

# VASISHTHA GENESIS SCHOOL, BABEN, BARDOLI

## 12 Science

### DIWALI HOLIDAY ASSIGNMENT 2025-26

#### 1) MATHEMATICS

Prepare a brief overview of the following chapters –

**Integrals, Applications of Integrals, Differential Equations.**

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 topic 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. Diwali Waste Management: A Biotechnological Approach:

\*Syllabus Link: Biotechnology and Its Applications, Microbes in Human Welfare

\*Assignment Objective: Prepare a model/report on how biodegradable waste generated during Diwali (flowers, food, packaging) can be recycled using composting or microbial technology.

##### 2. Diwali and Noise Pollution: Effects on Animals:

\*Syllabus Link: Ecology, Biodiversity and Conservation

\*Assignment Objective: Make a case study on how loud cracker noise disturbs birds, pets, and nocturnal animals.

\*Suggest eco-friendly celebrations and conservation practices.

##### 3. Effect of Diwali Pollution on Plants:

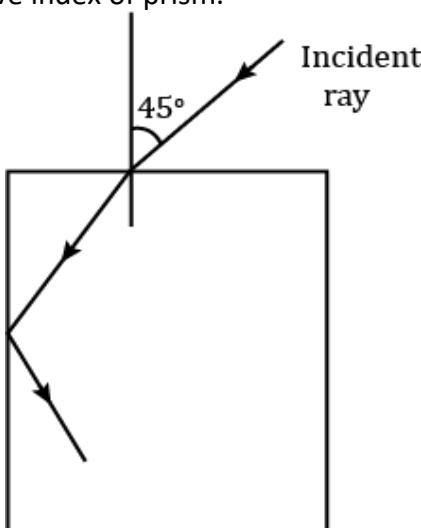
\*Syllabus Link: Reproduction in Organisms (pollen viability), Ecology and Environment

\*Assignment Objective: Conduct a simple investigatory project to compare the condition of leaves before and after Diwali (dust deposition, chlorophyll loss).

#### 3) PHYSICS

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

1. For the given incident ray as shown in figure, for the condition of total internal reflection of this ray, find the minimum refractive index of prism.



2. (a) Electromagnetic waves with wavelength  
 (i)  $\lambda_1$  are used to treat muscular strain  
 (ii)  $\lambda_2$  are used by FM radio station for broadcasting  
 (iii)  $\lambda_3$  is used to detect fracture in bones. Identify and name the part of electromagnetic spectrum to which these radiations belong. Arrange these wavelengths in decreasing order of magnitude.

(b) Show graphically an electromagnetic wave propagating along positive X axis.

3. (a) A device 'X' is connected to an ac source one cycle is shown in the following graph:

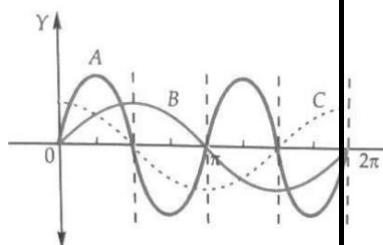
(i) Identify the device X.

$V = V_0 \sin \omega t$ . The variation of voltage, current and power in

(ii) Which of the curves A, B and C represent the voltage, current and power consumed in the circuit? Justify your answer.

(iii) How does its impedance vary with frequency of ac source? Show graphically.

(iv) Obtain an expression for the current in the circuit and its phase relation with ac voltage.



4. (i) Explain the principle and working of the device, which is used to provide electricity at the proper voltage for household purposes.

(II) Calculate the current drawn by the primary of a 90% efficient transformer which steps down 220 V to 22 V, if the output resistance is  $440 \Omega$ .

(III) Why don't transformers work with DC?

5. With the help of a suitable ray diagram, derive a relation between the object distance (u), image distance (v) and radius of curvature (R) for a convex spherical surface, when a ray of light travels from rarer to denser medium.

6. A solid glass sphere of radius 5 cm has a small air bubble O trapped at 2 cm from the centre C.

The refractive index of the material of glass is 1.5. Find the apparent position of the bubble where it will appear, when seen through the surface of sphere from an outside point E that is closest to the bubble.

(b) Complete the remaining questions of PYQ from Xam Idea or any other books.

(c) Complete the physics practical file.

#### 4) CHEMISTRY

Complete the given set of questions in your chemistry note book.

(Questions are attached hereby:-)

Q1 -2-Methyl-but-2-ene [ $(CH_3)_2 - C = CH - CH_3$ ] is reacted with water in the presence of an acid catalyst. (a) Predict and write the structures of the major and minor products formed in the reaction. (b) Give the reaction mechanism to explain the formation of the major product.

Q2-Susmita tabulated the graph given below showing the variation of bond angles of three compounds.

The compounds taken by Susmita are ethanol, phenol, and diethyl ether. Look at the image and answer the questions that follow:

(a) Which compounds are most LIKELY to be D, E, F? (b) Arrange the compounds in the decreasing order of C-O bond length.

Q3-Propene is subjected to two different reactions: (i) reaction with water followed by acidic hydrolysis (ii) reaction with diborane followed by oxidation with hydrogen peroxide in aqueous sodium hydroxide State the following about the products formed in the two reactions: (a) the molecular formulae (b) the functional group present in the molecules (c) the difference between the two products



Q4-To prepare n-propyl ethyl ether, Kavita heats a mixture of n-propyl alcohol and ethyl alcohol in the presence of concentrated sulphuric acid. Is this a good method to prepare the product? Give reasons to your answer.

Q5-a) When benzene diazonium chloride is treated with fluoroboric acid it gives a compound 'X'. Identify compound X. (b) When compound 'X' is heated alone or with  $\text{NaNO}_2$  in the presence of Cu it releases  $\text{N}_2$  gas. What are the other two products produced when compound 'X' is: i) heated alone? ii) heated with  $\text{NaNO}_2$ ? Write the chemical equations involved in each of the reactions.

Q6-This is not a good method for the preparation of n-propyl ethyl ether. The reaction will produce a mixture of three different ethers which would be difficult to separate

Q7-Answer the following questions to describe the bonding in the metal carbonyl. i) What type of bond is formed by the donation of a lone pair of electrons of CO to central metal ion? ii) What type of interaction between metal and CO ligands creates a synergic effect? iii) How is  $\Delta_0$  value affected by the interaction of CO ligands and metal ion in metal carbonyl?

Q8-Extraction of Silver from its ore  $\text{Ag}_2\text{S}$  involves several steps. In one of the steps,  $\text{NaCN}$  is added to the solution. i) Explain the reason why  $\text{NaCN}$  is added to the solution? ii) Why Zn metal is used to recover the Ag metal? Explain with the help of chemical reactions.

Q9-Coordination compounds are of great importance in medicinal chemistry. Explain how EDTA complex of calcium is useful in saving lives from hazardous lead metal?

Q10-An alcohol has the formula  $\text{C}_5\text{H}_{11}\text{OH}$ . Draw the structural formulae of any one of its isomers that is: (i) a primary alcohol and has a IUPAC name based on propane (ii) a secondary alcohol and has a IUPAC name based on butane (iii) a tertiary alcohol.

Q11-Write the structure of all the products formed when n-propyl alcohol is heated with ethyl alcohol in the presence of concentrated sulphuric acid.

Q12-To prepare n-propyl ethyl ether, Kavita heats a mixture of n-propyl alcohol and ethyl alcohol in the presence of concentrated sulphuric acid. Is this a good method to prepare the product? Give reasons to your answer.

Q13-Propene is subjected to two different reactions: (i) reaction with water followed by acidic hydrolysis (ii) reaction with diborane followed by oxidation with hydrogen peroxide in aqueous sodium hydroxide State the following about the products formed in the two reactions: (a) the molecular formulae (b) the functional group present in the molecules (c) the difference between the two products

Q14-An organic compound with the formula  $\text{C}_6\text{H}_5\text{Br}$  reacts with  $\text{CuCN}$  to form compound 'P' and  $\text{CuBr}$  in presence of pyridine at 475 K. Compound P on reaction with dil.  $\text{HCl}$  forms compound 'Q' which reacts with methyl alcohol produces a sweet smelling compound 'R'. Write the chemical reaction showing the above conversions.

Q15-But-1-ene undergoes electrophilic addition reaction in the presence of  $\text{HBr}$ . (i) Write the name of all the products formed in the reaction. (ii) Which will be the major product formed and why?

## 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 by 8th November 2025 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 Colour 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.**

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

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

**1. *The Last Lesson & Lost Spring***

- Both stories confront the **erosion of identity** — one linguistic, the other socio-economic. Evaluate how Daudet and Jung transform personal suffering into **collective memory and resistance**.
- Examine how both texts illustrate the paradox of **education as both a right and a privilege** in colonized or marginalized societies.
- Compare the use of **symbolic settings** — the schoolroom and the slum — as microcosms of cultural decay and lost innocence.

**2. *Deep Water & The Rattrap***

- Both William Douglas and Selma Lagerlöf explore the **theme of fear and redemption**. Compare how the protagonists in both stories overcome their inner struggles to attain self-realization.
- How do these stories suggest that **personal suffering can lead to moral or spiritual growth?**

**3. *Indigo & The Last Lesson***

- Analyze how both Gandhi and M. Hamel act as **agents of moral pedagogy**, teaching lessons of freedom beyond textbooks.
- Evaluate how the authors use **historical realism** to reconstruct the idea of patriotism — not as aggression, but as enlightenment.
- How do both texts reveal that **oppression often becomes the seedbed of moral awakening?**

**4. *Poets and Pancakes & The Interview***

- Both texts deal with the **world of media and communication**. Compare how Asokamitran and Christopher Silvester present the **behind-the-scenes realities of fame, creativity, and public image**.
- How do both writers use **humour and irony** to reveal the contradictions in the modern communication industry?

**5. *Indigo & The Rattrap***

- Both texts deal with **human dignity and moral transformation**. Compare how Gandhi's moral influence and the peddler's change of heart reflect the **power of compassion and truth**.
- How do the authors show that **true freedom lies in moral strength, not material success?**

**6. *The Interview & Indigo***

- Both texts examine **truth in public discourse**. Compare how journalistic inquiry in *The Interview* and political inquiry in *Indigo* redefine the idea of **ethical communication**.
- Evaluate how both narratives engage with **power structures** — of language, influence, and ideology — to question the limits of objectivity.
- How do Fischer and Silvester position their narrators as **mediators of truth rather than neutral observers?**

**7. *My Mother at Sixty-Six & A Thing of Beauty***

- Both poets contemplate **mortality and continuity**. Evaluate how Kamala Das and John Keats negotiate the tension between **temporal decay and aesthetic permanence**.
- How does each poet transform **personal emotion into universal meditation** on human fragility?

- Compare the poetic techniques used to reconcile **pain and beauty** — Das through minimalism, Keats through opulence.

8. *Keeping Quiet & A Roadside Stand*

- Both poems express the poet's concern for **human insensitivity and social injustice**. Compare how Neruda and Frost appeal for **self-realization and empathy** through silence and social awareness.
- How do both poems use **simple language to convey profound moral ideas**?

9. *Keeping Quiet & My Mother at Sixty-Six*

- Both poems revolve around **stillness as revelation**. Analyse how inward silence in *Keeping Quiet* and outward observation in *My Mother at Sixty-Six* lead to **self-knowledge and acceptance of transience**.
- Evaluate the interplay of **time and compassion** in both poems as a means to resist emotional alienation.
- How do both poets redefine **action through inaction**, revealing peace as an act of consciousness?

10. *A Thing of Beauty & Keeping Quiet*

- Both poets advocate harmony through restraint. Compare their visions of **salvation — aesthetic versus ethical**.
- How do Keats and Neruda employ **natural imagery** to transcend human discontent and chaos?
- Evaluate the **philosophical depth** of both poems as they redefine beauty and silence as forms of resistance against moral decay.

11. *The Third Level & The Tiger King*

- Both stories are **satirical commentaries on human escapism and illusion of control**. Compare how Jack Finney and Kalki portray man's futile attempts to **manipulate time and destiny**.
- Examine how the two protagonists — Charley and the Tiger King — represent **different responses to modern anxiety and existential insecurity**.
- Evaluate how **irony** operates as a unifying device in both texts — one revealing **psychological escape, the other political vanity**.
- Both writers critique the **modern human condition**. Compare how fantasy and farce are used to expose the **moral and intellectual bankruptcy of society**.

12. *Journey to the End of the Earth & The Third Level*

- Both narratives are **journeys beyond the ordinary**, yet serve as metaphors for **self-discovery and reflection on human existence**. Compare how Finney's temporal journey and Doshi's geographical journey illuminate the **search for meaning in a fragmented world**.
- Evaluate how both texts explore the **relationship between past, present, and future** — one through time travel, the other through ecological awareness.
- In what ways do both authors employ **scientific imagination and personal introspection** to question **modern civilization's disconnection from reality and nature**?

13. *The Tiger King & The Enemy*

- Both stories juxtapose **authority and morality**. Compare how the Tiger King's arrogance contrasts with Dr. Sadao's moral courage in confronting **duty versus conscience**.
- Evaluate how both Kalki and Pearl S. Buck use their protagonists to question **the corruption of power and the sanctity of human values**.
- Analyse how the authors use **conflict — external (political/war) and internal (ethical/emotional)** — to reveal the fragility of human principles.
- Compare the treatment of **life and death** in both stories as a moral test of human integrity.

14. *Journey to the End of the Earth & The Tiger King*

- Both texts explore **human arrogance against natural order**. Compare how Kalki's satire and Doshi's scientific observation expose the **catastrophic consequences of man's exploitation of nature**.
- Evaluate how both authors present **hubris** — royal and collective — as the root of humanity's downfall.
- How do the endings of both narratives serve as **warnings against ecological and ethical blindness**?

Write an article in 150 - 200 words on (ANY ONE) of the following topics in A4 sheets only.

Academic & Career-Oriented

1. *Balancing Boards and Competitive Exams: Tips That Work*

2. *Top Career Paths After Class 12 – What’s Your Calling?*
3. *From Science to Startups: Unconventional Careers to Explore*
4. *How to Build a Winning College Application*
5. *AI, Coding, and the Future – Are You Ready?*

#### **Personal Growth & Life Skills**

6. *Time Management Hacks for Class 12 Students*
7. *Mindfulness in the Midst of Exam Pressure*
8. *How to Stay Motivated During Board Prep*
9. *Importance of Emotional Intelligence in Teenagers*
10. *Why Failure is the First Step to Success*

#### **Social Awareness & Contemporary Issues**

11. *Climate Change: Small Steps Students Can Take*
12. *Social Media – Boon or Bane for Gen Z?*
13. *Digital Detox: Why We All Need It*
14. *Youth and Voting: Why Every Voice Matters*
15. *Gender Equality Begins in the Classroom*

#### **Creativity & Culture**

16. *The Rise of Student Influencers & Content Creators*
17. *Why Reading Still Matters in a Digital World*
18. *How Music Helps You Study (or Distract?)*
19. *Cultural Diversity in Our School – A Strength to Celebrate*
20. *Reviving the Habit of Letter Writing*

#### **School Life & Beyond**

21. *Farewell Thoughts: What School Taught Me Beyond Books*
22. *Top 10 Moments Every Class 12 Student Will Relate To*
23. *Life After School – What to Expect in College*
24. *Are School Uniforms Still Relevant Today?*
25. *How to Leave a Legacy in School Before You Go*

### **6) INFORMATION PRACTICES**

Project Work (using concepts learned in class XI and XII)

- The aim of the class project is to create tangible and useful IT application. \*The learner may identify a real-world problem by exploring the environment. e.g. Students can visit shops/business places, communities or other organizations in their localities and enquire about the functioning of the organization, and how data are generated, stored, and managed.
- The learner can take data stored in csv or database file and analyze using Python libraries and generate appropriate charts to visualize.
- Learners can use Python libraries of their choice to develop software for their school or any other social good.
- Learners should be sensitized to avoid plagiarism and violation of copyright issues while working on projects. Teachers should take necessary measures for this. Any resources (data, image etc.) used in the project must be suitably referenced.
- The project can be done individually or in groups of 2 to 3 students. The project should be started by students as per discussion in computer lab.
- Student(s) was/were already assigned his/her project in computer lab.

Sample Internet : link1 <https://sultan-chand.com/ws/ipp12/#p=46> || link 2 : [Informatics Practices SrSec 2025-26.pdf](#)

**OR**

If project Work Completed then complete CBSE Papers

1. 2024-25 KVS Sample Papers(Google Classroom)

### **7) PHYSICAL EDUCATION**

**Prepare A project on yoga and common lifestyle diseases:**

- i) Obesity
- ii) Hypertension
- iii) Diabetes
- iv) Asthma

v) Back pain

**Draw a diagram of any two asana for each diseases with their, procedure, benefits , contradiction.( 10 Yoga asana )**