

**SAINIK SCHOOL GOAPLGANJ**  
**SUMMER VACATION ASSIGNMENT: 2025-26**

**CLASS – XII**

**ENGLISH**

1. On the basis of your experience in school and outside world, draft five notices for conduct of various events in school/society.
2. Collect at least five words a day from English newspaper and write the meaning, synonyms and antonyms of the collected words.
3. Read a novel of your choice and write its book review in your own words.
4. Read Five lessons of your textbook 'Flamingo' and make notes and summary. Lesson wise pick out the difficult words and find their meaning from dictionary to enhance your vocabulary and comprehension.
5. Imagine a day in your life without the internet — no Google, no maps, no instant messaging, no online classes, no entertainment platforms. Could you function normally? Today, from waking up to going to bed, our actions are often guided or influenced by the internet.

This dependence raises an important question: Are we using the internet, or is the internet using us? Based on this write an article in about 300 – 350 words on the topic: 'Trapped in the Web: Is the Internet a Tool or a Master?'

Your article should:

- Reflect on the role of the internet in your daily life
- Analyze how much control or influence tech platforms (like Google, YouTube, etc.) have on decisions, habits, and learning
- Mention both the advantages and the drawbacks of such digital dependency
- Share examples, facts, or personal insights
- Conclude with your viewpoint on how to create a balance between using the internet and living independently

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**MATHEMATICS**

1. Study chapter No.7, Definite **Integrals**, solve problems based on this topic from Ex7.8, Ex7.9, Ex7.10, **Miscellaneous Chapter No 7** from text book
2. Study chapter No. **8 Application of Integrals**, solve problems based on this topic from Ex8.1, Ex8.2, Ex8.3, **Miscellaneous from text book**
3. Study chapter No.13 **Probability**, Solve problems based on this topic from Ex13.1Ex13.2 Ex13.3, **Miscellaneous 16 from text book**
4. **NDA Preparations**
5. Solve all the problems asked in years ,2025 2024,2023,2022, of both the parts

**PROJECTS**

**1. Exploring Matrices:**

Study basic matrix operations such as addition, subtraction, multiplication, and inversion.

Investigate properties of matrices, such as determinants and rank.

Explore applications of matrices in solving systems of linear equations or in transformations in geometry.

**2. Analyzing Differential Equations:**

Study basic types of differential equations, such as first-order, second-order, and linear differential equations.

Solve simple differential equations using techniques like separation of variables or integrating factors.

Explore applications of differential equations in modeling real-world phenomena, such as population growth or radioactive decay.

3. **Understanding Limits and Continuity:**

Study the concept of limits and continuity in calculus.

Investigate the properties of limits and how they are used to define continuity.

Explore graphical and numerical methods for evaluating limits.

4. **Analyzing Vectors and 3D Geometry:**

Study vector algebra, including operations such as addition, subtraction, scalar multiplication, and dot product.

Explore 3D geometry concepts such as vectors, lines, planes, and their equations.

Solve problems involving vector operations and 3D geometry applications, such as in physics or engineering.

5. **Exploring Probability Distributions:**

Study probability distributions such as binomial, Poisson, and normal distributions.

Investigate their properties, probability density functions, and cumulative distribution functions.

## **PHYSICS**

Dear Cadets,

You are required to complete the following **Physics Project Report** as part of your **Holiday Homework** during the **Summer Vacation**. This assignment is designed to help you develop a deeper understanding of fundamental scientific principles and their real-world applications. Please read the instructions carefully and adhere to the format provided.

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### **Project Guidelines:**

1. **Write about the list given below:**

***Simple Pendulum, Simple Pulleys, Siphon, Levers, Balloon, Pumps, Hydrometer, Pressure Cooker, Thermos Flask, Gramophone, Telegraphs, Telephone, Periscope, Telescope, Microscope, Mariner's Compass, Lightning Conductors, Safety Fuses.***

Prepare a **formally written report** on the selected topic. The project may be theoretical in nature.

2. Your report should include the following sections:

- **Abstract**
- **Theoretical Discussion**
- **Experimental Setup** (if applicable)
- **Working Principle**
- **Applications**

3. **Presentation** should be neat and systematic. Use A4-size ruled sheets and bind the pages properly. Use hand-written content only. Typed or decorative submissions will not earn extra credit.

4. **Assessment Criteria:**

- a) Conceptual Clarity and Understanding
- b) Computations (if applicable)
- c) Presentation (Clarity, Structure, Neatness)

5. Submit your completed project on the **first day of reopening** after the summer vacation.

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### **Important Notes:**

- You are expected to do your own research and write in your own words.
- Plagiarized or copied material will result in loss of marks.
- You may support your work with simple diagrams or illustrations wherever necessary.

Use your time wisely during the holidays to explore and understand the fascinating principles behind every day scientific devices. We look forward to insightful and original work from each one of you.

Wishing you a productive and enjoyable vacation.

## **SUB-BIOLOGY (044)**

### **INVESTIGATORY PROJECTS LIST (2025-26)**

Make an investigatory projects in following given topic. Each cadet has to submit one project compulsory. The project must contain following parameters. These parameters may be applicable in the projects; it may change project to project.

- Cover Page
- Acknowledgement
- Contents
  - Introduction
  - What is.....?
  - Types of .....
  - Causes of .....
  - Effects of .....
  - History of .....
  - Diagnosis of .....
  - Conclusion
  - Bibliography

<b>INVESTIGATORY PROJECTS TOPICS</b>	<b>SCHOOL NO.</b>
1. Study of effect of congenital diseases	<b>1237,1316</b>
2. Study of family planning in rural area	<b>1238,1307</b>
3. Study of apomixis and parthenocarpy	<b>1240,1308</b>
4. Study of reproductive health	<b>1242,1309</b>
5. Study of mendelism	<b>1245,1311</b>
6. Study of chromosomal disease	<b>1246,1312</b>
7. Study of cancer	<b>1247</b>
8. Study of pollination	<b>1248</b>
9. Comparative Study of air and water pollution	<b>1252</b>
10. Study of mutation	<b>1253</b>
11. Study of DNA replication	<b>1254</b>
12. Study of developmental stages of human	<b>1258</b>
13. Study of biotechnology and its application	<b>1272</b>
14. Study of eutrophication	<b>1276</b>
15. Study of pathogen and its diseases	<b>1278</b>
16. Study of immunization of human body	<b>1287</b>
17. Study of DNA finger printing	<b>1289</b>
18. Study of Human genome project	<b>1295</b>
19. Study of drug addiction in human	<b>1298</b>
20. Study of useful microbes	<b>1302</b>
21. Study of biodiversity conservation	<b>1304</b>

### **SUBJECT – CHEMISTRY**

- Q1. Show the Positive and Negative deviation from the ideal behaviour graphically. Write the condition for the deviation. Give two examples in each case.
- Q2. Derive the formula for Relative Lowering of vapour pressure.
- Q3. Show graphically the Elevation of boiling point, Depression of freezing point and derive the formula for these.
- Q4. Explain Osmosis, Reverse Osmosis and Osmotic pressure.
- Q Write short notes on Abnormal molar mass with the help of any two examples.
- Q. Derive the formula for 'i' both in the case of molecular association and molecular dissociation.
- Q7. Solve all the numerical problems from the chapter 'solution'.
- PROJECT - (i) To study the effect of temperature on the rate of diffusion of solids in liquids
- (ii) To determine the standard electrode potential of zinc and copper

## **COMPUTER SCIENCE**

### **A. Short Answer Questions:**

- (a) What is an exception in Python? Why is exception handling important?
- (b) Explain the purpose of the try, except, and finally blocks in Python.
- (c) What is the significance of having function in a program?
- (d) What is the difference between formal parameter and actual parameter? What are the alternative names? Write a program in Python to illustrate the same.
- (e) What is the difference between the local variable and global variable?

### **B. Long Answer Questions:**

- (a) How can you explicitly raise an exception in Python? What is the raise keyword used for?
- (b) Write a Python function that takes a list of numbers as input and returns the second largest number in the list. Handle edge cases like lists with fewer than two elements.
- (d) Write a function to find the sum of numbers given by the user. The number of value for the sum will be or arbitrary length.
- (e) Write a Python function that takes a list of strings as input and returns a dictionary where the keys are the lengths of the strings and the values are lists of strings with that length

### **C. Project:**

Write a Project Report on the Topic **Block Chain Technology & Its Application**. The report should include key elements, types and applications of Block Chain Technology.

**(Note: Design the project on chart paper or A4 SIZE PAPER or Ms PowerPoint)**