**St Thomas School, Indirapuram**

**Holiday Home work 2025-26**

**Class 12**

**ENGLISH**

**War and the Human Spirit- A Literary Exploration**

**PROJECT DETAIL: Examine how war impacts individuals, societies and moral choices through the three texts namely THE LAST LESSON, KEEPING QUIET & THE ENEMY**

**LAYOUT OF THE FILE:**

**1. Cover Page**

**Title:**

**Student Name:**

**Class and Roll No.:**

**School Name:**

**Include a relevant quote**

**2. A brief introduction to the theme: War and the Human Spirit**

**3. Purpose and relevance of the project.**

**4 CHAPTER-WISE EXPLORATION**

**a. The Last Lesson**

**Context of war (Franco-Prussian War)**

**Impact on culture, identity, and language.**

**Personal reflection: What would losing my language mean to me?**

**b. The Enemy**

**Wartime setting and moral conflict.**

**Human compassion vs. national duty.**

**Personal reflection: What would I have done in Dr. Sadao's place?**

**c. Keeping Quiet**

**Anti-war message through stillness, silence, and unity.**

**Personal reflection: What does peace mean in today's world?**

**5.COMMAN THEME in all three texts.**

**6. A Venn diagram to show the similarities and differences.**

**7. CREATIVE CORNER:**

**Poem, artwork or a short narrative imagining a peaceful world post-war, inspired by the three texts.**

**8. EXTRAPOLATORY:**

**Create a fictional letter exchange between any two characters from the texts.**

**9. CONCLUSION:**

**Express what have you learned and what is your personal takeaway about war, peace, and humanity.**

**10. BIBLIOGRAPHY:**

**NB:**

**MAKE YOUR PROJECT AS IMPRESSIVE AS YOU CAN USING ILLUSTRATIONS, PICTURES CALLIGRAPHY SKILLS & OTHER RELEVANT DETAILS**

## NOTE – ENGLISH HW IS COMMON FOR ALL SECTIONS.

## 12 A and 12 B

## PHYSICS

**1) Write the 8 Experiments (Section – A (4), Section B (4) )in your Practical file.**

**SECTION-A**

**Experiment-1: To determine resistivity of two / three wires by plotting a graph for potential difference versus current.**

**Experiment-2: To find resistance of a given wire / standard resistor using metre bridge.**

**Experiment-3: To verify the laws of combination (series) of resistances using a metre bridge.**

**Experiment-4: To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.**

**SECTION-B**

**Experiment-1: To find the focal length of a convex lens by plotting graphs between u and v.**

**Experiment-2: To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.**

**Experiment-3: To find the refractive index of a liquid using convex lens and plane mirror.**

**Experiment-4: To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.**

**2) Write 6 Activities in a 50 pages interleaf copy.**

**Section A**

1. **To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source**
2. **To assemble the components of a given electrical circuit.**
3. **To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter, and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.**
   **Section B**

4. **To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.**
5. **To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.**
6. **To study the nature and size of the image formed by a concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).**

**3) Complete your Project work as per the instruction given by teacher.**

**CHEMISTRY**

***CLASS XII CHEMISTRY***

***INVESTIGATORY PROJECT TOPICS***

***Designing and executing experiments, systematically analysing the collected results, and finally presenting the findings through a detailed report or a well-structured presentation are all part of the process of completing a CBSE class 12 chemistry investigatory project.***

1. **Common food adulterants in fat, butter, oil, turmeric powder, pepper, chilli powder, sugar, etc.**
2. **Measure the amount of acetic acid in vinegar**
3. **Determination of contents in cold drinks**
4. **Sterilization of water using bleaching powder**
5. **Presence of oxalate ions in guava fruit and different stages of ripening**
6. **Compare the rate of evaporation of water**
7. **Check the ions present in a toothpaste**
8. **Isolation of casein from milk.**
9. **Analysis of Honey**
10. **Study the effects of metal coupling on the rate of corrosion**
11. **Preparation of soya bean milk**
12. **Rate of Evaporation of Different Liquids**
13. **Red Cabbage as an indicator**
14. **The Neutralizing Ability of Antacid**

Tablets

NOTE – Any other suitable project can also be selected by students

## BIOLOGY

1. Write experiments 1-12 in the practical file.
2. Complete the investigatory project during holidays.
3. Revise Chapters 3 and 4 for UT-2.

## MATHS

*General Instructions:*

*This H.H.W. is divided in two parts.*

*(i) Part I- Lab Activities ( to be completed in lab manual)*

*(ii) Part II- Assignment. ( in assignment copy)*

### PART-I

**LAB ACTIVITY**

Activity 3 - Based on Relations and Functions.
Activity 4 - Inverse Trigonometric functions.
Activity 6 - Matrices.
Activity 7 - Continuity & Differentiability.
Activity 10 - Increasing & decreasing
Activity 12 - Application of Derivatives
Activity 14 - Vector algebra
Activity 15 - Vector algebra (semi-circle is a right angle)
Activity 16 - Three dimensional geometry
Activity 19 – Probability

### PART-II

**ASSIGNMENT**

| | |
|---|---|
| 1 | If A = $\begin{bmatrix}1 & 2 & 2\\ 2 & 1 & 2\\ 2 & 2 & 1\end{bmatrix}$ verify that $A^2-4A-5I=0$. |
| 2 | Using determinant , find the value of k, if (2,-3),(k,-1),(0,4) are collinear. |
| 3 | Compute $(AB)^{-1}$, where A=$\begin{bmatrix}1 & 3 & 3\\ 1 & 4 & 3\\ 4 & 3 & 4\end{bmatrix}$, $B^{-1}$=$\begin{bmatrix}2 & 1 & 2\\ 2 & 2 & -1\\ 1 & 0 & 3\end{bmatrix}$ |
| 4 | Find the value of A and B, where 2A+B=$\begin{bmatrix}5 & -1\\ 3 & 2\end{bmatrix}$, A - 2B = $\begin{bmatrix}1 & -4\\ 0 & 5\end{bmatrix}$. |
| 5 | Write the matrix A=$\begin{bmatrix}3 & 4 & 8\\ -1 & 0 & 4\\ 2 & -3 & 2\end{bmatrix}$ is the sum of symmetric and skew symmetric matrix. |
| 6 | There are two real value(s) of x , for which the value of the determinant |

| | |
|---|---|
| | $\Delta = \begin{vmatrix} 1 & -2 & 5 \\ 2 & x & -1 \\ 0 & 4 & 2x \end{vmatrix}$ is 86. Find the value(s) of x. |
| 7 | The equilibrium conditions for three competitive markets are described as given below, where x, y and z are the equilibrium price for each market respectively.<br>x + 2y + 3z = 85 ; 3x + 2y + 2z = 105 ; 2x + 3y + 2z = 110<br>Using matrix method, find the values of respective equilibrium prices. |
| 8 | If $tany = \frac{2t}{1-t^2}$ $and \sin x = \frac{2t}{1+t^2}$, find $\frac{dy}{dx}$ |
| 9 | Find the value of k so that $f(x) = \begin{cases} \frac{\sin kx}{x}, x < 0 \\ 8 - 3x, x \geq 0 \end{cases}$ may be continuous at $x = 0$ |
| 10 | If $y = \frac{2}{\sqrt{a^2-b^2}} tan^{-1}\left(\sqrt{\frac{a-b}{a+b}} tan\frac{x}{2}\right)$, prove that $\frac{d^2y}{dx^2} = \frac{b\, sinx}{(a+bcosx)^2}$ |
| 11 | If $x = sint$ and $y = sin2t$, prove that $(1-x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} + 4y = 0$ |
| 12 | If $y = (\cos x)^{(Cosx)^{(\cos x)^{\cdots\infty}}}$, prove that $\frac{dy}{dx} = -\frac{y^2 \tan x}{1 - y \log(\cos x)}$ |
| 13 | If $y = sin^2(x^3)$, find $\frac{dy}{dx}$ |
| 14 | Prove that the function $f(x) = \tan x - 4x$ is strictly decreasing on $\left(-\frac{\pi}{3}, \frac{\pi}{3}\right)$ |
| | Each of these questions contain two statements: Assertion(A) and Reason(R). Each of these questions has four alternative choices in which any one of them is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.<br>(a) A is true, R is true; R is a correct explanation for A.<br>(b) A is true, R is true; R is not a correct explanation for A<br>(c) A is true; R is false.<br>(d) A is false; R is true. |
| 15 | Assertion(A) : If $y = f(logx)$ $and$ $f'(x) = e^x$, then $\frac{dy}{dx} = 1$<br>Reason(R) : $\frac{du}{dx} = \frac{du}{dt} \cdot \frac{dt}{dx}$ |
| 16 | Assertion(A) : The function $f(x) = \sin x$ decreases on the interval $(o, \frac{\pi}{2})$<br>Reason(R) : The function $f(x) = \cos x$ decreases on the interval $(o, \frac{\pi}{2})$ |
| 17 | Find the interval in which the function $f(x) = 3x^4 - 4x^3 - 12x^2 + 5$. |
| 18 | Show that the function $f(x) = tan^{-1}(\sin x + \cos x)$ is strictly increasing in the interval $\left(0, \frac{\pi}{4}\right)$ |
| 19 | Find the absolute maximum and absolute minimum value of the function defined by $f(x) = sin^2 x - \cos x, x \in [0, \pi]$ |
| 20 | Find all the points of local maxima and local minima of the function<br>$f(x) = -\frac{3}{4}x^4 - 8x^3 - \frac{45}{2}x^2 + 105$ |

## COMPUTER SCIENCE

1. Complete the practical file questions shared on Edunext
2. Complete the project work-Sample file shared on Edunext

## 12C AND 12D

## APPLIED MATHS

**HOLIDAY HOMEWORK**

**CLASS:XII SUB: APPLIED MATHEMATICS**

***General Instructions:***

***(i) This H.H.W. is divided in three parts. (ii) Part I- Project***

***(iii) Part II- Assignment (iv) Part III- Make a formulae booklet of all topics covered.***

**PART-1**

**PROJECT-**

**Use Logarithms for financial calculations such as interest, present value, future value , sinking fund, Bonds , EMI,CAGR% etc. with large values.**

**Note: It will be added in your internal assessment.**

**PART-2**

**ASSIGNMENT**

| | |
|---|---|
| 1 | If A = $\begin{bmatrix}1 & 2 & 2\\2 & 1 & 2\\2 & 2 & 1\end{bmatrix}$ verify that $A^2-4A-5I=0$. |
| 2 | Using determinant , find the value of k, if (2,-3),(k,-1),(0,4) are collinear. |
| 3 | Compute $(AB)^{-1}$, where A= $\begin{bmatrix}1 & 3 & 3\\1 & 4 & 3\\4 & 3 & 4\end{bmatrix}$, $B^{-1}$= $\begin{bmatrix}2 & 1 & 2\\2 & 2 & -1\\1 & 0 & 3\end{bmatrix}$ |
| 4 | Find the value of A and B, where 2A+B= $\begin{bmatrix}5 & -1\\3 & 2\end{bmatrix}$, A - 2B = $\begin{bmatrix}1 & -4\\0 & 5\end{bmatrix}$. |
| 5 | Write the matrix A= $\begin{bmatrix}3 & 4 & 8\\-1 & 0 & 4\\2 & -3 & 2\end{bmatrix}$ is the sum of symmetric and skew symmetric matrix. |
| 6 | There are two real value(s) of x , for which the value of the determinant $\Delta=\begin{vmatrix}1 & -2 & 5\\2 & x & -1\\0 & 4 & 2x\end{vmatrix}$ is 86. Find the value(s) of x. |
| 7 | The equilibrium conditions for three competitive markets are described as given below, where x, y and z are the equilibrium price for each market respectively.<br>x + 2y + 3z = 85 ; 3x + 2y + 2z = 105 ; 2x + 3y + 2z = 110<br>Using matrix method, find the values of respective equilibrium prices. |
| 8 | Find the solutions of the given pair of linear equations by Cramer's Rule:<br>$\frac{2}{x}+\frac{3}{y}=2;\frac{5}{x}+\frac{8}{y}=\frac{31}{6}$ |

| | |
|---|---|
| | |
| 9 | Mohan takes a loan of ₹5,00,000 with 8% annual interest rate for 6years. Calculate EMI under Flat Rate system. |
| 10 | A person borrowed Rs. 20,00,000 from a bank to purchase a flat and decided to repay the loan by equal monthly instalments in 15 years. The bank charges interest 12% per annum compounded annually. Determine the EMI by using reducing balance method. (Given $(1.01)^{-180}$=0.1668) |
| 11 | At what rate of interest will the present value of perpetuity of ₹500 payable at the end of every 6 months be ₹10000? |
| 12 | In the year 2010, Mr. Aggarwal took a home loan of Rs. 30,00,000 from State Bank of India at 7·5% p.a. compounded monthly for 20 years. Based on the above information, answer the following questions : (i) Determine the EMI. 1 (ii) Find the principal paid by Mr. Aggarwal in the 150th instalment. 1 (iii) (a) Find the total interest paid by Mr. Aggarwal. (iii) How much was paid by Mr. Aggarwal to repay the entire amount of home loan ? [Use $(1·00625)^{240}$ = 4·4608; $(1·00625)^{91}$ = 1·7629] |
| 13 | Vikas invested ₹ 10000 in company's fund. His yearly investment values are shown in the table given below: <table><tr><td>Year</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Amount (in₹ )</td><td>10000</td><td>13000</td><td>11000</td><td>9400</td></tr></table> Calculate Compound Annual Growth Rate of his investment |
| 14 | A machine costing ₹ 30,000 is expected to have a useful life of 4 years and a final scrap value of ₹ 4000. Find the annual depreciation . |
| 15 | Consider a bond with a coupon rate of 10% charged annually. The par value is ₹ 2,000 and the bond has 5 years to maturity. The yield to maturity is 11 %. What is the value of the bond in₹. |
| 16 | Find the purchase price of a ₹ 600, 8% bond, dividends payable semi-annually redeemable at par in 5 years, if the yield rate is to be 8% compounded semi-annually. |
| 17 | Find $\frac{dy}{dx}$ $(i)\frac{x^2}{a^2}+\frac{y^2}{b^2}=11$(ii) $y=nxlogx$ (iii) $e^{xy}$ - axy = a (iv) y = $x^{logx}$ |
| 18 | (i)If $x=\frac{2bt}{1+t^2}$ and $y=\frac{a(1-t^2)}{1+t^2}$, find $\frac{dy}{dx}$ at $t=2$(ii) If $x = e^{x/y}$, prove that $\frac{dy}{dx}=\frac{x-y}{xlogx}$ |
| 19 | If y = $\sqrt{x+1}-\sqrt{x-1}$ , prove that $(x^2-1)\frac{d^2y}{dx^2}+x\frac{dy}{dx}-\frac{1}{4}$ y= 0 |
| 20 | If y = log ( $x+\sqrt{x^2+a^2}$) , prove that $(x^2+a^2)y_2+xy_1$ = 0 |

**PART- 3**

**Write the formulae and Mind Map for following topics:**

1- MATRICES AND DETERMINANTS
2- FINANCIAL MATHEMATICS
3- DIFFERENTIATION

## BUSINESS STUDIES

**Project work as per CBSE curriculum & instructions provided in class.**

## ECONOMICS

**Project work as per CBSE curriculum & instructions provided in class.**

## ACCOUNTANCY

**HOLIDAY HOME –WORK ACCOUNTANCY(055)**

**Class- XII Students must complete the project work as discussed with them as per CBSE guidelines.**

**Project work – One Specific Project based on Financial Statement Analysis of a Company covering any two aspects from the following:-**

1. **Accounting Ratios**
2. **Cash flow statement**
3. **Segment Analysis**
4. **Comparative and Common Size financial statements.**

**It is advisable to prepare project on Accounting Ratios and Cash Flow Statement**

**Revise the syllabus taught till now and complete your notebook**

## 12E

## POLITICAL SCIENCE

- **PROJECT WORK (20 marks)**

  **Every student has to compulsorily undertake one project on the topics from the syllabus of session 2025-26.**

**GENERAL INSTRUCTONS:**

1. **The Project Report should be *handwritten* by the students themselves on A3/4 size sheets.**
2. **Students must use at least one primary evidence/ source (immediate firsthand account of a topic from people who had direct connection with it) to prepare the project. Speeches/newspaper cuttings/Interviews/survey etc.**
3. **If possible, *different forms of Art* may be integrated in the project work.**
4. **Use eco-friendly products without incurring too much expenditure.**

5. **Project content must not be less than 10 pages or exceed 15 pages.**
6. **All pages will be numbered, with a broad left margin.**
7. **Use only one face (Odd # page) to write content material. Even # pages will be utilized only to illustrate pictures, fact/figure & statistics (Whatever applicable/relevant to written content on the following page).**
8. **Wherever required prepare FOOTNOTES/`DID YOU KNOW?' fact card with lesser known but interesting facts associated with content.**

## PATTERN OF THE PROJECT FILE:

1. **Cover page - School name, Project title, Session, Subject. At the bottom of the title page - write your Name (in CAPITAL) and Class (in two separate rows/Right align) followed by Roll No in the next line. Roll No (NOT TO BE FILLED IN)**
2. **First page - Project Title, subject, session, name of the student, class/ section**
3. **Certificate of Authenticity**
4. **Acknowledgment**
5. **Index - With page numbers**
6. **Introduction of the Topic / Purpose and aim of the project**
7. **Content:**

- **Identifying causes, events, consequences and/or remedies.**
- **Various stakeholders and effect on each of them.**
- **Short-term and long-term implications of strategies suggested in the course of research.**

- **Check list include validity, reliability, appropriateness and relevance of data used for research work.**
- **Present material/ data/ statistics with related pictures, pie charts, bar graphs, cartoons,slogans, maps etc. on the left side of the file (even # pages) to make a quality project.**
- **Report on primary source (with evidence)**
- **Conclusion- Draw a relevant conclusion by mentioning the learning outcome and suggestions (if any).**

8. **Bibliography- Mention name of the book, newspaper, magazine, website, author, publisher**
9. **SUGGESTED TOPICS FOR THE PROJECT WORK (CBSE) 1. NAM- 1961 to present times. 2. Division of Germany with special focus on the construction and dismantling of the Berlin Wall. 3. CIS-Central Asian Republics 4. Disintegration of USSR with special focus on Gorbachev. 5. Arab Spring 6. Cover the negative as well as positive aspects of**

**relationship between India and the following countries. Focus on any one of the following (current updates should be highlighted): a) Relationship between India and Russia b) Relationship between India and China c) Relationship between India and Pakistan d) Relationship between India and Bangladesh 7. ASEAN 8. European Union and BREXIT 9. BRICS 10. SAARC 11. India's Nuclear Policy 12. United Nations with focus on India's candidature in Security Council. 13. UN Agencies – UNICEF, UNESCO, WHO 14. Pandemics: Covid 19- Its global impact (focus on worldwide cooperation and preparedness along with controversies (please collect newspaper clippings for the same) 15. Partition of India-Theory behind it and its legacy 16. Comparison between NITI AAYOG and Planning Commission and their contribution in India's Development. 17. Election 2019- Rise of BJP and Downfall of Congress (1989-2019). 18. Imposition of Emergency in India 19. NDA III and NDA IV – Social and Economic welfare programmes.**

- **REVISE all the chapters completed.**
- **Read the newspaper daily and collect news updates on India's relations with China, Russia, Pakistan, Sri Lanka, Bangladesh, Bhutan and Nepal.**

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