St. XAVIER'S HIGH SCHOOL
EDUCATION FOR ALL
BANKURA, WB
Affiliation No.: 2430130
Affiliated to CBSE (New Delhi) 10+2 level
School Code: 15720

SUMMER VACATION ASSIGNMENT (2026-2027)
CLASS-XII-SCIENCE

SUBJECT: ENGLISH

A. Prepare a Project of the same topic according to the assigned Roll no. (Part of your ASL board exam)
Information regarding the project: **1. The project should be in handwritten form in practical sheets. No Printed Project is accepted.** **2. Project must contain pictures (Mandatory).** **3. The project must contain the following points:** **a) Cover Page (School name, school logo, name of topic, students name, class, subject, session, roll number, guided by in printed form only.** **b) Certificate** **c) Index** **d) Introduction to the topic.** **e) Main content (Meaning, Definition if any, Writer's life, Importance of the text, Work's Influence on us, role in our life, etc.)** **f) Conclusion.** **g) Bibliography/References** **4. Submit the project report in a lace file with appropriate cover.**
TOPICS ASSIGNED
1.Imagine you are an ardent environmentalist who is involved in the Save the Tiger campaign .You have been asked to deliver a speech in the seminar related to your campaign and the need for the youth to be involved in such campaigns.Draft your speech.1-40
2. Atrocities faced by the innocents in Lost Spring by Anees Jung with focus on socio-economic conditions that lead to child labour and the impact of it on their lives. **:-40-**
3. Imagine that you come across Louisa's diary.What might you find in it about the third level?Compose atleast one diary entry based on any of the events from the story,'The Third Level '.1-40
4. Draw a Mind Map of the lesson ' The Last Lesson '.1-
5. Write an article exploring the role of cultural heritage in shaping the identities of today's Indian youth.40-

SUBJECT: PHYSICS

PROJECT

A. To prepare an Investigatory project for SSCE, 2026-27 for Physics (042).

Following points should be followed properly:

1. The project should be in A4 white sheet in Handwritten form. No printed projects are accepted.

2. The project must contain:

a) Cover page (Printed) with school name, school logo, Topic name, any cover picture related to provided topics, submitted by(Student name), Class, Board roll no.(Leave as blank space), session, subject (Physics 042), Guided by (Subject Teacher name).

b) Certificate (Printed, Format will be provided)

c) Acknowledgement (Printed, Format will be Provided)

d) Index (Handwritten)

e) Content (Handwritten)

f) Conclusion (Handwritten)

g) Bibliography (Handwritten)

3. The content must contain Introduction, Topic description, Advantages, Disadvantage, application etc.

4. Project must contain Picture representation and statistical representation (if any).

5. Topics for the investigatory project will be provided shortly in the class group.

6. Compile all pages in a channel file.

PRACTICALS

INSTRUCTIONS:

1. ***There will be two practical notebook- one for ACTIVITY, another for EXPERIMENTS. Students have to write total 6 activities and 8 experiments.***

2. ***Activities should be written in activity notebook and Experiments should be written in experiment notebook.***

3. ***PDF of experiments and activities will be provided in class group shortly.***

4. ***Observation table should leave vacant. Values should be written after doing the practical.***

SUBJECT: MATHEMATICS

CHAPTER - 2

INVERSE TRIGONOMETRIC FUNCTIONS

1. Evaluate : $\tan^{-1}\left(sin\ \left(\frac{\pi}{2}\right)\right)$.
2. Find the value of $\tan^{-1}\left(tan\ \frac{9\pi}{8}\right)$.
3. Evaluate : $\sin^{-1}\left[cos\ \left(\sin^{-1}\frac{\sqrt{3}}{2}\right)\right]$.
4. Find the value of $\sin\ \left[2\ \cot^{-1}\left(\frac{-5}{12}\right)\right]$.
5. Evaluate : $\cos\left[\sin^{-1}\frac{1}{4}+\ \sec^{-1}\frac{4}{3}\right]$.
6. Prove that: $2\ \sin^{-1}\frac{3}{5}-\ \tan^{-1}\frac{17}{31}=\frac{\pi}{4}$.
7. Prove that $\cot^{-1}7\ +\cot^{-1}\ 8+\cot^{-1}\ 18=\cot^{-1}\ 3$.
8. Find the value of $\sin\left(2\ \tan^{-1}\frac{2}{3}\right)\ +cos\ (\tan^{-1}\sqrt{3}\ )$.
9. Find the value of x which satisfy the equation $\sin^{-1}\ x+\sin^{-1}\ (1-x)=\cos^{-1}\ x$.

10. Solve the equation $\sin^{-1}\ 6x+\sin^{-1}6\sqrt{3}\ x=-\frac{\pi}{2}$.
11. Find the value of $\tan^{-1}\left(tan\ \frac{5\pi}{6}\right)+\cos^{-1}\left(cos\ \frac{13\pi}{6}\right)$.
12. Prove that $\cot\left(\frac{\pi}{4}-2\ \cot^{-1}3\right)=7$.
13. Solve the following equation $\cos\ (\tan^{-1}x)=\sin\ (\cot^{-1}\frac{3}{4}\ )$.
14. Prove that $\tan^{-1}\left(\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right)=\frac{\pi}{4}+\frac{1}{2}\cos^{-1}x^2$.
15. Prove that $\sin^{-1}\frac{8}{17}+\sin^{-1}\frac{3}{5}=\sin^{-1}\frac{77}{85}$.
16. Show that $\tan\left(\frac{1}{2}\ \sin^{-1}\frac{3}{4}\right)=\frac{4-\sqrt{7}}{3}$ and justify why the other value $\frac{4+\sqrt{7}}{3}$ is ignored?

CHAPTER - 3

MATRICES

1. If $[2x\quad 3]\begin{bmatrix}1 & 2\\ -3 & 0\end{bmatrix}\begin{bmatrix}x\\ 8\end{bmatrix}=0$, find the value of x.
2. If $A=\begin{bmatrix}1 & 3 & 2\\ 2 & 0 & -1\\ 1 & 2 & 3\end{bmatrix}$, then show that A satisfies the equation $A^3-4A^2-3A+11I=0$.
3. Let $A=\begin{bmatrix}2 & 3\\ -1 & 2\end{bmatrix}$. then show that $A^2-4A+7I=0$. Using this result calculate A^5 also.
4. If a matrix has 28 elements, what are the possible orders it can have? What if it has 13 elements?
5. If possible, find BA and AB, where $A=\begin{bmatrix}2 & 1 & 2\\ 1 & 2 & 4\end{bmatrix}, B=\begin{bmatrix}4 & 1\\ 2 & 3\\ 1 & 2\end{bmatrix}$.
6. Show that $A'A$ and AA' are both symmetric matrices for any matrix A.

7. If $A = \begin{bmatrix} 0 & -x \\ x & 0 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ and $x^2 = -1$, then show that $(A + B)^2 = A^2 + B^2$.

8. If $A = \begin{bmatrix} \cos\alpha & \sin\alpha \\ -\sin\alpha & \cos\alpha \end{bmatrix}$, and $A^{-1} = A'$, find the value of α.

CHAPTER – 4

DETERMINANTS

1. If $\Delta = \begin{vmatrix} 1 & x & x^2 \\ 1 & y & x^2 \\ 1 & z & x^2 \end{vmatrix}$, $\Delta_1 = \begin{vmatrix} 1 & 1 & 1 \\ yz & zx & xy \\ x & y & z \end{vmatrix}$, then prove that $\Delta + \Delta_1 = 0$.

2. If $x = -4$ is a root of $\Delta = \begin{vmatrix} x & 2 & 3 \\ 1 & x & 1 \\ 3 & 2 & x \end{vmatrix} = 0$, then find the other two roots.

3. Evaluate : $\begin{vmatrix} 3x & -x+y & -x+z \\ x-y & 3y & z-y \\ x-z & y-z & 3z \end{vmatrix}$.

4. Evaluate: $\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix}$

5. Prove that: $\begin{vmatrix} a^2+2a & 2a+1 & 1 \\ 2a+1 & a+2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a-1)^3$.

6. If $A = \begin{bmatrix} 4-x & 4+x & 4+x \\ 4+x & 4-x & 4+x \\ 4+x & 4+x & 4-x \end{bmatrix}$ and $|A| = 0$ Then find values of x.

7. If $A = \begin{bmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{bmatrix}$, find A^{-1}.

8. Using matrix method, solve the system of equations $3x + 2y - 2z = 3$, $x + 2y + 3z = 6$, $2x - y + z = 2$

9. Given $A = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$, find BA and use this to solve the system of equations

   $y + 2z = 7$, $x - y = 3$, $2x + 3y + 4z = 17$.

10. If $A = \begin{bmatrix} x & 5 & 2 \\ 2 & y & 3 \\ 1 & 1 & z \end{bmatrix}$, $xyz = 80$, $3x + 2y + 10z = 20$, then A adj. $A = \begin{bmatrix} 81 & 0 & 0 \\ 0 & 81 & 0 \\ 0 & 0 & 81 \end{bmatrix}$.

SUBJECT: CHEMISTRY

INVESTIGATORY PROJECT

To prepare an Investigatory project for SSCE, 2026-27 for Chemistry (043).

Following points should be followed properly:

1. The project should be in A4 white sheet in Handwritten form. No printed projects are accepted.

2. The project must contain:

a) Cover page (Printed) with school name, school logo, Topic name, any cover picture related to provided topics, submitted by(Student name), Class, Board roll no.(Leave as blank space), session, subject (Chemistry 043), Guided by (Subject Teacher name).

b) Certificate (Printed, Format will be provided)

c) Acknowledgement (Printed, Format will be Provided)

d) Index (Handwritten)

e) Content (Handwritten)

f) Conclusion (Handwritten)

g) Bibliography (Handwritten)

3. The content must contain Introduction, Topic description, Advantages, Disadvantage, application etc.

4. The project must contain Picture representation and statistical representation (if any).

5. Topics for the investigatory project will be provided shortly in the class group.

6. Compile all pages in a channel file.

PRACTICALS

INSTRUCTIONS:

There will be **one** practical notebook- for ***EXPERIMENTS***. Students have to write total ***10*** experiments.

2. Experiments should be **written** in an **experiment notebook.**
3. PDF of experiments will be provided in class group shortly.
4. **Observation table** should **leave vacant**. Values should be **written after doing the practical**.

SUBJECT: BIOLOGY

PROJECT

A. To prepare an Investigatory project for SSCE, 2026-27 for Biology (044).

Following points should be followed properly:

1. The project should be in A4 white sheet in Handwritten form. No printed projects are accepted.

2. The project must contain:

a) Cover page (Printed) with school name, school logo, Topic name, any cover picture related to provided topics, submitted by(Student name), Class, Board roll no.(Leave as blank space), session, subject (Biology 044), Guided by (Subject Teacher name).

b) Certificate (Printed, Format will be provided)

c) Acknowledgement (Printed, Format will be Provided)

d) Index (Handwritten)

e) Content (Handwritten)

f) Conclusion (Handwritten)

g) Bibliography (Handwritten)

3. The content must contain Introduction, Topic description, Advantages, Disadvantage, application etc.

4. Project must contain Picture representation and statistical representation (if any).

5. Topics for the investigatory project will be provided shortly in the class group.

6. Compile all pages in a channel file.

PRACTICAL

INSTRUCTIONS:

1.There will be one practical notebook- for *EXPERIMENTS*. Students have to write total *of 17 experiments*.
2. Experiments should be written in an experiment notebook.
3. PDF of experiments will be provided in class group shortly.
4. Use pencil to draw the diagrams and to lebel, black pen to write the headings and blue pen to write the content.
DO NOT USE COLOUR PENS TO WRITE AND DRAW.

SUBJECT: COMPUTER SCIENCE

****** ALL THE PROGRAM MUST BE WRITTEN IN PYTHON PROGRAMMING LANGUAGE AND MYSQL (ACCORDING TO THE QUESTIONS)*** ****** USE PRACTICAL FILE FOR WRITTEN (HAND WRITTEN) THE CODE*** ****** ONLY HANDWRITTEN WILL BE ACCEPTABLE.***
Program 1: Input any number from user and calculate factorial of a number
Program 2: Input any number from user and check it is Prime no. or not
Program 3: Write a program to find sum of elements of List
Program 4: Write a program to calculate the nth term of Fibonacci series
Program 5: Program to search any word in given string/sentence
Program 6:Write a Program to check if the entered number is Armstrong or not.
Program 7: Write a Program to enter the string and to check if it's palindrome or not using loop.
Program 8: Program to read and display file content line by line with each word separated by "#"
Program 9: Program to read the content of file and display the total number of consonants, uppercase, vowels and lower case characters"
Program 10: Program to create binary file to store Rollno and Name, Search any Rollno and display name if Rollno found otherwise "Rollno not found"
Program 11: Program to create binary file to store Rollno,Name and Marks and update marks of entered Rollno
Program 12: Program to read the content of a file line by line and write it to another file except for the lines contains „a" letter in it.
Program 13: Program to create CSV file and store empno,name,salary and search any empno and display name,salary and if not found appropriate message.
Program 14: Program to generate random number 1-6, simulating a dice.
Program 15: Program to implement Stack in Python using List.
Program 16: Program to connect with database and store record of employee and display records.
Program 17: Program to connect with database and search employee number in table employee and display record, if empno not found display appropriate message.
Program 18: Program to connect with database and update the employee record of entered empno.
Program 19: Program to connect with database and delete the record of entered employee number.

Program 20: Write queries for the following questions based on the given two tables.

TABLE: STOCK

Pno	Pname	Dcode	Qty	UnitPrice	StockDate
5005	Ball point pen	102	100	10	2021-03-31
5003	Gel pen premium	102	150	15	2021-01-01
5002	Pencil	101	125	4	2021-02-18
5006	Scale	101	200	6	2020-01-01
5001	Eraser	102	210	3	2020-03-19
5004	Sharpner	102	60	5	2020-12-09
5009	Gel pen classic	103	160	8	2022-01-19

TABLE: DEALERS

Dcode	Dname
101	Sakthi Stationeries
103	Classic Stationeries
102	Indian Book House

a) To display the total Unit price of all the products whose Dcode as 102.
b) To display details of all products in the stock table in descending order of Stock date.
c) To display maximum unit price of products for each dealer individually as per Dcode from the table Stock.
d) To display the Pname and Dname from table stock and dealers.
e) To display the details of all Pname whose dealers name is 'Sakthi Stationeries'

SUBJECT: PHYSICAL EDUCATION

1. Olympic related any one game (history,rules, dimension, official, players name, etc)

2. lifestyle disease(diabetes, asthma, obesity, arthritis, etc) all are compulsory

SUBJECT: DANCE (KATHAK)

1. Write the biography of Birju Maharaj and what were his contributions to Kathak dance.

2. What is naba rasa of dance?

Instruction to do the assignment:
1. The cover page should be well decorated including school name, logo and topic name submitted by and submitted to.
2. Printed photos should be pasted according to the topic.
3. All the pages should be handwritten and compiled in a channel file.