O.P. JINDAL SCHOOL

BALKUDRA, PATRATU

Diwali Holiday Homework

CLASS - XII

ENGLISH

ASSIGNMENT 1. Poster / Collage

Make a poster or collage on the theme — (A3 Size Paper/Chart paper)
"Indigo: When Courage Defeated Fear."
Include quotes by Gandhi, short extracts from the chapter, visuals, and your interpretation of what "freedom" means today.

ASSIGNMENT 2

Title: Postcards Across Time (With reference to 'The Third Level')

✅ Make TWO handmade or handwritten postcards — one from the past and one from the present/future.

Details:

Postcard from the Past
Imagine you have travelled to the year 1894, just like Charley in The Third Level.
On this postcard, write a message to someone in the present (may be your friend, yourself, or even Charley) describing:
 What you see around you — the people, the streets, the atmosphere
 How you feel being in that old world.
 What you wish people in the present knew or remembered about the past.
🎨 Decorate the card in a vintage style — draw old stamps, faded edges, old-fashioned handwriting, or sketches.
Postcard from the Present or Future
Now, imagine someone from the future (or your future self) is sending a postcard back to the present.
On this card, write a message that talks about:
 What the world is like in the future.
 What advice or warnings they want to give people today.
 How time and change have shaped human life and emotions.
🎨 Decorate this postcard in a futuristic style — use bright colours, symbols, or imaginative
designs showing technology or change.

Guidelines:

✔ Make both postcards by hand (no printed templates).
✔ Write neatly and creatively.
✔ Be ready to explain your concept (2–3 minutes) in class.

Assignment 2. Title: "My Mother Through My Eyes: A Personal Documentary"
(With reference to the poem My Mother at Sixty-Six by Kamala Das)

Assignment 3:

✅ Create a short documentary (3–5 minutes) titled:
"My Mother Through My Eyes" or "Spending Time with My Mother" (Or any self-made title)
You should:

Spend quality time with your mother (or a mother figure in your life) during the holidays — it could be cooking together, going for a walk, talking about memories, doing a shared activity, or simply observing daily moments.

Document these moments using:

Video clips (recorded on phone or camera) , Photos ,Voice recordings or interviews ,
Background music or voiceover (optional)

Incorporate a connection to the poem by Kamala Das:

You can read a few lines from the poem as part of your video, or Add your own reflections on the themes of ageing, love, fear of separation, and realization of mortality.

What should be included?

- ✅ Clips or photos showing real moments with your mother.
- ✅ At least one personal reflection or voiceover where you express your thoughts (What do you notice? How do you feel? What have you realised?)
- ✅ A title screen and a closing screen with your name and class.

How to Submit:

Submit the documentary video on a pen drive/ via whats App in person, or email after the holidays.

Be ready to present a short 1–2-minute summary of your experience in class.

NOTE- (Assignment 2 & 3 for those who did not submit for Term -1 Assessment)

Submission Date- 3.11.2025

MATHEMATICS

Objective: Prepare for board exams through practice and revision.

Tasks: Solve the following questions:

- **Determinants:**

1. If $A = \begin{bmatrix} 3 & 2 & 1 \\ 4 & -1 & 2 \\ 7 & 3 & -3 \end{bmatrix}$, find A^{-1} . Using A^{-1} , solve the given system of equations:
   $3x + 4y + 7z = 14;\ 2x - y + 3z = 4;\ x + 2y - 3z = 0.$

2. If $A = \begin{bmatrix} -3 & -2 & -4 \\ 2 & 1 & 2 \\ 2 & 1 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{bmatrix}$, then find AB and use it to solve the following system of equations:
   $x - 2y = 3$
   $2x - y - z = 2$
   $-2y + z = 3$

3. If $A = \begin{bmatrix} 3 & 2 & 1 \\ 4 & -1 & 2 \\ 7 & 3 & -3 \end{bmatrix}$, find A^{-1} and hence solve the following system of equations:
   $3x + 4y + 7z = 14$
   $2x - y + 3z = 4$
   $x + 2y - 3z = 0$

➢ **Application of derivatives:**

1. The median of an equilateral triangle is increasing at the rate of $2\sqrt{3}$ cm/s. Find the rate at which its side is increasing.
2. Find the intervals in which the function given by $f(x) = x^4 - 8x^3 + 22x^2 - 24x + 21$ is
   (a) Increasing (b) decreasing
3. Find the local maxima and local minima of the function $f(x) = sinx - cosx, 0 < x < 2\pi$. Also, find the local maximum and local minimum values.
4. Prove that the height of the cylinder of maximum volume that can be inscribed in a sphere of radius R is $\frac{2R}{\sqrt{3}}$. Also, find the maximum volume.

➢ **Integrals and Application of Integrals:**

1. Find $\int \frac{x^2+1}{(x^2+2)(x^2+3)}\,dx$
2. Find: $\int \frac{e^x}{\sqrt{e^{2x}-4e^x-5}}\,dx$
3. Evaluate: $\int_0^{\frac{\pi}{4}} \frac{\sin x+\cos x}{16+9\sin 2x}\,dx$
4. Find the area of the region bounded by the curve $x^2 + y^2 = 16$ and the lines $y = 1$ and $y = 2$.
5. Find the area of the region bounded by the curve $y^2 = 4x$ and the line $x = 4$.
6. Using integration, find the area of ellipse $\frac{x^2}{9} + \frac{y^2}{16} = 1$.

➢ **Differential Equations:**

1. Solve the following differential equation: $xe^{\frac{y}{x}} - y + x\frac{dy}{dx} = 0$
2. Find the particular solution: $xy\frac{dy}{dx} = (x+2)(y+2); y = -1\ when\ x = 1.$
3. Show that the differential equation $\frac{dy}{dx} = \frac{y^2}{xy-x^2}$ is homogeneous.
4. Solve the differential equation: $(1 + x^2)\,dy + 2xy\,dx = cotx\,dx$.

➢ **LPP:**

1. Solve the following linear programming problem graphically:
   Maximise $Z = -3x - 5y$
   Subject to the constraints: $-2x + y \leq 4,\ x + y \geq 3, x - 2y \leq 2$ and $x \geq 0, y \geq 0$
2. Solve the following LPP graphically:
   Minimise $Z = 5x + 10y$
   Subject to the constraints: $x + 2y \leq 120,\ x + y \geq 60,\ x - 2y \geq 0$ and $x, y \geq 0$

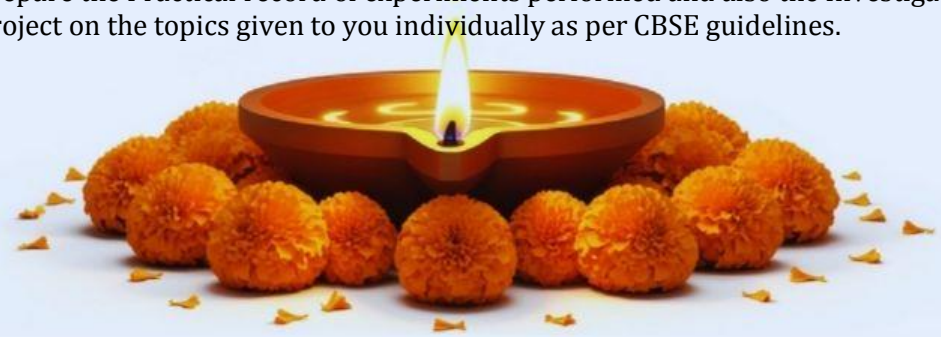
Reflection: Write a short note (1 page) on concepts found most challenging and strategies to improve.
Quantifiable Output: Submit all the solved questions and the reflection note.

PHYSICS

1. To Study the nature and size of the image formed by .
   (i) convex lens or,
   (ii)concave mirror, on a screen by using candle and a screen (for different distances of the candle from the lens/mirror).
2. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.

CHEMISTRY

1. Prepare the Practical record of experiments performed and also the Investigatory project on the topics given to you individually as per CBSE guidelines.



BIOLOGY

Prepare the Practical record of experiments performed and also the Investigatory project on the topics given to you individually as per CBSE guidelines.

INFORMATICS PRACTICES

1. Create the following DataFrame Sales containing year wise sales figures for five sales persons in INR. Use the years as column labels, and sales person names as row labels.

	2014	2015	2016	2017
Madhu	100.5	12000	20000	50000
Kusum	150.8	18000	50000	60000
Kinshuk	200.9	22000	70000	70000
Ankit	30000	30000	100000	80000
Shruti	40000	45000	125000	90000

2. Use the DataFrame created in Question 1 above to do the following:
   a) Display the row labels of Sales.
   b) Display the column labels of Sales.
   c) Display the data types of each column of Sales.
   d) Display the dimensions, shape, size and values of Sales.
   e) Display the last two rows of Sales.
   f) Display the first two columns of Sales.
   g) Create a dictionary using the following data. Use this dictionary to create a DataFrame Sales2.

	2018
Madhu	160000
Kusum	110000
Kinshuk	500000
Ankit	340000
Shruti	900000

   h) Check if Sales2 is empty or it contains data.
3. Use the DataFrame created in Question 1 above to do the following:
   a) Append the DataFrame Sales2 to the DataFrame Sales.
   b) Change the DataFrame Sales such that it becomes its transpose.
   c) Display the sales made by all sales persons in the year 2017.
   d) Display the sales made by Madhu and Ankit in the year 2017 and 2018.
   e) Display the sales made by Shruti 2016.
   f) Add data to Sales for salesman Sumeet where the sales made are [196.2, 37800, 52000, 78438, 38852] in the years [2014, 2015, 2016, 2017, 2018] respectively.
   g) Delete the data for the year 2014 from the DataFrame Sales.
   h) Delete the data for sales man Kinshuk from the DataFrame Sales.
   i) Change the name of the salesperson Ankit to Vivaan and Madhu to Shailesh.
   j) Update the sale made by Shailesh in 2018 to 100000.

k) Write the values of DataFrame Sales to a comma separated file SalesFigures.csv on the disk. Do not write the row labels and column labels.

l) Read the data in the file SalesFigures.csv into a DataFrame SalesRetrieved and Display it. Now update the row labels and column labels of SalesRetrieved to be the same as that of Sales.

4. prepare the project synopsis for aissce 2026 as per the topics allotted and send it in soft copy via email provided.
5. complete the lab activity record book that includes atleast 16 programs from python and atleast 25 queries from mysql.

ECONOMICS			
Roll No.	**PROJECT**	**Roll No.**	**PROJECT**
1	Goods and Services Tax Act and its Impact on GDP	6	Currency War – reasons and repercussions
2	Human Development Index	7	Role of RBI in Control of Credit
3	Government Budget & its Components	*	Organic Farming – Back to the Nature
4	Digital India- Step towards the future	*	Sustainable Development Goals (SDG's)
5	New Education Policy (NEP) 2020: A Promise for a New Education System	*	Aatmanirbhar Bharat

BUSINESS STUDIES
Make a project work based on Marketing of: - 1. Adhesives 2. Air conditioners 3. Baby diapers 4. Bathing Soap 5. Bathroom cleaner 6. Bike 7. Blanket

ACCOUNTANCY
Make a One specific project based on financial statement analysis of a company covering any two aspects from the following: 1. Comparative and common size financial statements 2. Accounting Ratios 3. Segment Reports 4. Cash Flow Statements

PHYSICAL EDUCATION

*Maintain a 6-day food and activity diary.
*Analyze calorie intake vs. energy expenditure.
*Suggest improvements for a balanced, healthy lifestyle.