14, 20, 26, 32, 38, 44, 50, 56.**
Study the quantity of casein present in different samples of milk.
- ✓ **Roll no:- 3, 9, 15, 21, 27, 33, 39, 45, 51**
Preparation of soybean milk and its comparison with natural milk with respect to curd formation, the effect of temperature, etc

✓ Roll no:- 4, 10, 16, 22, 28, 34, 40, 46, 52

Study of the effect of Potassium Bisulphate as a food preservative under various conditions (temperature, concentration, time, etc.)

✓ Roll no:- 5, 11, 17, 23, 29, 35, 41, 47, 53

Study of digestion of starch by salivary amylase and effect of pH and temperature on it. • Comparative study of the rate of fermentation of the following materials: wheat flour, gram flour, potato juice, carrot juice, etc.

✓ Roll no:- 6, 12, 18, 24, 30, 36, 42, 48, 54

Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).

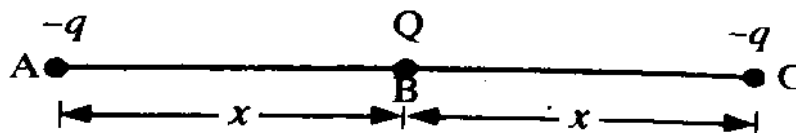
• Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

❖ PHYSICS (042)

E- POTENTIAL & CAPACITANCE

There are 25 questions based on electrostatics. 20 questions are subjective and 5 are objective.

Q1. Three charges $-q$, Q and $-q$ are placed as shown in the figure at equal distances on a straight line. If the total potential energy of the system of three charges is zero, what is the ratio $Q:q$? Ans. 1:4

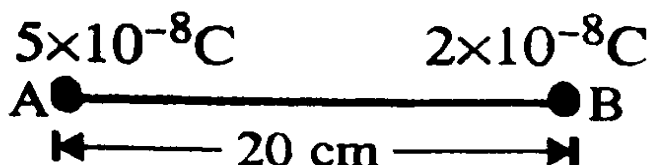


Q2. Determine electrostatic potential energy of a system containing two charges $5 \mu\text{C}$ and $-3 \mu\text{C}$ separated by a distance 12 cm in air. Ans. -1.125 J

Q3. Two point charges $5 \times 10^{-8} \text{ C}$ and $-2 \times 10^{-8} \text{ C}$ are separated by a distance of 20 cm in air as shown in the figure.

- Find at what distance from first charge A the electric potential would be zero.
- Also calculate the electrostatic potential energy of the system.

Ans. (a) 14.29 cm, (b) $-4.5 \times 10^{-5} \text{ J}$



Q4. $2 \mu\text{C}$ charge is placed at each corner of a square ABCD of side 22 cm. Calculate electric potential at centre O of the square. Ans. $3.6 \times 10^6 \text{ V}$

Q5. The electric field and electric potential at any point due to a point charge kept in air is 20 N/C and 10 J/C respectively. Compute the magnitude of charge. Ans. $5.56 \times 10^{-10} \text{ C}$

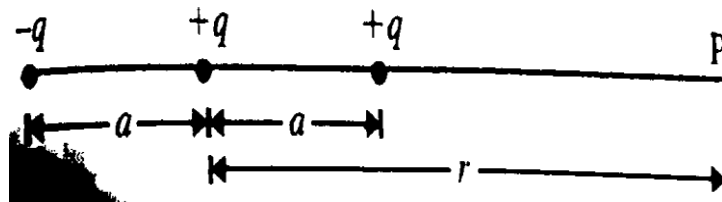
Q6. ABCD is a square of side 0.2 m. Charges of 2 nC, 4 nC, 8 nC are placed at the corners A, B and C respectively. Calculate the work required to transfer a charge of 2 nC from D to the centre of the square. **Ans. $5.40 \times 10^7 \text{ J}$**

Q7. If 100 J of work is done in carrying a charge of 2C from a place where the potential is -10 V to another point where potential is V, find the value of V. **Ans. 40 V**

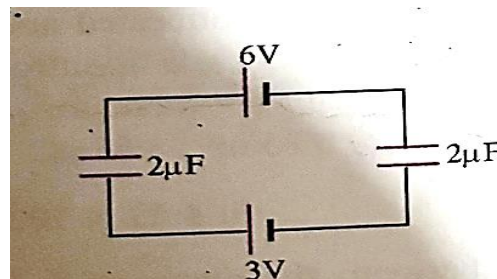
Q8. Charges $3 \times 10^{-8} \text{ C}$. and $-2 \times 10^{-8} \text{ C}$ are located 15 cm apart. At what point on the line joining the two charges is the electric potential zero? **Ans. 9 cm from $3 \times 10^{-8} \text{ C}$**

Q9. A potential at point is given by $V = 4x^2 + 4y^2 + 4z^2$. Calculate the components of electric field intensity at (1, -1, 2) m. **Ans. -8 N/C ; 8 N/C ; -16 N/C**

Q10. Calculate the potential at P due to the charge configuration as shown in the figure. If $r \gg a$, then what will be the result? **Ans. $\frac{1}{4\pi\epsilon_0} \left[\frac{q}{r} + \frac{2qa}{r^2 - a^2} \right]$, $\frac{1}{4\pi\epsilon_0} \left[\frac{q}{r} + \frac{2qa}{r^2} \right]$**



Q11. Find the charge on each capacitor and the potential difference across each capacitor of the circuit shown in the figure. **Ans. Charge on each capacitor = $3 \mu\text{C}$, $V_1 = 1.5 \text{ V}$; $V_2 = 1.5 \text{ V}$**

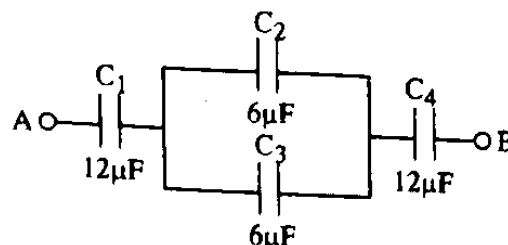


Q12. Seven capacitors each of capacitance $2 \mu\text{F}$ are to be connected in a configuration to obtain an effective capacitance of $(10/11) \mu\text{F}$. How will you connect the capacitors?

Ans. 5 capacitors can be connected in parallel and the 2 capacitors to be connected in series with this parallel combination

Q13. Two capacitors have a capacitance of $25 \mu\text{F}$ when connected in parallel and $6 \mu\text{F}$ when connected in series. Find their individual capacitances. **Ans. $15 \mu\text{F}$ and $10 \mu\text{F}$**

Q14. Find the resultant capacitance of the capacitor connected as shown in the figure. **Ans. $4 \mu\text{F}$**



- Tools and Technologies Used - Python 3.x, Libraries/Modules used (e.g., tkinter, mysql.connector, pandas, matplotlib), MySQL Database (if applicable)
- Input and Output Requirements
- Mention the data inputs and expected outputs.
- Proposed Modules - List the major modules/functions of the project.
- Sample Screenshots / Flowchart - Include a simple flowchart or design layout.
- Expected Outcome - Describe the final result of the project.

❖ **PSYCHOLOGY (037)**

1. Psychology Practical File

Task: Administer the prescribed psychological tests, record the data, and compile your Practical File.

Guidelines & amp; Instructions: • General Formatting

- Your file must be handwritten.
- Write on the ruled side of the practical file and draw diagrams/tables on the blank side.
- Do not use red or pink ink pens. Use a black pen for headings and a blue pen for text.

2. Psychological Disorder Project

Task: Create a comprehensive Project Portfolio and Case Profile on any one major psychological disorder classified in the DSM-5.

Guidelines & amp; Instructions:

• **Topic Selection:**

Choose any one psychological disorder (e.g., Schizophrenia, Bipolar Disorder, Major Depressive Disorder, ADHD, or Generalized Anxiety Disorder).

- **Project Structure:** Your project report should be approximately 1000 words, neatly handwritten. Ensure it includes the following sections:

✚ Introduction: Definition and history of the chosen disorder.

✚ Classification: How this disorder is categorized (e.g., Anxiety Disorders, Neurodevelopmental Disorders).

✚ Etiology (Causes): Discuss biological, psychological, and socio-cultural factors.

✚ Symptoms: Diagnostic criteria and clinical presentation.

✚ Treatment/Intervention: Psychotherapy, biomedical therapies, and rehabilitation methods.

✚ Case Profile: Conduct an in-depth mock or real-life case study (qualitative & amp; quantitative) to understand

✚ An individual dealing with a similar condition or facing a specific behavioral/social challenge.

Presentation:

- Include a title page, certificate of completion, and an acknowledgment.
- Use visual aids like flowcharts, graphs, or real-world statistics to enhance the presentation.
- Cite all your sources (APA or MLA format).

❖ PAINTING (049)

1. Make four drawings out of the given pictures.



2. Make a poster on any of the given topics.

- Mandala Art
- Aipan Art

Raga Bhairav—Tarana—Teen Tala															
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Composed by : Subhash Duggal

Composition

Sthai : Ta na na, ta na na, ta na, Deem tana dere na,
Dir dir deem deem, tom tana dere na.

Antra : Ohde tana dir dir tana, Deem tana dere na,
Na dir dir dir tum dir dir dir, Tana nana dere na.

Raga Bhairav—Slow Khyal (Vilambit)-Ek Tala												
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ha	rikroon	pra	bhu,sun	lee	--	jo	--ar	daa	S-			

Composed by : Prof. Shamshad Ali

Composition

Sthai : Kripa Karo Prabhu,
Mujh Aajiz Par, Poori Karo Aas.

Antra : Nit Uth Aas Tihari karoon,
Prabhu Sun Leejo Ardaas.

