24 copies

HUMANITIES

Assignments for Class XII

S.No.	SUBJECT	ASSIGNMENT
1	English Language	1) WRITE A COMPOSITION IN APPROXIMATELY 400-500 WORDS ON ANY TWO OF THE FOLLOWING TOPICS: a) SOMETIMES WE TAKE NATURE FOR GRANTED. NARRATE AN EXPERIENCE THAT MADE YOU APPRECIATE THE NATURAL WORLD. b) "FAITH IS TO BELIEVE WHAT WE DO NOT SEE AND THE REWORD OF THIS FAITH IS TO SEE WHAT WE BELIEVE." – EXPRESS YOUR VIEWS ON THE GIVEN STATEMENT. c) EYES . d) WRITE A SHORT STORY DEPLOYING THE LINE: " AS THE HOT WEATHER BEGAN , THE SHACKLES SETTLED ON HIM AND ATE INTO HIS FLESH." 2) AS THE MEMBER OF THE HOME SCIENCE CLUB OF YOUR SCHOOL, YOU HAVE BEEN GIVEN THE RESPONSIBILITY OF ORGANISING A BAKERY CARNIVAL TO RAISE FUNDS FOR PROVIDING WOOLEN CLOTHES TO THE UNDER PRIVILEDGED CHILDREN. WRITE A PROPOSAL STATING THE STEPS YOU WOULD TAKE TO SUCCESSFULLY ORGANISE THIS EVENT.
2	History	TRACE THE DEVELOPMENT OF GANDHIAN NATIONALISM STARTING FROM NON COOPERATION MOVEMENT TO CIVIL DISOBEDIENCE MOVEMENT.

BENGALI CLASS 12 (ASSIGNMENT)

করোনা ভাইরাসের ত্রাসে কাঁপছে গোটা বিশ্ব – রোগের উপসর্গ – কীভাবে প্রতিবিধান করা যেতে পারে– (WHO) এর বক্তব্য – সারা দেশ জুড়ে কী ধরনের ব্যবস্থা গ্রহণ করা হয়েছে - সমস্ত তথ্য দিয়ে রচনাটি লেখ।

HINDI CLASS 12 (ASSIGNMENT)

मुहावरे तथा अशुद्ध वाक्यों को शुद्ध करो याद करे तथा लिखे।

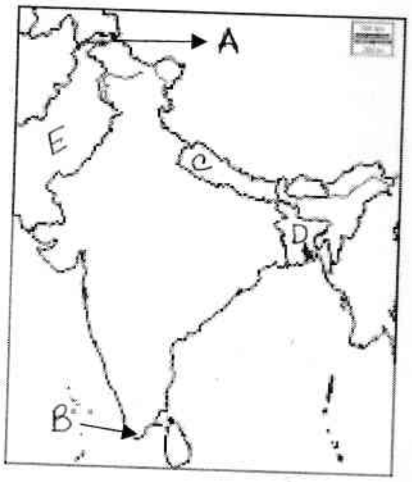
Class XII Geography Assignment

Chapter – Locational setting of India

Q1) Name a neighbouring country of India which has the largest longitudinal extent.
Q2) Name a country which is divided by Tropic of Capricorn into two parts.
Q3) 'The Indian Ocean is called truly Indian ocean'- Illustrate the line.
Q4) Why is India called a sub-continent?
Q5) 'India is neither pigmy nor a giant among the nations of the world'- discuss the statement.
Q6) India is titled as 'Mistress of the Eastern seas"- give reasons.
Q7) Draw the following table and complete it. –

Country	Latitudinal extent	Comparison with India	Longitudinal extent	Comparison with India	Area (sq km)	Comparison with India	North-south Distance (km)	East-West Distance (km)
India								
China								
Australia								

Q8) Picture study- Study the picture and answer the following-



I. Identify and name A and B

II. Name the neighbouring countries of India marked as C,D & E.

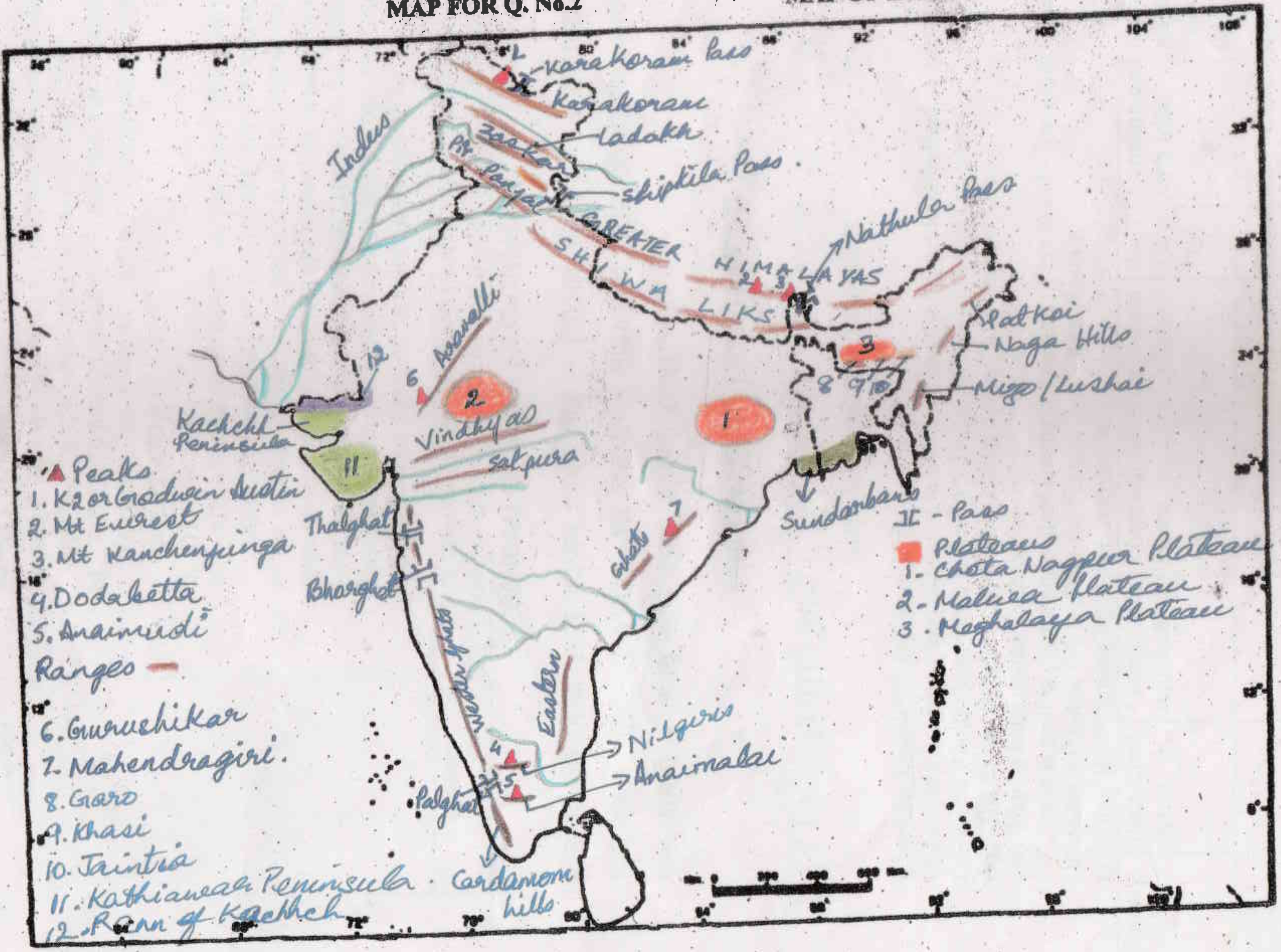
III. Name the water bodies(seas and oceans) surrounding India.

Note- Do the assignment in school exercise book (long copy)

NAME.......................................UNIQUE IDENTIFICATION NUMBER (UID).........Physical Map XII

(This map must be fastened with all other answers)

MAP FOR Q. No.2 **MAP OF INDIA**



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XII ASSIGNMENT MATHEMATICS

MATRICES

A matrix can be written in compact form as $A=[a_{ij}]_{m\times n}$, when $1\leq i\leq m$; $1\leq j\leq n$, $i,j\in N$.
m= number of rows and n= number of coloumn.
No of elements $m\times n$. a_{ij}represent an element in i-th row and j-thcoloumn.

Some Definition:

(i) Diagonal Matrix: A square matrix $A= [a_{ij}]_{m\times n}$is called diagonal matrix if all non-diagonal elements are zero.

i.e. $a_{ij}= 0$ for $i\neq j$. like $\begin{bmatrix}1 & 0 & 0\\ 0 & 5 & 0\\ 0 & 0 & -2\end{bmatrix}$

(ii) Scelar Matrix: A square matrix $A = [a_{ij}]_{m\times n}$ is called scelar matrix if all the non-diagonal elements are zero and the diagonal elements are equal.

$a_{ij} = o$ if $i\neq j$,

$= k$ if $i=j$, where k is constant

(iii) Identity/ Unit Matrix: A square matrix $A = [a_{ij}]_{m\times n}$ is called identity matrix if

$a_{ij}= 0$ if $i\neq j$

$= 1$ if $i=j$

(iv) Transpose of a Matrix:To obtain the transpose of a square matrix , rows are changed into coloumns and coloumns are changed into rows.

let$A=[a_{ij}]_{m\times n}$, then $A^T = [a_{ij}]_{n\times m}$ where A^T denotes the transpose of A.
We can take Transpose of rectangular matrix also.

Properties of Transpose of Matrices

(i) $(A^T)^T=A$
(ii) $(A+B)^T= A^T+B^T$
(iii) $(A-B)^T= A^T-B^T$
(iv) $(AB)^T=B^TA^T$
(v) $(KA)^T= K.A^T$

Symmetric Matrix : A square matrix is said to be Symmetric matrix if $A^T=A$.
Skew-Symmetric Matrix: A square matrix is said to be Skew-Symmetric Matrix if $A^T= -A$.
A SQUARE MATRIX CAN BE EXPRESSED AS SUM OF A SYMMETRIC AND SKEW-SYMMETRIC MATRIX.

Determinant

Determinant of a square matrix of order 1
$A=[a_{11}]$. $|A|= a_{11}$wgere |A| denote the determinant value of corresponding square matrix A.

Determinant of a square matrix of order 2

$A = \begin{bmatrix}a_{11} & a_{12}\\ a_{21} & a_{22}\end{bmatrix}$ $|A|= a_{11}.a_{22} - a_{21}.a_{12}$

Determination of a square matrix of order of order3

$A = \begin{bmatrix}a_{11} & a_{12} & a_{13}\\ a_{21} & a_{22} & a_{23}\\ a_{31} & a_{32} & a_{33}\end{bmatrix}$ $|A| = a_{11}(a_{22}.a_{33} - a_{23}.a_{32}) - a_{12}(a_{21}.a_{33} - a_{23}.a_{31})+ a_{13}(a_{21}.a_{32} - a_{22}.a_{31})$.

(i) For any square matrix A of order n, $|KA| = K^n|A|$, where K is scelar
(ii) For any square matrix of order n, $|A^T|=|A|$.
(iii) For any two matrices A and B of same order $|AB| = |A|.|B|$.

Singular and Non-Singular Matrix

A square matrix A is Singular if $|A| = 0$

A square matrix A is non-singular if $|A| \neq 0$.

Adjoint : Let $A = [a_{ij}]$ be a square matrix of order n , then we define adjoint of A as $\text{adj}A = [A_{ij}]^T$, where A_{ij} denotes the cofactor of a_{ij} in A.

Let $A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}$ then $\text{adj}A = \begin{bmatrix} A_{11} & A_{12} & A_{13} \\ A_{21} & A_{22} & A_{23} \\ A_{31} & A_{32} & A_{33} \end{bmatrix}$

Some Important results on adjoint:

(i) $A(\text{adj}A) = (\text{adj}A)A = |A|.I_n$

(ii) $|\text{adj}A| = |A|^{n-1}$

(iii) $|A(\text{adj}A)| = |A|^n$

(iv) $\text{adj}(A^T) = (\text{adj}A)^T$

(v) $\text{adj}(AB) = (\text{adj}A)(\text{adj}B)$

Solve the following sums:

1. Construct a 2*2 matrix whose elements a_{ij} are given by
   $a_{ij} = \begin{cases} \frac{|-3i+j|}{2} \\ (i+j) \end{cases}$
2. Find values of a,b,c,d from one following equation
   $\begin{bmatrix} 2a+b & a-2b \\ 5c-d & 4c+3d \end{bmatrix} = \begin{bmatrix} 4 & -3 \\ 11 & 24 \end{bmatrix}$
3. If X and Y are 2*2 matrix , then solve for X and Y
   $2X+3Y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}$, $3X+2Y = \begin{bmatrix} -2 & 2 \\ 1 & -5 \end{bmatrix}$.
4. If $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$, show that $A^2 - 3I = 2A$.
5. If $(A-2I)(A-3I) = 0$, where $A = \begin{bmatrix} 4 & 2 \\ -1 & x \end{bmatrix}$, and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find the value of x.
6. If $A = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$, find the value of x and y such that $A^2 + xI_2 = yA$.
7. If $[x \quad -5 \quad -1] \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix} \begin{bmatrix} x \\ 4 \\ 1 \end{bmatrix} = 0$, find x.
8. If $M(\Theta) = \begin{bmatrix} \cos\Theta & \sin\Theta \\ -\sin\Theta & \cos\Theta \end{bmatrix}$, then show that $M(x).M(y) = M(x+y)$.
9. If $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$, prove that $A^3 - 6A^2 + 7A + 2I = 0$.
10. For, $A = \begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}$ and $B = [-1 \quad 2 \quad 1]$, verify $(AB)^T = B^T.A^T$.
11. Express matrix $A = \begin{bmatrix} 3 & 5 \\ 7 & 9 \end{bmatrix}$, as sum of symmetric and skew symmetric matrix.
12. If A and B are symmetric matrix , then prove that
    (i) AB – BA is skew symmetric matrix.
    (ii) AB + BA is symmetric matrix.
13. If A is a square matrix such that $A^TA = I$, find value of $|A|$.
14. If A is a square of order 3 with $|A| = 4$, find value of $|-2A|$.

15. If A = $\begin{bmatrix} 5 & a \\ b & 0 \end{bmatrix}$ and A is symmetric matrix, show that a = b.

16. If the matrix A = $\begin{bmatrix} 6 & x & 2 \\ 2 & -1 & 2 \\ -10 & 5 & 2 \end{bmatrix}$ is singular matrix , find value of x.

17. If A = $\begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$, find x such that $A^2 = xA - 2I$. Hence find A^{-1}.

18. If A is a square matrix of order 3×3 and |A| = 5 find |adjA|.

19. If A is a skew symmetric matrix of order 3 find the value of |A|.

20. Find the adjA = $\begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$ and hence verify A(adjA) =$|A|I_3$.

21. If A = $\begin{bmatrix} cosx & sinx \\ -sinx & cosx \end{bmatrix}$and A(adjA) = K$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find the value of K.

22. If for any 2×2 square matrix A , A(adjA)= $\begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$, find the value of |A|.

23. There are two values of 'a' which any determinant $\begin{vmatrix} 1 & -2 & 5 \\ 2 & a & -1 \\ 0 & 4 & 2a \end{vmatrix}$= 86. Find the sum of these two values of 'a'.

Invertible Matrix and Inverse of a Matrix

Let A be a square matrix of order n. If there exists a square matrix B of same order n such that AB = BA = I_n , then A is invertible matrix. The matrix B is called inverse mtrix of A and is denoted by A^{-1}.

Few important results :

(i) $(AB)^{-1} = B^{-1}A^{-1}$

(ii) $(A^T)^{-1} = (A^{-1})^T$

(iii) $(A^{-1})^{-1} = A$

(iv) $A^{-1}A = AA^{-1} = I$

(v) $(KA)^{-1} = \frac{1}{K}(A^{-1})$

(vi) $A^{-1} = \frac{1}{|A|}(adjA)$

(vii) $|A^{-1}| = \frac{1}{|A|}$

Sums based on Inverse :

1. Solve the matrix equation $\begin{bmatrix} 5 & 4 \\ 1 & 1 \end{bmatrix}A = \begin{bmatrix} 1 & -2 \\ 1 & 3 \end{bmatrix}$

   (i) by using concept inverse (ii) without using concept of inverse

2. Find the inverse of matrix = $\begin{bmatrix} 1 & 0 & 2 \\ -2 & 1 & 0 \\ 0 & -1 & 2 \end{bmatrix}$

3. If the matrix A = $\begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$, show that $A^{-1} = \frac{1}{19}A$.

4. For what value of x the matrix = $\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$ is singular.

5. For what value(s) of K the matrix $\begin{bmatrix} 4 & k \\ 2 & 1 \end{bmatrix}$ has no inverse.

6. If A = $\begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$, then find the value of K if |2A| = K|A|.

7. If A is a square matrix of order 3 and |A| = 7, write the value of |adjA|.

8. If A= $\begin{bmatrix} 2 & 3 \\ 1 & -4 \end{bmatrix}$ and B= $\begin{bmatrix} 1 & -2 \\ -1 & 3 \end{bmatrix}$, then find $(AB)^{-1}$.

9. Find the inverse of matrix A = $\begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ and hence show that $A^{-1}A$= I.