M.R.S. MEMORIAL Sr. SECONDARY SCHOOL

HOLIDAY HOMEWORK (2025-2026)

CLASS-12th

Dear Parents,

Should we judge a dolphin by its ability to climb a tree? We do not wear the Board exam marks on our sleeves? Right. But They do signify a simple Thing: it quantifies the level of sincerity and sense of responsibility of a student as per the Level of the complexity of the subjects each one studies. This sense of sincerity and Responsibility should begin from the time the student steps in XII. With mercury rising to unprecedented heights, it is that time of the year where Summer Vacations provide us a little respite from the scorching heat. At the same time it also allows Students enough time for introspection, reviewing past performances, learning from mistakes, Goal setting, planning strategically and tactically, identifying obstacles to success. Gearing up For this wonderful period of rejuvenation, let us prepare ourselves to utilize our time in many Constructive ways. So, with the idea of fostering new learning experiences and to enhance Individual inquisitiveness, the school has planned some to channelize the energies of the young MRSIANS.

Here are some guidelines for you to Invigorate your ward while giving him the chance to enjoy This period of unrestrained fun. • Learning doesn't stop when school is out.

• Work smart, not hard.

• For every hour of electronics time, you owe an hour of outside playtime.

• Reading is a must.

• Before you ask for a favor, do a chore.

• There's no sleeping all day or staying up all night.

• Be honest to a fault.

• Question every fact

• Do better today than you did yesterday.

CHEMISTRY

1. PREPARE A PROJECT REPORT ON ONE OF THE FOLLOWING TOPICS:-

Study of the presence of oxalate ions in guava fruit at different stages of ripening.

OR

Study of quantity of casein present in different samples of milk.

OR

Study of digestion of starch by salivary amylase and effect of pH and temperature on it.

OR

Study of common food adulterants in fat, oil, butter, sugar, turmeric power, chilli powder and pepper.

Make a working model on any topic (Only three members in one team)

NOTE:- 1. You can use GOOGLE or other internet resources for making the project. 2. Project file should be in neat handwriting and well covered and decorated.

PHYSICS

1. An investigative project (Max 2 candidates are allowed in one team)
2. Report file of project (typed in M.S. WORD)
   FONT- TIMES NEW ROMAN
   HEADING – 16 (BOLD)
   CONTENT- 14
3. Make a working model on any topic (only three members in one team)
   (You can take help of your subject teacher)

BIOLOGY

1. Make a project on any topic included in your syllabus.

HINDI

1-“ हिंदी साहित्य के विभिन्न कालों में तुलसीदास,जायसी, मतीराम, मैथिलीशरण गुप्त आदि कवियों ने भी शरद ऋतु का सुंदर वर्णन किया है ।

•इन कवियों की रचना तलाश करके लिखिए ।

•पतंग कविता में शरद ऋतु का वर्णन से किस प्रकार भिन्न है? अंतर लिखिए ।

•आपके जीवन में शरद ऋतु का क्या महत्व है? (फाइल में)

2- हरिवंशराय बच्चन जी की कोई दो सुप्रसिद्ध कविता लिखिए। (फाइल में)

3-“ आपने समाचार पत्रों, टीवी आदि पर अनेक प्रकार के विज्ञापन देखे होंगे जिनमें ग्राहकों को हर तरीके से लुभाने का प्रयास किया जाता है। नीचे लिखे बिंदुओं के संदर्भ में किसी एक विज्ञापन की समीक्षा कीजिए।
और यह भी लिखिए कि विज्ञापन
कौन-सी बातें आपको समान खरीदने के लिए प्रेरित करती हैं?

1- विज्ञापन में सम्मिलित चित्र और विषय
2-विज्ञापन में आए पात्र व उनका औचित्य
3- विज्ञापन की भाषा।(फाइल में)
4- दूरदर्शन न्यूज़ जैसे सरकारी और कोई एक निजी समाचार चैनल जैसे आज तक, एनडीटीवी, ज़ी न्यूज़ आदि के रात 9:00 बजे के बुलेटिन को 2 सप्ताह तक देखिए और दोनों के समाचार बुलेटिन के कलेवर और प्रस्तुति ढंग की तुलना करते हुए 200 शब्दों की रिपोर्ट तैयार कीजिए। (फाइल में)

5- अपने प्रिय समाचार पत्र की (30 दिन की)दैनिक प्रमुख न्यूज़ व सुर्खियों की एक फाइल बनाइए व यह भी निश्चित कीजिए कि उसमें समाचार लेखन की कौन- सी शैली प्रयोग की गई है?

6-अपनी पाठ्य-पुस्तक “अभिव्यक्ति और माध्यम" के आधार पर चित्रों को ध्यान से देखें और इनके आधार पर टीवी के लिए तीन अर्थपूर्ण संक्षिप्त स्क्रिप्ट
तैयार कीजिए। (चार्ट पेपर)

7- P. A. -1 समस्त पाठ्यक्रम याद करें।

ENGLISH

CLASS XII

ENGLISH CORE

1. Draft Advertisements for the following (1 each):

A. Household item for sale

You propose to sell your flat as you are going abroad. Draft an advertisement for it to be published in the classified columns of 'The Times of India', New Delhi. (50 words)

B. To-let

Question 2-You are Anurag/Aparna of 110,Swasthya Vihar , New Delhi .You wish to let out a portion of your newly built house. Draft an advertisement in not more than 50 words for publication in the "To-Let" column of The Hindustan Times, giving all necessary details .

C. Required/Vacancy/situation vacant

D. Matrimony

E. Services (Showroom/Gym/Coaching etc.)

3. **Write speech** on the following topics:

a) "To use the latest technology the right way, is in the hands of the youth today." **Write a speech 150-200** words discouraging the misuse of technological products like cell phones, computers etc and highlighting the need to use them to promote harmony and goodwill in the society.

b) Our Good Earth", an environmental awareness magazine has launched a marathon 'Clean Your City' campaign. As an active participant **write a speech** to be read out in the morning assembly urging students to participate in the campaign in 150-200 words.

4. **Poster Writing:**

a. Water is precious and each one of us must stop wastage. **Prepare a poster** in not more than 50 words urging people to employ various methods of rainwater harvesting in their colonies.

PHYSICAL EDUCATION

1. Complete your notebook work unit 1 and unit 2
2. Prepare project file of this topic
Athletic
*History
*Measurements
*Diagram of group
*Rules
*Equipment
*Awards
*Famous personality about this game
3. Draw a chart paper of Surya namaskar
4. Write about your favourite game give full details of all topics
* History
* Measurements
* Equipment
* Award (recently 5 years)
* Favorite player

ACCOUNTANCY

Note : work is to be done on assignment sheets.

Prepare a project report on Ratio analysis

Project report must be at least 20 pages.

The Report must be simple and sober

B.ST.

Note : work is to be done on assignment sheets.

1. Group A
Prepare a project report on Marketing
2. Group B
Prepare a project report on Principles of management.

Project report must be at least 30 pages.

The report spellings, headings and pictures should be free from error.

Report must be simple and sober

ECONOMICS

Note : work is to be done on assignment sheets.

1. Write a short notes on the following topics :
a) union budget 2023.
b)economic survey 2023.
c)G.S.T Regime
d) foreign Exchange Rate.
2. What is NITI Aayog? What are the functions of NITI Aayog?
3.write down the objectives of five years plans (1951-2017).

MATHEMATICS

INSTRUCTIONS: HOLIDAY'S H.W SHOULD BE DONE IN A SEPARATE REGISTER

MATRICES AND DETERMINANTS

1 Mark

1 If A is the square matrix of order 3 such that $|adjA| = 64$, find $|A|$.

2 If $A = \begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$, then find k if $|2A| = k|A|$.

3 If A is the square matrix of order 3 such that $|adjA| = 64$, find $|A|$.

4 Construct a 2×2 matrix whose elements are given by $a_{ij} = i + 2j$.

5 Let P and Q be two matrices of order $2 \times n$ and $2 \times p$ respectively. If n=p ,then find the order of 4P–3Q.

6 If A is invertible matrix of order 2and $|A|$=5, find $|A^{-1}|$.

7 If A is a square matrix of order 3 such $|adjA| = 100, Find |A|$.

8 Find the transpose of the following matrix

[1 2 -5]

9 Find the value of x: $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$

10 Find values of x if .

6) Evaluate $\tan^{-1}\left[2\cos\left(2\sin^{-1}\frac{1}{2}\right)\right]$

7) Evaluate $\tan\frac{1}{2}\left[\sin^{-1}\frac{2x}{1+x^2}+\cos^{-1}\frac{1-y^2}{1+y^2}\right]$, $|x|<1, y>0$ and $xy<1$.

8) If $\sin\left(\sin^{-1}\frac{1}{5}+\cos^{-1}x\right)=1$, then find the value of x.

9) Simplify $\tan^{-1}\left[\frac{a\cos x-b\sin x}{b\cos x+a\sin x}\right]$, if $\frac{a}{b}\tan x>-1$.

4 MARKS

1) Find the value of $\tan^{-1}1+\tan^{-1}2+\tan^{-1}3$

2) Solve $\sin^{-1}(1-x)-2\sin^{-1}x=\frac{\pi}{2}$

3) Find the maximum and minimum value of $(\sin^{-1}x)^2+(\cos^{-1}x)^2$

4) Solve $2\tan^{-1}(\cos x)=\tan^{-1}(2\operatorname{cosec}x)$

5) Prove that $\sin[\cot^{-1}\{\cos(\tan^{-1}x)\}]=\sqrt{\frac{x^2+1}{x^2+2}}$

6) Solve $\tan^{-1}2x+\tan^{-1}3x=\frac{\pi}{4}$.

7) Prove that $\tan^{-1}\frac{63}{16}=\sin^{-1}\frac{5}{13}+\cos^{-1}\frac{3}{5}$

8) Prove that $\cot^{-1}\left(\frac{\sqrt{1+\sin x}+\sqrt{1-\sin x}}{\sqrt{1+\sin x}-\sqrt{1-\sin x}}\right)=\frac{x}{2}$, $x\in\left(0,\frac{\pi}{4}\right)$.

9) Prove that $\tan^{-1}\left(\frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}}\right)=\frac{\pi}{4}-\frac{1}{2}\cos^{-1}x$, $-\frac{1}{\sqrt{2}}\le x\le 1$.

10) Prove that $\frac{9\pi}{8}-\frac{9}{4}\sin^{-1}\frac{1}{3}=\frac{9}{4}\sin^{-1}\frac{2\sqrt{2}}{3}$

11) Solve $2\tan^{-1}(\cos x)=\tan^{-1}(2\operatorname{cosec}x)$.

$2y - 3z = 1$

$3x - 2y + 4z = 2$

5 If x, y, z are different and $\begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$, then show that $1 + xyz = 0$.

6 Using elementary transformations, find the inverse of the matrix

$$\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$$

7 If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$, find A^{-1}, using A^{-1} solve the following syster equation : $x + y + 2z = 0;\ x - 3y + 3z = -14\ ;\ x = 2y - z = 9$.

INVERSE TRIGONOMETRIC FUNCTIONS

1 MARK

1) Find the value of $\tan^{-1}(1) + \cos^{-1}\left(-\frac{1}{2}\right) + \sin^{-1}\left(-\frac{1}{2}\right)$

2) Prove that $\tan^{-1}\left(\frac{1}{2}\right) + \tan^{-1}\left(\frac{2}{11}\right) = \tan^{-1}\left(\frac{3}{4}\right)$

3) Express $\tan^{-1}\left(\frac{\cos x}{1 - \sin x}\right),\ -\frac{\pi}{2} < x < \frac{\pi}{2}$ in simplified form.

4) Prove that $2\tan^{-1}\frac{1}{2} + \tan^{-1}\frac{1}{7} = \tan^{-1}\frac{31}{17}$

5) Evaluate $\sin\left(\frac{\pi}{3} - \sin^{-1}\left(-\frac{1}{2}\right)\right)$

2 MARK

6 If $A=\begin{bmatrix}\cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha\end{bmatrix}$, then for what value of α, A is identity matrix.

7 If A is the square matrix such that $A^2 = A$, then evaluate $(I+A)^3 - 7A$.

8 Find the maximum value of $\begin{vmatrix}1 & \sin\theta & 1 \\ -\sin\theta & 1 & \sin\theta \\ -1 & -\sin\theta & 1\end{vmatrix}$, $0 \le \theta \le 2\pi$.

4Marks

1 If $A=\begin{bmatrix}-2 \\ 4 \\ 5\end{bmatrix}$, $B=\begin{bmatrix}1 & 3 & -6\end{bmatrix}$, *Verify* that $(AB)' = B'A'$.

2 Evaluate

$$\begin{vmatrix}\cos A\cos B & \cos A\sin B & -\sin A \\ -\sin B & \cos B & 0 \\ \sin A\cos B & \sin A\sin B & \cos A\end{vmatrix}$$

3 If $A=\begin{bmatrix}2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0\end{bmatrix}$, find $A^2 - 5A + 4I$ and hence find a matrix X such that

$A^2 - 5A + 4I + X = O$.

4 A trust wishes to invest a part Rs. 10,000 of its fund into three investments at the rate of 10%, 12% and 15% per annum respectively. If the total annual income is Rs. 1310 and the income from the third investment is Rs 190 more than the combined income from first and second investment. Using matrix method, find the amount to be invested in three types of investment.

5 If

$A = \begin{bmatrix} 0 & -\tan\frac{\alpha}{2} \\ \tan\frac{\alpha}{2} & 0 \end{bmatrix}$ and I is the identity matrix of order 2 such that

$$I + A = (I - A)\begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$$

6Marks

1 By using properties of determinants, Show that

$$\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix} = (a+b+c)^3.$$

2 Using properties of determinants, Prove that

$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1-x^3)^2$$

3 Solve the following system of equations by matrix method.

$3x - 2y + 3z = 8$

$2x + y - z = 1$

$4x - 3y + 2z = 4$

4 Use the product

$\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix}\begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the system of equations

$x - y + 2z = 1$

$\begin{bmatrix} 7 & x^2 \\ y^3 & 18 \end{bmatrix} = \begin{bmatrix} 7 & 16 \\ -64 & 18 \end{bmatrix}$, find $x + y$.

11 For what value of x, the matrix

$A = \begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$ a skew symmetric matrix.

12 If A is a square matrix and $|A| = 2$ then write the value of $|AA'|$ where A' is transpose of matrix A.

13 Let P and Q be two matrices of order $2 \times n$ and $2 \times p$ respectively. If n=p ,then find the order of 4P–3Q.

14 If A is invertible matrix of order 2and $|A| = 5$, find $|A^{-1}|$.

2 Marks

1 If $\begin{vmatrix} 2x & 3 \\ -1 & x \end{vmatrix} = \begin{vmatrix} 3 & 1 \\ x & 3 \end{vmatrix}$, find the integral value of x.

2 Construct a 2×2 matrix whose elements are given by

$a_{ij} = \begin{cases} i - j \text{ if } i \geq j \\ i + j \text{ if } i < j \end{cases}$

3 Evaluate the following : $\begin{bmatrix} a & b \end{bmatrix}\begin{bmatrix} c \\ d \end{bmatrix} + \begin{bmatrix} a & b & c \end{bmatrix}\begin{bmatrix} a \\ b \\ c \end{bmatrix}$

4 Find equation of line joining (1, 2) and (3, 6) using determinants.

5 If A and B are invertible matrices of order 3 and $|A| = 2, \left|(AB)^{-1}\right| = \frac{-1}{6}$, find $|B|$.