

VASISHTHA GENESIS SCHOOL, BABEN, BARDOLI

11 Science

DIWALI HOLIDAY ASSIGNMENT-2025-26

## 1) MATHEMATICS

Prepare a brief overview of the following chapters –

## ***Binomial Theorem, Sequences and Series***

The Overview should include:

- Relevant formulas that are essential for understanding and solving problems.
- Identify key concepts, definitions or principles related to the topic.
- Include examples / diagrams / mind maps to clarify concepts.

Present your homework in a clear and organized manner in your Class Notebook using headings, bullet points are numbered lists to structure your content.

This practice will help you understand the concepts better and prepare you for upcoming lessons and examination.

## 2) BIOLOGY:

### **\*General Instructions:**

- ✓ Assignment must be handwritten.
- ✓ **Choose ANY ONE topics from the given below.**
- ✓ Use A4-size ruled sheets with proper margins, or a biology project file.
- ✓ Word limit: 800–1000 words (4–5 pages).
- ✓ Use headings & subheadings (Introduction, Aim, Content/Discussion, Conclusion, References).
- ✓ At least one NCERT reference/concept should be clearly linked in the content.

## 1. Impact of Diwali Pollution on Photosynthesis:

\*NCERT Link: Plant Physiology (Photosynthesis in Higher Plants)

\*Objective: Investigate how smoke and dust during Diwali reduce sunlight penetration and affect photosynthetic efficiency.

## 2. Seasonal Diseases Around Diwali:

\*NCERT Link: Human Physiology (Body Fluids & Circulation, Breathing, Excretion)

\*Objective: Report on why asthma, bronchitis, and eye irritation increase during Diwali, and explain the biological basis.

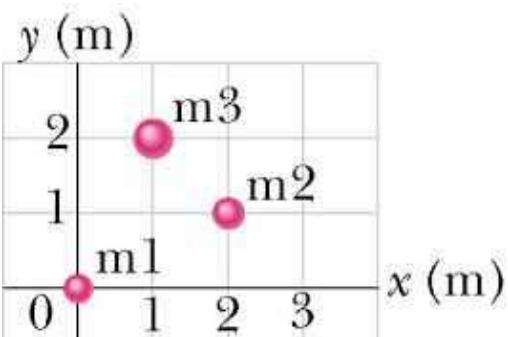
### 3. Effect of Firecracker Chemicals on Soil & Water:

\*NCERT Link: Cell Structure and Biomolecules, Plant Physiology (Mineral Nutrition)

\*Objective: Research how heavy metals (barium, lead, cadmium) from crackers alter soil pH, affect nutrient absorption, and pollute water bodies.

### 3) PHYSICS

(a) Complete the following questions in your physics notebook.

	<p>(B) (5 L/12, 5 L/12)</p> <p>(C) (5/3 L, 2/3 L)</p> <p>(D) (3L/4, L/2)</p>
3.	<p>The distance between two particle of mass <math>m_1</math> and <math>m_2</math> is <math>r</math>. If the distance of these particles from the centre of system are <math>r_1</math> and <math>r_2</math> then show</p> $r_1 = r m_2 / (m_1 + m_2) \text{ and } r_2 = r m_1 / (m_1 + m_2)$
4.	<p>Obtain the position of centre of mass of thin rod of linear density <math>\lambda</math> respect to the one of the rod.</p>
5.	<p>The particles of mass <math>m_1 = m_2 = m_3 = m</math> are placed on vertices of an equilateral triangle of side <math>a</math>. Find position of centre of mass of the system with respect to <math>m_1</math>.</p>
6.	<p>What are the co-ordinates of Centre of mass of three particle system shown in figure? (<math>m_1 = 3</math> kg, <math>m_2 = 4</math> kg and <math>m_3 = 8</math> kg)</p> 

(b) Complete the NCERT exercise question-answer in your notebook for chapter 6: System of particle and rotational motion.

#### 4) CHEMISTRY

Students have prepare a Chemistry project based on the topics and guidelines given below:

1. Study of the effect of temperature on the rate of a chemical reaction.
2. Study of the effect of concentration on the rate of reaction between sodium thiosulphate and hydrochloric acid.
3. Study of the rate of evaporation of different liquids (acetone, alcohol, water, etc.).
4. Study of the effect of surface area on the rate of reaction (magnesium ribbon with acid).
5. Comparison of the strength of different acids using pH meter or indicators.
6. Determination of the melting point and boiling point of organic compounds.
7. Effect of temperature on the solubility of potassium nitrate (or any salt).
8. Study of the diffusion of solids in liquids.
9. Study of the pH of solutions of common substances (milk, shampoo, fruit juice, etc.).
10. Study of the conductivity of ionic solutions of varying concentration.
11. Detection of adulterants in food products (milk, sugar, butter, turmeric, etc.).
12. Comparative study of cleansing capacity of different soaps and detergents.
13. Extraction of caffeine from tea leaves.
14. Extraction of essential oils from orange peel or lemon peel.
15. Preparation of biodiesel from vegetable oil.
16. Study of the effect of heat on carbohydrates (sugar caramelization).
17. Study of the bleaching effect of hydrogen peroxide on flowers or fabrics.
18. Study of foaming capacity of soaps and the effect of hardness of water.
19. Preparation of a natural indicator from plant materials (hibiscus, turmeric, beetroot).
20. Comparison of the efficiency of different toothpastes using pH and abrasiveness tests.
21. Estimation of acetic acid content in vinegar by titration.

22. Determination of hardness of water using EDTA method.
23. Determination of amount of dissolved oxygen in water samples.
24. Comparison of different brands of antacid tablets (neutralizing ability).
25. Determination of iron content in iron tablets.
26. Detection of metal ions in water samples.
27. Study of the percentage of water of crystallization in hydrated salts.
28. Determination of chloride content in tap water and drinking water.
29. Analysis of bleaching powder for available chlorine.
30. Estimation of the amount of vitamin C in fruit juices

**The Project is to include the following:**

- ❖ Cover page, with the project's title, school details/details of students.
- ❖ Statement of purpose/objectives/goals
- ❖ Certificate of completion under the guidance of the teacher.
- ❖ Acknowledgement
- ❖ Index
- ❖ List of resources/bibliography

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**5) ENGLISH**

The **CBSE ALS Project-Portfolio/Project Report** as given in the class. Kindly make the project on the basis of Guidelines provided by your subject teacher. Submit your projects to your respective subject teacher.

**PROJECT-PORTFOLIO / PROJECT REPORT – 10 MARKS (5 PROJECT + 5 VIVA)**

**The Project - Portfolio may include the following:**

- Cover page, with the project's title, school details/details of students.
- Statement of purpose/objectives/goals
- Certificate of completion under the guidance of the teacher.
- Acknowledgement
- Index
- Action plan for the completion of assigned tasks.
- The 800-1000 words Report.
- Student/group reflections.
- If possible, Photographs that capture the positive learning experiences of the student(s).
- List of resources/bibliography.

**THE FOLLOWING POINTS MUST BE KEPT FOR CONSIDERATION WHILE ASSESSING THE PROJECT PORTFOLIOS:**

- Quality of content of the project
- Accuracy of information
- Adherence to the specified timeline
- Content in respect of (spelling, grammar, punctuation)
- Clarity of thoughts and ideas
- Creativity
- Contributions by group members
- Knowledge and experience gained

**IMPORTANT NOTE:**

- The project is to be prepared on A4 size Coloured Project Papers (hand written). Use Spring File.
- Make use of photos.
- The project should be completed within 20-25 pages.
- **Photos are to be attested as evidence and references – Related to findings during research, Pie Charts, Graphs.**
- **The entire project should be Handwritten only.**

**Topics- Analyze the themes of the given chapters and answer the related questions.**

(will be given Roll No. wise by the subject teacher(s) in class)

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## 1. *The Portrait of a Lady & A Photograph*

- Both texts are **meditations on memory, loss, and transience**. Compare how Khushwant Singh and Shirley Toulson portray **the fragile continuity between generations through the lens of mortality**.
- Evaluate how **tone and perspective** evolve in both works — from affectionate observation to philosophical detachment.
- How do the grandmother's presence and the mother's absence become **symbols of emotional endurance amid impermanence**?

## 2. *Discovering Tut: The Saga Continues & The Adventure*

- Both texts blend **history and science to question the nature of time and truth**. Compare how A.R. Williams and Jayant Narlikar reconstruct **the past to comment on modern curiosity and scientific ethics**.
- Evaluate how both stories explore the tension between **empirical evidence and imaginative interpretation** in understanding history.
- How do Tut's rediscovery and Professor Gaitonde's time-shift reveal **different facets of humanity's obsession with rewriting the past**?

## 3. *The Laburnum Top & The Voice of the Rain*

- Both poems explore the **cycle of renewal in nature**. Compare how Ted Hughes and Walt Whitman use imagery and sound to illustrate **the mutual relationship between vitality and decay**.
- Evaluate how both poets transform ordinary natural processes — a bird's return and rain's descent — into **metaphors for regeneration and creative energy**.
- How do rhythm and tone contribute to the **philosophical vision of continuity in life**?

## 4. *The Adventure & The Portrait of a Lady*

- Both texts address **the intersection of history and personal belief**. Compare how Jayant Narlikar's scientific imagination contrasts with Khushwant Singh's humanist realism in exploring **change and continuity across generations**.
- Evaluate how both protagonists — Professor Gaitonde and the narrator — grapple with **the instability of perceived reality**.
- How do memory and knowledge serve as **tools for bridging the past and the present** in both stories?

## 5. *Discovering Tut: The Saga Continues & A Photograph*

- Both works engage with **the preservation of memory through objects and images**. Compare how science and poetry differently attempt to **immortalize the dead**.
- Evaluate how both authors suggest that **time transforms reverence into reflection** rather than resolution.
- How does the juxtaposition of **artifact and emotion** reveal the limitations of human attempts to conquer mortality?

## 6. *We're Not Afraid to Die... & Childhood*

- Both texts mark **moments of awakening and self-realization**. Compare how survival in one and disillusionment in the other reveal **different stages of human growth and awareness**.
- Evaluate how both narratives suggest that **maturity emerges from confrontation — with nature or with truth**.
- How do courage and curiosity become **measures of human resilience** in both contexts?

## 7. *The Summer of the Beautiful White Horse* vs *The Address*

- Both stories explore *trust and morality* in post-war contexts. How do Aram's innocence and the narrator's disillusionment reflect contrasting human responses to loss and values?
- Compare how Da-Metz and Marga Minco use the idea of *possession*—of a horse and of household objects—to question what truly belongs to us.
- In both stories, memory acts as a moral compass. How do personal memories shape ethical choices in *The Summer of the Beautiful White Horse* and *The Address*?

## 8. *The Summer of the Beautiful White Horse* vs *Mother's Day*

- Both highlight *the correction of human behaviour*—Aram learns honesty while George and Doris learn empathy. Discuss how humour and simplicity serve as tools for moral transformation.
- Compare how the writers portray *family relationships* as a means to restore social or moral order.
- How do both stories challenge traditional perceptions of *weakness and strength* through the characters of Aram, Mourad, and Mrs. Pearson?

## 9. *The Address* vs *Birth*

- Both stories deal with *hope emerging from despair*. How do the settings of war and medical crisis become **symbols of renewal**?
- Compare the protagonists' journeys—one to reclaim her mother's belongings, the other to save a newborn—as reflections of human resilience.

- Both stories end with *restoration*—emotional in one, physical in the other. Discuss how this parallel resolution emphasizes the triumph of life and spirit.

#### **10. Mother's Day vs Birth**

- Both present *women as agents of change*—Mrs. Fitzgerald empowers Mrs. Pearson; Joe's wife encourages responsibility. Compare how each portrays the evolving role of women in society.
- Contrast the domestic conflict in *Mother's Day* with the professional crisis in *Birth* to highlight differing manifestations of *duty and care*.
- How do empathy and practical wisdom become transformative forces in both narratives?

#### **11. The Summer of the Beautiful White Horse vs Birth**

- Both Aram and Andrew face moral dilemmas that define their character. Compare how their responses reflect integrity and compassion as universal values.
- Contrast *innocence* in Aram with *maturity* in Andrew. How do these traits drive the theme of redemption in both stories?
- How do both narratives uphold the idea that *ethical action restores balance*—whether in personal conscience or in the miracle of birth?

### **6) INFORMATICS PRACTICES**

Practical file (30 SQL queries) : Sample Internet link : <https://sultan-chand.com/ws/ipp11/#p=20>

Data Management: (Suggested SQL Commands)

1. To create a database
2. To create student table with the student id, class, section, gender, name, dob, and marks as attributes where the student id is the primary key.
3. To insert the details of at least 10 students in the above table.
4. To display the entire content of table.
5. To display Rno, Name and Marks of those students who are scoring marks more than 50.
6. Create a student table with the student id, name, and marks as attributes where the student id is the primary key.
7. Insert the details of a new student in the above table.
8. Delete the details of a student in the above table.
9. Use the select command to get the details of the students with marks more than 80.
10. Find the min, max, sum, and average of the marks in a student marks table.
11. Find the total number of customers from each country in the table (customer ID, customer Name, country) using group by.
12. Write a SQL query to order the (student ID, marks) table in descending order of the marks.

### **7) PHYSICAL EDUCATION**

- Draw labeled diagram of 6 lane international athletics track with starting and finishing line with all the track events.
- Prepare a project on kriya yoga.
  - (a) Neti
  - (b) Dhouti
  - (c) Basti
  - (d) Nauli kriya
  - (e) Tratak kriya
  - (f) Kapalbhati

Explain its procedure, importance, benefits to the mankind and draw or paste a suitable diagram.

- **NOTE: SUBMIT YOUR DIWALI VACATIONS HOMEWORK BY 10 NOVEMBER 2025**