SESSION – 2022 -22)
(CLASS – XII SC)

Enjoy your Summer Holidays in a productive way :

<u>**Travel and Explore**</u> – Take out time to travel to new places with your friends and family. A city tour or a visit to historical monuments, and museums will give lifetime memories as well as knowledge about your country's rich heritage.
<u>**Read at least one book**</u>– You may read at least one story book during the summer break. A digital library visit will also give you the chance to find the book of your interest and spend leisure time going through its pages.
<u>**Play Outdoor Games**</u> – Indulge yourself in Outdoor Games and activities during the summer holidays. Sports are a must for the physical growth of the child. So, devote your time to your favorite sports such as cricket, table tennis, soccer, badminton, etc.
<u>**Enrich STEM Subjects**</u> – To enrich your understanding and knowledge of STEM subjects,
<u>**Experiments with things**</u> – All of you are creative geniuses and love to experiment with different things. Summer Holidays are the best time to explore and experiment with various things.
<u>**Enhance your Knowledge**</u> – Utilize your holidays to enhance your general knowledge of history, culture, tradition, nature, and environment, politics, scientific discoveries, etc. To keep abreast of the various things happening in the country and the world, it is important to have basic knowledge about them.
<u>**Engage in Fun Activities**</u> – Engage yourself in playful and fun activities such as the collection of coins, leaf, flowers, stamps, etc. Paint your favorite picture, or watch your favorite cartoon series, or make a scrapbook using newspaper & magazine cuttings.
<u>**Learn new things**</u> – Enroll yourself in interesting online workshops to learn new things such as yoga, karate, swimming, sketching, dance, and a new language such as French, Italian, German, or Spanish. If you are a music lover, you may also learn to play musical instruments during your summer holidays.
<u>**Improve your Skills**</u> – And, why not use the Summer Holidays to improve your skills in reading, writing, drawing, and listening. Also, you must learn the art of communication and work on improving his time-management skills during the summer break.

SUBJECT : ENGLISH

Topics : The Last Lesson, My Mother At Sixty – Six, The Third Level, Notice , Formal Letter ,Article writing

What to be done : Following activity/ project based assignments to be done :

1. Choose any two comprehension passages and write the answers to the questions based on the passage.
2. Prepare a speech on " Linguistic Chauvinism" to be delivered in the morning assembly.
3. Prepare an art – integrated project based on " My Mother At Sixty – Six."
4. Write a letter to the editor expressing your concern over the increasing stress among the younger generation and some measures which can be adopted by the youth to overcome stress.
5. Write five questions and their answers based on notice writing.
6. Prepare summaries of taught lessons to tell in the classroom.
7. Learn and revise the questions and answers of taught lessons.

Learning outcome :   students' conceptual understanding about the topics and the language skills will be improved.

SUB. – BIOLOGY.

AIM– To get the knowledge about the internal structure of ovule

2. To get the idea about difference in spermatogenesis and oogenesis.

TOPIC– 1.REPPRODUCTION IN FLOWERING PLANTS.

   2. HUMAN REPRODUCTION.

1, Make a colour full chart diagram to show the parts of a typical angiospermic ovule.

2. Prepare a schematic representation of spermatogenesis and oogenesis in human being. Write down differences between the two processes.

3, Draw the labelled diagram of sectional view of a seminiferous tubule .

4.Explain the following terms ---a. emasculation, b, apomixis c. poly embryony.

LEARNING OUTCOMES---

1, Student will able to learn the structure of ovule of angiospermic plants.

2. students will able to differentiate beteen spermatogenesis and oogenesis ,

3, students willable to learn different terms in reproduction ,

SUB-CHEMISTRY

AIM- To get the basic concepts and knowledge of Chemical reactions and chemical changes.

WHAT TO DO-

Q1 Prepare a sheet file displaying all name reactions from organic chemistry class xi and xii NCERT textbook.

Q2 Prepare concept map for colligative properties from solution chapter.

Q3 Prepare a concept map/flow chart including Physical properties and all organic reactions of preparation and chemical properties of haloalkanes and haloarenes.

Q4 Write the structure of the following compounds:
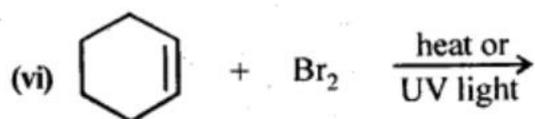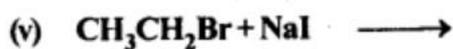
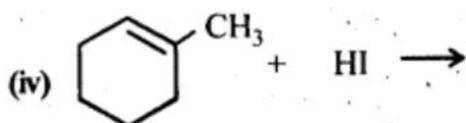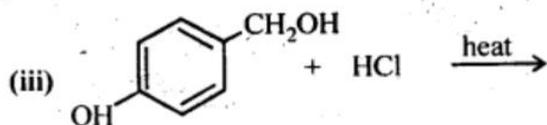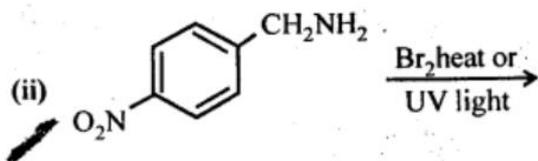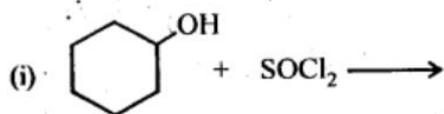(i)2-chloro-3-methylbutane   (ii) 3-chloro-4-methylhexane

(iii)   1-iodo-2,2-dimethylbutane (iv) 3-chloro-5-methylhex-2-ene

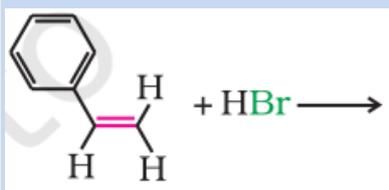(v)   2-(2-bromophenyl)butane (vi)1-bromo-4-chlorobut-2-yne

(vii) 1-chloro-4-ethylcyclohexane   (viii)2,4,6-trinitrophenol

(ix)2-methylcyclohex-1-ene   (x) cyclopenta-1,3-diene

Q4 COMPLETE THE FOLLOWING REACTIONS:

(i) $+$ SOCl$_2$ $\longrightarrow$

(ii) $\xrightarrow[\text{UV light}]{\text{Br}_2\text{heat or}}$

(iii) $+$ HCl $\xrightarrow{\text{heat}}$

(iv) $+$ HI $\longrightarrow$

(v) CH$_3$CH$_2$Br $+$ NaI $\longrightarrow$

(vi) $+$ Br$_2$ $\xrightarrow[\text{UV light}]{\text{heat or}}$

(VII)

(VIII) CH$_3$–CH$_2$–CH=CH$_2$ $+$ HCl $\longrightarrow$

 $+$ HBr $\longrightarrow$

(IX) CH$_2$–C=CH$_2$ $+$ HBr $\xrightarrow{\text{Peroxide}}$
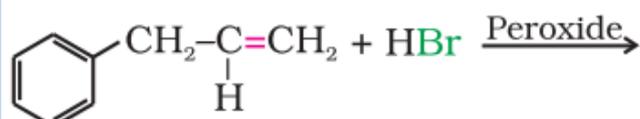
Q5 **Calculate the mass percentage of benzene (C6H6) and carbon tetrachloride (CCl4) if 22 g of benzene is dissolved in 122 g of carbon tetrachloride.**

Q6 **Henry's law constant for CO_2 in water is 1.67 x 108 Pa at 298 K. Calculate the quantity of CO_2 in 500 mL of soda water when packed under 2.5 atm CO_2 pressure at 298 K.**

Q7 **Calculate the osmotic pressure in pascals exerted by a solution prepared by dissolving 1.0 g of polymer of molar mass 185,000 in 450 mL of water at 37°C.**

Q8. Calculate the depression in the freezing point of water when 10g of $CH_3CH_2CHClCOOH$ is added to 250g of water. Ka = 1.4 x 1o-3

Kb = 1.86 K kg mol-1.

PROJECT: Prepare a chart anyone of the following

I) **Galvanic Cell**

II) **Electrochemical Cell**

III) **Periodic Table**

IV) **Atomic Structure**

V) **Mole Concept**

VI) **Colours of Flame Test**

Learning outcomes-

I) To understand the organic reaction and its applications

Ii) To develop the knowledge for solving numericals

SUBJECT - PHYSICS

AIM- To understand the basic concept of electrostatics and its application.

TOPICS- Electric charges, Force and Electric field.

WHAT TO DO -

1.Explain any two practical application of concept of electrostatics in our daily life by pasting picture .

2.Two point charges + 3q and – 4q are placed at the vertices 'B' and 'C' of an equilateral triangle ABC of side 'a' as given in the figure. Obtain the expression for
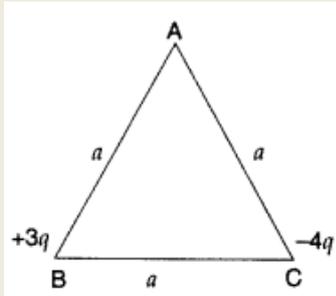
(i) the magnitude and
(ii) the direction of the resultant electric field at the vertex A due to these two charges.

3.Use Gauss's law to derive the expression for the electric field between two uniformly charged large parallel sheets with surface charge densities a and -a respectively.

4.A thin conducting spherical shell of radius R has charge Q spread uniformly over its surface. Using Gauss's law, derive an expression for an electric field at a point outside the shell.
Draw a graph of electric field $E(r)$ with distance r from the centre of the shell for $0 \leq r \leq \infty$

5.A sphere S_1 of radius r_1 encloses a net charge Q. If there is another concentric sphere S_2 of radius r_2 ($r_2 > r,$) enclosing charge 2Q, find the ratio of the electric flux through S_1 and S_2. How will the electric flux through sphere S_1 change if a medium of dielectric constant K is introduced in the space inside S_2 in place of air?

6.An electric dipole is placed in a uniform electric field $E\rightarrow$ with its dipole moment $\vec{p}$ parallel to the field. Find
(i) the work done in turning the dipole till its dipole moment points in the direction opposite to $E\rightarrow$.
(ii) the orientation of the dipole for which the torque acting on it becomes maximum

7.A small metal sphere carrying charge +Q is located at the centre of a spherical cavity in a large uncharged metallic spherical shell. Write the charges on the inner and outer surfaces of the shell. Write the expression for the electric field at the point P_1

8.Plot a graph showing the variation of coulomb force (F) versus (1r2), where r is the distance between the two charges of each pair of charges : (1μC, 2μC) and (2μC, – 3μC). Interpret the graphs obtain.

9.. Two charged spherical conductors of radii R_1 and R_2 when connected by a conducting wire acquire charges q_1 and q_2 respectively. Find the ratio of their surface charge densities in terms of their radii.
10.i) Derive the expression for electric field at a point on the(a) equatorial line and (b)axial line of an electric dipole.
(ii) Depict the orientation of the dipole in
(a) stable,
(b) unstable equilibrium in a uniform electric field.

11.Two charges of magnitudes – 2Q and + Q are located at points (a, 0) and (4a,0) respectively. What is the electric flux due to these charges through a sphere of radius '3a' with its centre at the origin?

12. Show that the electric field at the surface of a charged conductor is given by $\vec{E} = \sigma/\varepsilon_0$, where σ is the surface charge density and h is a unit vector normal to the surface in the outward direction.

13. Derive an expression for electric potential due to (a) point charge (b) dipole. Plot graph between E and V vs r.

LEARNING OUTCOME: 1. To develop the concept of application of electrostatics in daily life.

2. To develop the creativity to solve numerical.

DO IT IN H.W. COPY.

SUB- MATHEMATICS

1. Prepare a project on the relationship between Matrices and Determinants.

2. If A= $\begin{bmatrix} 0 & -\tan\frac{\alpha}{2} \\ \tan\frac{\alpha}{2} & 0 \end{bmatrix}$. **Prove That**

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

3. Express B= $\begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$ **as the sum of symmetric and skew symmetric matrix.**

4. Find the Inverse of the following matrices

a. A = $\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$

b. $A =$ $\begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & 2 \end{bmatrix}$

5. a.) If   A = $\begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$, **prove A^n=** $\begin{bmatrix} \cos n\theta & \sin n\theta \\ -\sin n\theta & \cos n\theta \end{bmatrix}$,   **where $n \in N$**

b) If A = $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$, **prove that**

$(aI + bA)^n = a^n I + na^{n-1}bA$, $n \in N$.

6. If $x \neq y \neq z$ and $\Delta = \begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$ prove that $1+xyz = 0$.

Prove that :-

7.

$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc\left(1+\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right) = abc + bc + ca + ab$$

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

9. $\begin{vmatrix} \alpha & \alpha^2 & \beta+\gamma \\ \beta & \beta^2 & \gamma+\alpha \\ \gamma & \gamma^2 & \alpha+\beta \end{vmatrix} = (\alpha-\beta)(\beta-\gamma)(\gamma-\alpha)(\alpha+\beta+\gamma)$

10. The sum of three numbers is 6 . if we multiply 3rd number by 3 and add second number to it , we get 11. By adding 1st number and 3rd number we get double of the second number. Find number by matrix method.
(x=1 , y=2, z=3)

11. If a,b,c are +ve and unequal. Prove that $\Delta = \begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$ $is - ve.$

12. Use 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 equation
     x-y+2z=1,   2y -3z=1,   3x-2y+4z =2

Prove that :-

13

$$\begin{vmatrix} x & x^2 & yz \\ y & y^2 & zx \\ z & z^2 & xy \end{vmatrix} = (x\text{-}y)(y\text{-}z)(z\text{-}x)(xy+yz+zx)$$

14. $\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$

15. $\begin{vmatrix} x+y+2z & x & y \\ z & y+z+2x & y \\ z & x & z+x+2y \end{vmatrix} = 2(x+y+z)^3$

16. If $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ prove that $A^3 - 6A^2 + 9A - 4I = 0$. Hence Find A^{-1}

17. Prove that.

$$\begin{vmatrix} (y+z)^2 & xy & zx \\ xy & (x+z)^2 & yz \\ xz & yz & (x+y)^2 \end{vmatrix} = 2xyz(x+y+z)^3$$

18. If a, b and c are real numbers &

$$\begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 0$$

Show either a+b+c = 0, or a=b=c

19. Prove that

` $$\begin{vmatrix} x & x^2 & 1+px^3 \\ y & y^2 & 1+py^3 \\ z & z^2 & 1+pz^3 \end{vmatrix} = (1+pxyz)(x-y)(y-z)(z-x)$$

20. Show that $\begin{vmatrix} x+1 & x+2 & x+a \\ x+2 & x+3 & x+b \\ x+3 & x+4 & x+c \end{vmatrix} = 0$ **where a, b, c are in Arithmetic Progression**

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SUBJECT- MATHS

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TOPIC- MATRICES AND DETERMINANTS
AIM-

1. To understand matrix and its practical uses

2. To understand different types of matrices including their notation .

3. To perform different operations on to or more matrices.

4. To evaluate determinants.

5. To evolve and describes properties of determinans.

6. To find inverse of a matrices.

7. To solve system of linear equations using inverse of matrix.

WHAT TO BE DONE- 1 Make a concept map on Matrices
                2 Make a concept map on Determinants
      3 Give general idea of roles of matrices and determinants

LEARNING OUTCOME- Students will be able to: Define determinants and understand their relation to matrices. Explain the methodology for finding a determinant. Solve minor matrices and higher order matrices

Sub:- PHE

 Topic:- making fixture of knock out tournament/lay out a field/ground/court. What to be done:-To make in a stick file.
Learning out comes:- students themselves can prepare a fixture in a competition if organised in the school/ students can assist sports teacher in laying out ground.   Draw a fixture of 11,13,19 and 21teams for knock out tournament.
                    OR
Lay out a court/field/ground/ of any major games of your choice which are to be practice in your standard with all dimensions and mention latest rules if made. Should be done seperately in stick file.

SUB : COMPUTER SCIENCE

1.Write ten programs from ch 1 and ch2 in practical copy.

2.Learn Ch 1 and ch-2

3.Do Qno 1 to 20 of Ch-1 in class work copy.