12 (Science+ Commerce + Arts)
Summer Break Holiday HW

SUB.ENGLISH

READING TASKS :
Q1. Read an English daily everyday and paste clippings of important news in your homework copies. Also collect 5 new words from your everyday cover and jot them down in your copies with their meanings.
COMPREHENSION TASKS :
Q2. Select one comprehension passage daily till the break ends from available source books and answer the questions in your homework copies.
INFORMATION COLLECTION TASKS :
Q3. Collect information about the below given literary personalities and prepare their Bio-sketches in not more than 70 words each. a) Jack Finney b) Anes Jung c) Kamla Das
CREATIVE WRITING SKILLS :
Q4. In lndia the urban poor live in substandard human conditions in slum areas. Write an article in about 100 words focussing on possible steps to deal with slums of the country.

Subject- Biology

1. Discuss why Drosophila has been used extensively for genetic studies.
2. A plant with red flowers was crossed with another plant with yellow flowers if F1 showed all flowers orange in color, explain the inheritance.
3. Discuss in detail the contribution of Morgan in the area of genetics.
4. Why are gametes said to be pure for a character?
5. Why can multiple alleles be studied only in a population and not in individuals?
6. If you are given a tall pea plant how will you determine whether it is homozygous or heterozygous for the trait?
7. Draw a labeled diagram of TS of testis and TS of ovary.

Subject: Chemistry

Do the following questions
1.How much urea (molar mass 60 g/mol) should be dissolved in 50g of water so that its vapour pressure at room temperature is reduced by 25%?

2.Calculate the osmotic pressure of 0.25 M solution of urea at 37° C .R = 0.083 L bar/mol/k.

3 The molecular mass of a solute is 120 g/mol and van't Hoff factor is 4. What is its abnormal molecular mass?

4.Why is the boiling point elevated when a non – volatile solute is dissolved in a liquid?

5.A 500 g tooth paste sample has 0.2 g fluoride concentration. What is the concentration of F in terms of ppm level?

6.When benzoic acid dissolve in benzene, the observed molecular mass is?

7.The standard electrode potential for Daniell cell is 1.1 V. Calculate the standard Gibbs energy for the cell reaction. (F = 96,500 C/ mol)

8.A voltaic cell is set up at 25°C with the following half cells :
Al/Al3+ (0.001 M) and Ni/Ni2+ (0.50 M)

Write an equation for the reaction that occurs when the cell generates an electric current and determine the cell potential.

Subject: Physics

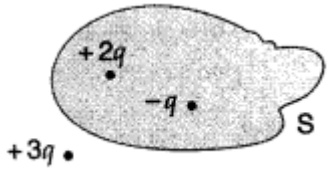
Question 1.
Which orientation of an electric dipole in a uniform electric field would correspond to stable equilibrium ?

2. In which orientation, a dipole placed in a uniform electric field is in

- stable, and

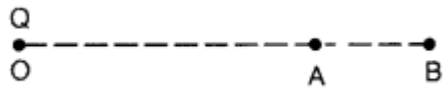
unstable equilibrium ?

3. Figure shows three point charges, +2q, -q and + 3q. Two charges +2q and -q are enclosed within a surface 'S'. What is the electric flux due to this configuration through the surface 'S' (Delhi 2010)



4. A 500 µC charge is at the centre of a square of side 10 cm. Find the work done in moving a charge of 10 µC between two diagonally opposite points on the square.

5. A point charge Q is placed at point O as shown in the figure. Is the potential difference $V_A - V_B$ positive, negative or zero, if Q is
(i) positive
(ii) negative?



6. A wire of resistance 8R is bent in the form of a circle. What is the effective resistance between the ends of a A diameter 2AB?

7. A certain region of space bounded by an imaginary closed surface contains no charge. Is the electric field always zero everywhere on the surface? If not, under what circumstances is it zero on the surface?

8. . An early model for an atom considered it to have a positively charged point nucleus of charge Ze, surrounded by a uniform density of negative charge up to a radius R. The atom as a whole is neutral. For this model, what is the electric field at a distance r from the nucleus?

Class – 12A

MATHEMATICS

(Holiday Homework)

To solve all the problems of **Matrices** and **Inverse Trigonometric Functions** from NCERT Book.

Activity – I

To draw the graph of $\sin^{-1}x$, using the graph of sin x and demonstrate the concept of mirror reflection (about the line y = x).

Activity – II

To explore the principal value of the function $\sin^{-1}x$ using a unit circle.

Class – 12B

MATHEMATICS

(Holiday Homework)

To solve all the problems of **Matrices** and **Inverse Trigonometric Functions** from NCERT Book.

Activity – I

To draw the graph of $\sin^{-1}x$, using the graph of sin x and demonstrate the concept of mirror reflection (about the line y = x).

Activity – II

To explore the principal value of the function $\sin^{-1}x$ using a unit circle.

Subject: I.P

Complete the Practical Copy with 20 SQL Tables with queries and output.

Subject : P.E.

1. Draw a fixture of 27 teams in a knockout tournament in which 2 teams will be seeded.

2. Draw a fixture of 6 teams in league tournament by cyclic method.

3. Explain common postural deformatives and their causes.

4. Explain female atheletetriad .

Subject : Accountancy

1. Additional questions from Admission of a Partner

Subject : Business Studies

2. Project on Principles of Management

Subject: Economics

Subject-Economics

Q1. Solve 50 numerical from National Income to revise the previous content.

Q.2 What do you mean by Economic crisis? Explain the situation of economic crisis faced by Sri Lanka now a days. Also suggest the possible solutions to short out the Problem of economic crisis.

Q.3 Explain the journey of Indian economy from 1947 to 1990 with some notable policies which were implemented during the years.

SUBJECT: APPLIED MATHEMATICS

MATRICES

1. If a matrix has 18 elements, what are the possible orders it can have? What, if it has 5 elements?

2. Construct a 3×4 matrix, whose elements are given by

(i) $a_{ij}=\frac{1}{2}|-3i+j|$ (ii) $\frac{(i+j)^2}{2}$

3.Compute the indicated product $\begin{pmatrix}2 & 3 & 4\\3 & 4 & 5\\4 & 5 & 6\end{pmatrix}\begin{pmatrix}1 & -3 & 5\\0 & 2 & 4\\3 & 0 & 5\end{pmatrix}$

4.Find X and Y ,if

$2X+3Y=\begin{bmatrix}2 & 3\\4 & 0\end{bmatrix}$ and $3X+2Y=\begin{bmatrix}2 & -2\\-1 & 5\end{bmatrix}$

5. If $A=\begin{bmatrix}1 & 0 & 2\\0 & 2 & 1\\2 & 0 & 3\end{bmatrix}$,prove that $A^3-6A^2+7A+21=0$

6. The bookshop of a particular school has 10 dozen chemistry books, 8 dozen physics books, 10 dozen economics books. Their selling prices are Rs80,Rs60 and Rs40 each respectively. Find the total amount the bookshop will receive from selling all the books using matrix algebra.

7Express the following matrices as the sum of a symmetric and a skew symmetric matrix: $\begin{bmatrix}6 & -2 & 2\\-2 & 3 & -1\\2 & -1 & 3\end{bmatrix}$

8.The number of all possible matrices of order 3x3with each entry 0 or 1 is:

(a) 27 (b) 18 (c) 81 (d) 512

9.If A and B are symmetric matrices of same order, then AB-BA is a

(a) Skew-symmetric matrix (b) Symmetric matrix (c) Zero matrix (d) Identity

10. **A**ssume X, Y, Z, W and P are matrices of order $2 \times n$, $3 \times k$, $2 \times p$, $n \times 3$ and $p \times k$, respectively. Choose the correct answer
The restriction on n, k and p so that PY + WY will be defined are:

(A) $k = 3$, $p = n$	(B) k is arbitrary, $p = 2$
(C) p is arbitrary, $k = 3$	(D) $k = 2$, $p = 3$

DETERMINANTS

Evaluate the determinants

1. $\begin{vmatrix}2 & 4\\-5 & -1\end{vmatrix}$

2. $\begin{vmatrix} x^2 - x + 1 & x - 1 \\ x + 1 & x + 1 \end{vmatrix}$

3 $\begin{vmatrix} 3 & -4 & 5 \\ 1 & 1 & -2 \\ 2 & 3 & 1 \end{vmatrix}$

4 If A=$\begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$,then show that |2A|=4|A|

Using the property of determinants and without expanding

5. $\begin{vmatrix} x & a & x + a \\ y & b & y + b \\ z & c & z + c \end{vmatrix}$ =0

6. $\begin{vmatrix} 1 & bc & a(b + c) \\ 1 & ca & b(c + a) \\ 1 & ab & c(a + b) \end{vmatrix}$ =0

7. $\begin{vmatrix} b + c & q + r & y + z \\ c + a & r + p & z + x \\ a + b & p + q & x + y \end{vmatrix} = 2\begin{vmatrix} a & p & x \\ b & q & y \\ c & r & z \end{vmatrix}$

8. $\begin{vmatrix} 0 & a & -b \\ -a & 0 & -c \\ b & c & 0 \end{vmatrix}$ =0

9. $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix}$ =(a-b)(b-c)(c-a)

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

11. $\begin{vmatrix} a^2 + 1 & ab & ac \\ ab & b^2 + 1 & bc \\ ca & cb & c^2 + 1 \end{vmatrix} = 1 + a^2 + b^2 + c^2$

12.Find area of the triangle with vertices at the point given in each of the following :

(i) (1, 0), (6, 0), (4,3) (ii) (2, 7),(1, 1), (10, 8)

(iii) (-2, -3),(3,2) ,(-1,-8)

13.Find values of *k* if area of triangle is 4 sq.units and vertices are (i) (*k*, 0), (4, 0), (0, 2) (ii) (–2, 0), (0, 4), (0, *k*)

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

15.Find the inverse of each of the matrices (if it exists) given

15. $\begin{bmatrix} 2 & -2 \\ 4 & 3 \end{bmatrix}$

16. $\begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \\ -7 & 2 & 1 \end{bmatrix}$

17.For the matrix $A=\begin{bmatrix}1 & 1 & 1\\ 1 & 2 & -3\\ 2 & -1 & 3\end{bmatrix}$

Show that $A^3 - 6A^2+5A+11I=0$. Hence ,find A^{-1}

solve system of linear equation ,using matrix method

18. 5x+2y=4 ,7x+3y=5

19. 2x+3y+3z=5 x-2y+z=-4 3x-y-2z=3

20 If $A=\begin{bmatrix}2 & -3 & 5\\ 3 & 2 & -4\\ 1 & 1 & -2\end{bmatrix}$,find A^{-1}.Using A^{-1} solve the system of equations

2x-3y+5z=11

3x+2y-4z=-5

x+y-2x=-3

21.If $\begin{vmatrix} x & 2\\ 18 & x\end{vmatrix}=\begin{vmatrix} 6 & 2\\ 18 & 6\end{vmatrix}$,then x is equal to

a. 6 b.$\pm$6 c-6 d. 0

22 Let A be a square matrix o order 3×3,then |kA| is equal to

a. k|A| b $k^2|A|$ c. $k^3|A|$ d.3k|A|

23.If A and B are symmetric matrices of same order, then AB-BA is a

(a) Skew-symmetric matrix (b) Symmetric matrix (c) Zero matrix (d) Identity

24. If A is a square matrix of order 3, such that A(adjA) = 10I,then |adj A| is equal to

(a) 1 (b) 10 (c) 100 (d) 1000

25.Solve the following system of linear equations by cramer's rule:

6x+y-3z-5=0

x+3y-2z-5=0

2x+y+4z-8=0

PROJECT: Each day newspaper tells us about the maximum temperature, minimum temperature, and humidity. Collect the data for a period of 30 days and represent it graphically. Compare it with the data available for the same time period for the previous year.

Subject. History

1. Revise chap 2 and 3
2. Learn and write all 9 exercise question answers of chap 3

SubJect: Political Science

1. Learn-Part-A-Chap-2,4

   Part-B-Chap- 1,3,4

Project--1. Make a list of the similarities and dissimilarities between India and USA in their political social economic and cultural ideologies. Project will be very decorative covered by full of pictures and enough elaboration will be there.

2. Prepare a fact file that contents information on the objectives functions and recent activities of EU, ASIAN and SAARC Organisation.
3. Paste the pictures of the conferences/summit meeting which can be collected from net.

Sub: Geography

Questions 1. "Leading a long and healthy life is an important aspect of human development." Give an argument to support this statement.

Questions 2. Define the concept of human development?

Questions 3. Which country has proclaimed 'Gross National Happiness' as the measure of a country's progress?

Questions 4. Name the country which has the highest rank in the Human Development Index.

Questions 5. Which state of India has the highest rank in the Human Development Index (HDI) value?

Questions 6. Mention any two key areas of measuring human development?

Questions 7. Which is the most significant aspect of human development?

Questions 8. Explain any three human values which are required to empower socially and economically disadvantaged people.

OR

"Equity is one of the most important pillars of human development." Explain any three human values that are required to give equal access to opportunities to everybody.