

Mahaveer Public School

Session 2021-2022

Holiday Home Work

CLASS XII- SCIENCE

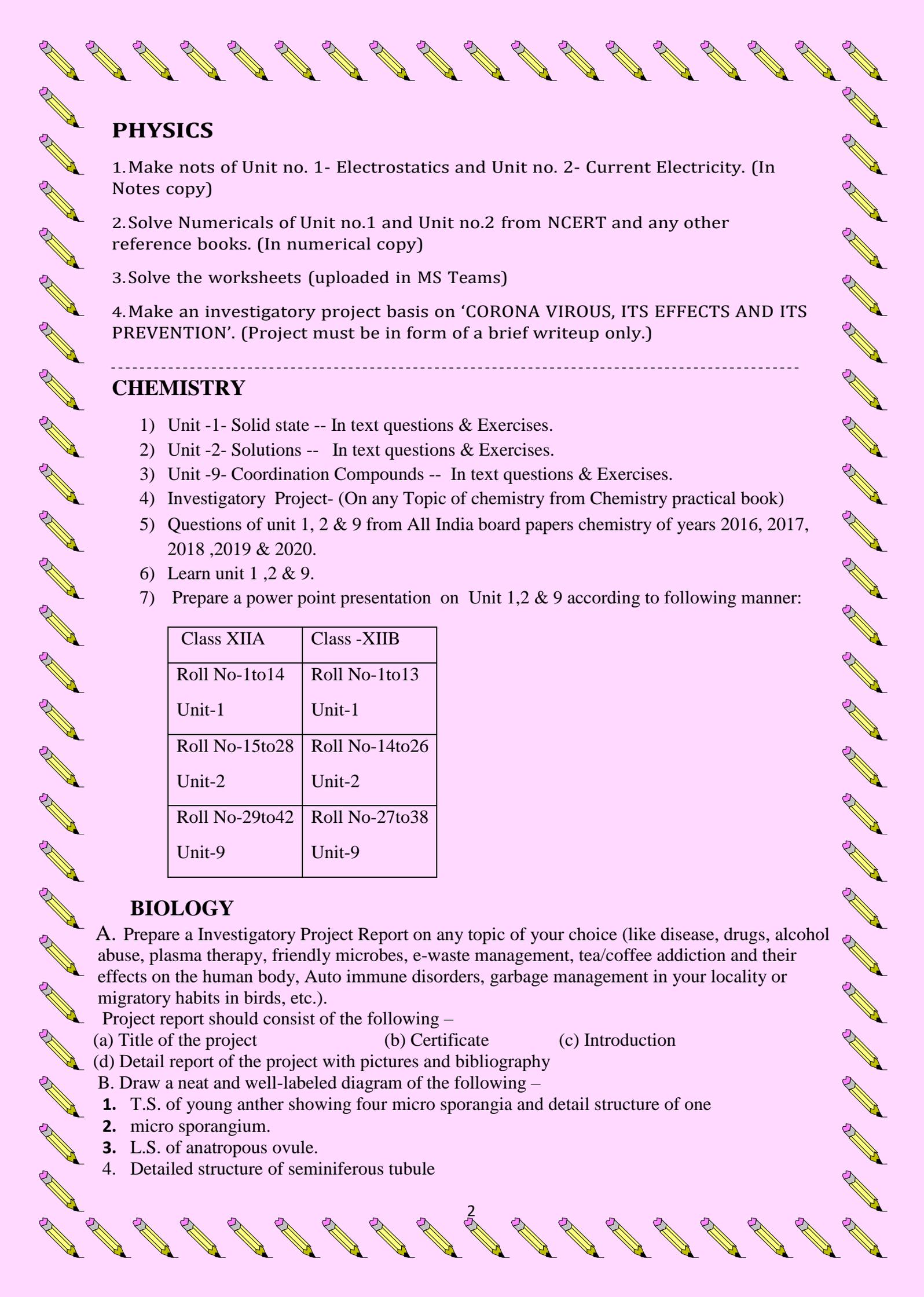
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Point to Remember

- Holiday homework will be assessed on certain parameters and marks will be awarded accordingly
- Last date of submission is **05 July 2021**. No submission will be accepted after the due date.
- Mode of submission:- It must be submitted on the team app only in the assignment tab subject wise
- How to submit-
 1. Take the clear picture of work done
 2. Make a pdf and give the name of the pdf in this form Your scholar no.

Your name _Sub (eg. 2030rohan_maths.pdf) Upload this file on the team app)



PHYSICS

1. Make notes of Unit no. 1- Electrostatics and Unit no. 2- Current Electricity. (In Notes copy)
2. Solve Numericals of Unit no.1 and Unit no.2 from NCERT and any other reference books. (In numerical copy)
3. Solve the worksheets (uploaded in MS Teams)
4. Make an investigatory project basis on 'CORONA VIROUS, ITS EFFECTS AND ITS PREVENTION'. (Project must be in form of a brief writeup only.)

CHEMISTRY

- 1) Unit -1- Solid state -- In text questions & Exercises.
- 2) Unit -2- Solutions -- In text questions & Exercises.
- 3) Unit -9- Coordination Compounds -- In text questions & Exercises.
- 4) Investigatory Project- (On any Topic of chemistry from Chemistry practical book)
- 5) Questions of unit 1, 2 & 9 from All India board papers chemistry of years 2016, 2017, 2018 ,2019 & 2020.
- 6) Learn unit 1 ,2 & 9.
- 7) Prepare a power point presentation on Unit 1,2 & 9 according to following manner:

Class XIA	Class -XIIB
Roll No-1to14	Roll No-1to13
Unit-1	Unit-1
Roll No-15to28	Roll No-14to26
Unit-2	Unit-2
Roll No-29to42	Roll No-27to38
Unit-9	Unit-9

BIOLOGY

A. Prepare a Investigatory Project Report on any topic of your choice (like disease, drugs, alcohol abuse, plasma therapy, friendly microbes, e-waste management, tea/coffee addiction and their effects on the human body, Auto immune disorders, garbage management in your locality or migratory habits in birds, etc.).

Project report should consist of the following –

- (a) Title of the project
- (b) Certificate
- (c) Introduction
- (d) Detail report of the project with pictures and bibliography

B. Draw a neat and well-labeled diagram of the following –

1. T.S. of young anther showing four micro sporangia and detail structure of one
2. micro sporangium.
3. L.S. of anatropous ovule.
4. Detailed structure of seminiferous tubule

5. A section of human ovary, structure of human sperm.
6. Correlation of menstrual cycle and ovarian cycle with hormonal control.
7. Structure of Blastocyst and human foetus within the uterus.

MATHEMATICS

CONTINUITY AND DIFFERENTIABILITY

Q.1 If $x \sin(a + y) + \sin a \cos(a + y) = 0$, prove that $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$

Q.2 Let $f(x) = \begin{cases} \frac{1-\cos 4x}{x^2} & \text{if } x < 0 \\ a & \text{if } x = 0 \\ \frac{\sqrt{x}}{\sqrt{16+\sqrt{x}-4}} & \text{if } x > 0 \end{cases}$

Determine the value of a for which the function $f(x)$ is continuous at $x = 0$.

Q.3 If $e^x + e^y = e^{x+y}$, prove that $\frac{dy}{dx} + e^{y-x} = 0$

Q.4 Differentiate $\tan^{-1}\left(\frac{\sqrt{1-x^2}}{x}\right)$ w.r.t. $\cos^{-1}(2x\sqrt{1-x^2})$, when $x \neq 0$

Q.5 If $y = \sin^{-1} x$, show that $(1-x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} = 0$.

Q.6 If $y = x^3 \log\left(\frac{1}{x}\right)$, then prove that $xy_2 - 2y_1 + 3x^2 = 0$.

Q.7 If $x = \cos t (3 - 2 \cos^2 t)$ and $y = \sin t (3 - 2 \sin^2 t)$, then find the value of $\frac{dy}{dx}$ at $t = \frac{\pi}{4}$

Q.8 Differentiate the function $(\sin x)^x + \sin^{-1} \sqrt{3x}$ with respect to x

Q.9 Find the values of a and b , if the function f is defined by

$$f(x) = \begin{cases} x^2 + 3x + a & , x \leq 1 \\ bx + 2 & , x > 1 \end{cases} \text{ is differential at } x = 1.$$

Q.10 a. Differentiate $\tan^{-1}\left(\frac{1+\cos x}{\sin x}\right)$ w.r.to x .

b. For what value of "k" is the function

$$f(x) = \begin{cases} \frac{\sin 5x}{3x} + \cos x & \text{if } x \neq 0 \\ k & \text{if } x = 0 \end{cases} \text{ is continuous at } x = 0$$

APPLICATION OF DERIVATIVE

Q.1 Prove that $\left(\frac{x}{a}\right)^n + \left(\frac{y}{b}\right)^n = 2$ touches the straight line $\frac{x}{a} + \frac{y}{b} = 2$, for all $n \in \mathbb{N}$ at the point (a, b)

Q.2 Find the equation of the normal to the curves $y = x \log x$ which is parallel to the line $2x - 2y + 3 = 0$

Q.3 Find the equation to the tangent to the curve $3x^2 - y^2 = 8$, which pass through the point $\left(\frac{4}{3}, 0\right)$

Q.4 Show that $f(x) = \tan^{-1}(\cos x + \tan x)$ is strictly increasing on interval $\left(0, \frac{\pi}{4}\right)$

Q.5 An open box with a square base is to be made out of a given quantity of cardboard of area c^2 square units. Show that the maximum volume of the box is $\frac{c^3}{6\sqrt{3}}$ cubic units.

- Q.6 Show that the equation of normal at any point t on the curve $x = 3 \cos t - \cos^3 t$ and $y = 3 \sin t - \sin^3 t$ is $4(y \cos^3 t - x \sin^3 t) = 3 \sin 4t$
- Q.7 Find the coordinates of a point of the parabola $y = x^2 + 7x + 2$ which is closest to the straight line $y = 3x - 3$
- Q.8 Tangent to the circle $x^2 + y^2 = r^2$ at any point on it in the first quadrant makes intercepts OA and OB on x and y axes respectively, O being the centre of the circle. Find the minimum value of $(OA + OB)$.
- Q.9 Show that curves $xy = a^2$ and $x^2 + y^2 = 2a^2$ touch each other.
- Q.10 Prove that the volume of the largest cone that can be inscribed in a sphere of radius R is $\frac{8}{27}$ of the volume of the sphere.

MATRIX

- Q.1 Construct a matrix $A = [a_{ij}]_{2 \times 2}$ whose elements a_{ij} are given by $a_{ij} = e^{2ix} \sin jx$.
- Q.2 Express the matrix A as the sum of a symmetric and a skew symmetric matrix, where $A = \begin{bmatrix} 2 & 4 & 6 \\ 7 & 3 & 5 \\ 1 & 2 & 4 \end{bmatrix}$
- Q.3 If $A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{bmatrix}$, then show that A satisfies the equation $A^3 - 4A^2 - 3A + 11I = O$
- Q.4 If $A^T = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 & 1 \\ 1 & 2 & 3 \end{bmatrix}$, find $A^T - B^T$
- Q.5 Find the value of x and y , if $2 \begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$
- Q.6 If matrix $A = [1 \ 2 \ 3]$, write AA^T .
- Q.7 If $A = \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$ is identity matrix, then write the value of α
- Q.8 If a matrix has 28 elements, what are the possible order it can have? What if it has 13 elements?
- Q.9 Find the matrix X and Y , if $2X - Y = \begin{bmatrix} 6 & -6 & 0 \\ -4 & 2 & 1 \end{bmatrix}$ and $X + 2Y = \begin{bmatrix} 3 & 2 & 5 \\ -2 & 1 & -7 \end{bmatrix}$.
- Q.10 Let $f(x) = x^2 - 5x + 6I$, find $f(A)$ if $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$
- Q.11 If $A = \begin{bmatrix} a & b \\ 0 & 1 \end{bmatrix}$, Prove that $A^n = \begin{bmatrix} a^n & \frac{b(a^n - 1)}{a - 1} \\ 0 & 1 \end{bmatrix}$
- Q.12 If $A = \text{diag}(a \ b \ c)$, show that $A^n = \text{diag}(a^n \ b^n \ c^n)$ for all positive integer n .
- Q.13 If $A = \begin{bmatrix} \cos \alpha + \sin \alpha & \sqrt{2} \sin \alpha \\ -\sqrt{2} \sin \alpha & \cos \alpha - \sin \alpha \end{bmatrix}$, prove that $A^n = \begin{bmatrix} \cos n\alpha + \sin n\alpha & \sqrt{2} \sin n\alpha \\ -\sqrt{2} \sin n\alpha & \cos n\alpha - \sin n\alpha \end{bmatrix}$

- Q.14 If $A = \begin{bmatrix} k & 1 \\ 0 & k \end{bmatrix}$, prove that $A^n = \begin{bmatrix} k^n & nk^{n-1} \\ 0 & k^n \end{bmatrix}$ where $n \in \mathbb{N}$
- Q.15 If $A = \begin{bmatrix} 1 & 0 \\ 0 & k \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$, show that $(aA + bB)(aA - bB) = (a^2 + b^2)A$
- Q.16 Find the inverse of the matrix using elementary row (column) transformations

i. $A = \begin{bmatrix} 3 & -1 & -2 \\ 2 & 0 & -1 \\ 3 & -5 & 0 \end{bmatrix}$

Ans. $A^{-1} = \begin{bmatrix} -\frac{5}{8} & \frac{5}{4} & \frac{1}{8} \\ -\frac{3}{8} & \frac{3}{4} & -\frac{1}{8} \\ -\frac{1}{4} & \frac{1}{2} & \frac{1}{4} \end{bmatrix}$

ii. $A = \begin{bmatrix} 3 & 0 & -1 \\ 2 & 3 & 0 \\ 0 & 4 & 1 \end{bmatrix}$

Ans. $A^{-1} = \begin{bmatrix} 3 & -4 & 3 \\ -2 & 3 & -2 \\ 8 & -12 & 9 \end{bmatrix}$

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

Ans. $A^{-1} = \begin{bmatrix} -2 & 1/2 & 1 \\ 11 & -1 & -6 \\ 4 & -1/2 & -2 \end{bmatrix}$

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

Ans. $A^{-1} = \begin{bmatrix} 3 & 6 & 6 \\ 1 & 1 & 2 \\ 2 & 2 & 5 \end{bmatrix}$

INVERSE TRIGONOMETRIC FUNCTION

1. Prove that $\tan^{-1} \frac{1}{5} + \tan^{-1} \frac{1}{7} + \tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{8} = \frac{\pi}{4}$.
2. Evaluate : $\tan \left[2 \tan^{-1} \left(\frac{1}{5} \right) + \frac{\pi}{4} \right]$
3. Prove that $2 \tan^{-1} \left(\frac{1}{5} \right) + \sec^{-1} \left(\frac{5\sqrt{2}}{7} \right) + 2 \tan^{-1} \left(\frac{1}{8} \right) = \frac{\pi}{4}$
4. Write the value of $\cos^{-1} \left(-\frac{1}{2} \right) + 2 \sin^{-1} \left(\frac{1}{2} \right)$
5. Prove that : $\cot^{-1} 7 + \cot^{-1} 8 + \cot^{-1} 18 = \cot^{-1} 3$

DETERMINANT

- Q.1 Evaluate the determinant $\Delta = \begin{vmatrix} 1 & \sin \theta & 1 \\ -\sin \theta & 1 & \sin \theta \\ -1 & -\sin \theta & 1 \end{vmatrix}$. Also prove that $2 \leq \Delta \leq 4$.
- Q.2 Without expanding show that $\Delta = \begin{vmatrix} \operatorname{cosec}^2 \theta & \cot^2 \theta & 1 \\ \cot^2 \theta & \operatorname{cosec}^2 \theta & -1 \\ 42 & 40 & 2 \end{vmatrix} = 0$
- Q.3 Evaluate $\begin{vmatrix} 1 & \log_b a \\ \log_a b & 1 \end{vmatrix}$
- Q.4 If $x = -4$ is a root of $\begin{vmatrix} x & 2 & 3 \\ 1 & x & 1 \\ 3 & 2 & x \end{vmatrix} = 0$, then find the other two roots.
- Q.5 Without expanding show that $\begin{vmatrix} 0 & b-a & c-a \\ a-b & 0 & c-b \\ a-c & b-c & 0 \end{vmatrix} = 0$
- Q.6 Determine the value of x for which the matrix is singular

$$A = \begin{bmatrix} x+1 & -3 & 4 \\ -5 & x+2 & 2 \\ 4 & 1 & x-6 \end{bmatrix}$$
- Q.7 Show that $\begin{vmatrix} a & b-c & c+b \\ a+c & b & c-a \\ a-b & b+a & c \end{vmatrix} = (a+b+c)(a^2+b^2+c^2)$
- Q.8 Show that:

$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$$
- Q.9 If $A = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$ are two square matrices, find AB and hence solve the system of linear equation: $x - y = 3$, $2x + 3y + 4z = 17$, $y + 2z = 7$

ENGLISH CORE

- Make a short (2 to 3 minutes) documentary video or a ppt on the topic-

“Story of Bangle Making Families “

While doing so mention the sources from where you have taken data, pictures, etc. give credits in the acknowledgment section. Make it informative and interesting.

- Draft different type of Invitations in your english notebook.

COMPUTER SCIENCE

1. Create an Employee Table with the fields

Empno, Empname, Desig, Dept, Age and Place.

Enter five records into the table

Empno	Empname	Desig	Dept	Age	Place
1221	Sidharth	Officer	Accounts	45	Salem
1222	Naveen	Manager	Admin	32	Erode
1223	Ramesh	Clerk	Accounts	33	Ambathur
1224	Abinaya	Manager	Admin	28	Anna Nagar
1225	Rahul	Officer	Accounts	31	Anna Nagar

- Add two more records to the table.
- Modify the table structure by adding one more field namely date of joining.
- Check for Null value in doj of any record.
- List the employees who joined after 2018/01/01.

2. Create Student table with following fields and enter data as given in the table below

Field	Type	Size
Reg_No	char	5
Sname	varchar	15
Age	int	2
Dept	varchar	10
Class	char	3

Data to be entered

Reg_No	Sname	Age	Dept	Class
M1001	Harish	19	ME	ME1
M1002	Akash	20	ME	ME2
C1001	Sneha	20	CSE	CS1
C1002	Lithya	19	CSE	CS2
E1001	Ravi	20	ECE	EC1
E1002	Leena	21	EEE	EE1
E1003	Rose	20	ECE	EC2

Then, query the followings:

- (i) List the students whose department is "CSE".
- (ii) List all the students of age 20 and more in ME department.
- (iii) List the students department wise.
- (iv) Modify the class ME2 to ME1.

Check for the uniqueness of Register no

3. Consider the following tables DRESS and MATERIAL. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).

Table : DRESS

DCODE	DESCRIPTION	PRICE	MCODE	LAUNCHDATE
10001	FORMAL SHIRT	1250	M001	12-JAN-08
10020	FROCK	750	M004	09-SEP-07
10012	INFORMAL SHIRT	1450	M002	06-JUN-08
10019	EVENING GOWN	850	M003	06-JUN-08
10090	TULIP SKIRT	850	M002	31-MAR-07
10023	PENCIL SKIRT	1250	M003	19-DEC-08
10089	SLACKS	850	M003	20-OCT-08
10007	FORMAL PANT	1450	M001	09-MAR-08
10009	INFORMAL PANT	1400	M002	20-OCT-08
10024	BABY TOP	650	M003	07-APR-08

Table : MATERIAL

MCODE	TYPE
M001	TERELENE
M002	COTTON
M004	POLYESTER
M003	SILK

- (i) To display DCODE and DESCRIPTION of an each dress in ascending order of DCODE.
- (ii) To display the details of all the dresses which have LAUNCHDATE in between 05–DEC–07 and 20–JUN–08 (inclusive of both the dates).
- (iii) To display the average PRICE of all the dresses which are made up of material with MCODEas M003.
- (vi) To display material wise highest and lowest price of dresses from DRESStable. (Display MCODE of each dress along with highest and lowest price)
- (v) SELECT SUM (PRICE) FROM DRESS WHERE MCODE='M001';
- (vi) SELECT DESCRIPTION, TYPE FROM DRESS, MATERIAL WHERE DRESS. DCODE=MATERIAL. MCODE AND DRESS. PRICE>=1250;
- (vii) SELECT MAX(MCODE) FROM MATERIAL;
- (viii) SELECT COUNT(DISTINCT PRICE) FROM DRESS

Q-4 Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to(viii), which are based on the tables.

TRAINER

TID	TNAME	CITY	HIREDATE
101	SUNAINA	MUMBAI	1998-10-15
102	ANAMIKA	DELHI	1994-12-24
103	DEEPTI	CHANDIGARG	2001-12-21
104	MEENAKSHI	DELHI	2002-12-25
105	RICHA	MUMBAI	1996-01-12
106	MANIPRABHA	CHENNAI	2001-12-12

COURSE

CID	CNAME	FEES	STARTDATE
C201	AGDCA	12000	2018-07-02
C202	ADCA	15000	2018-07-15
C203	DCA	10000	2018-10-01
C204	DDTP	9000	2018-09-15
C205	DHN	20000	2018-08-01
C206	O LEVEL	18000	2018-07-25

- (i) Display the Trainer Name, City & Salary in descending order of their Hiredate.
- (ii) To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.
- (iii) To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000.
- (iv) To display number of Trainers from each city.
- (v) SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN('DELHI', 'MUMBAI');
- (vi) SELECT DISTINCT TID FROM COURSE;
- (vii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
- (viii) SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';

INFORMATICS PRACTICES

Topic: Function

1. Fill in the blanks:

- _____ functions are those functions that works on each row of table and produces same number of outputs as may rows affected.
- _____ functions are those functions that works on group of rows and produce one output for each group.
- Single row functions are categorized in _____, _____, and _____.
- Trim function is an example of _____.
- Round function takes _____ or _____ argument(s).
- To extract the year part of the date use _____ function.
- Count(*), counts _____ in a table.
- All aggregate functions ignore _____ values.
- _____ function is used to extract the characters from a string/text.
- _____ function is used to search text into another text.

2. State True or False

- Single row functions may be used in WHERE clause.
- Multirow functions may be used in WHERE clause.
- Count(*) and Count(fieldname) may produce different results.
- Nesting of functions is not possible.
- Left, Right and Mid all functions are used to extract the characters from the text.

3. Consider the EMP as show below:

```
mysql> select * from emp;
```

empno	ename	post	sal	comm	deptno	doj
1001	Amit	Manager	50000	10000	10	2020-10-01
1002	Ashok	Manager	30000	NULL	10	2019-05-20
1003	Anurag	Manager	30000	3000	10	2019-06-12
1004	Arjun	Admin	123000	10000	20	2020-06-12
1005	Bhavya	Admin	100000	NULL	30	2018-01-12
1006	Priya	Clerk	20000	0	10	2020-06-12

6 rows in set (0.00 sec)

Write the query for the followings:

- i. Write a query to display ename and post in upper case.
- ii. Write a query to display first two characters of employee name.
- iii. Write a query to display 2nd to 4th characters from ename field.
- iv. Write a query to display last two characters of ename.
- v. Write a query to display ename in upper case and post in lower case.
- vi. Write a query to remove all leading and trailing spaces from ename field.
- vii. Write a query to display 2nd and 3rd letter of ename in upper case.
- viii. Write a query to display ename and their length.
- ix. Write a query to display years in which employee joined. Make sure duplicate years should not be repeated.
- x. Write a query to display day name of all the employees on which they joined.

4. Write the output of the followings:

- a. Select `ucase(name)` from emp where comm is null;
- b. Select `mid(ucase(name),3,1)` from emp where deptno in (20,30);
- c. Select `upper(ename), year(now())-year(doj)` "Experience" from emp;
- d. Select `ename, round(sal)` from emp where `year(doj)=2019`;
- e. Select `pow(10%6,2)`;
- f. Select `power(34+36%20,2)`;
- g. Select `round(345.678)`;
- h. Select `round(34125.3736,3)`;
- i. Select `round(34125.3736,0)`;
- j. Select `round(34125.3736,-1)`;
- k. Select `round(34125.3736,-4)`;
- l. Select `round(64125.3736,-5)`;
- m. Select `mod((23*5-89+3),80)`;

Topic: Group by, having and order by clause

Q1. Fill in the blanks:

1. To view the records of a table in group use _____.
2. While using _____ clause, _____ functions must be used.
3. While using group by clause, at least on one column _____ function must be used.
4. Number of outputs depends on number of _____, while using group by clause.
5. To filter the grouped records use _____ clause.
6. We cannot use _____ functions in where clause but can be used in _____ clause.
7. Order by clause is used to arrange records in _____. Order by clause can be used to _____.

Q2. State True or False:

1. Group by clause and having clause may be used together in any order.
2. It is compulsory to use group by functions while using group by clause.
3. It compulsory to use group by function in having clause.
4. To filter grouped records, we should use where clause.
5. While grouping the records on the basis of a column, it ignores the null values for grouped column.

Q3. Tick the correct answer:

1. What is the correct order of using clauses while executing the SELECT command?
 - a. Select, From, Where, Order by, Group By, Having
 - b. Select, Where, From, Group By, Having, Order By
 - c. Select, From Where, Group By, Having, Order By
 - d. Select, From, Where, Having, Group By, Order By
2. Consider table ITEM. Which query is correct to get the total sales brand wise.
 - a. Select sum(sales) from item;
 - b. Select brand, sum(sales) from item;
 - c. Select brand, sum(sales) from item group by brand;
 - d. Select sum(sales) from item where group by brand;
3. Table ITEM has 30 rows. A user applies the following query.
SELECT count(discount) from item;
He gets the answer as 26. What is the possible reason?
 - a. Query is wrong.
 - b. May be column discount have zero value.
 - c. May be column discount have null value.
 - d. May be column discount have zero or null value.

```
mysql> select * from emp;
+-----+-----+-----+-----+-----+-----+-----+
| empno | ename  | post   | sal   | comm  | deptno | doj       |
+-----+-----+-----+-----+-----+-----+-----+
| 1001  | Amit   | Manager | 50000 | 10000 | 10      | 2020-10-01 |
| 1002  | Ashok  | Manager | 30000 | NULL  | 10      | 2019-05-20 |
| 1003  | Anurag | Manager | 30000 | 3000  | 10      | 2019-06-12 |
| 1004  | Arjun  | Admin   | 123000 | 10000 | 20      | 2020-06-12 |
| 1005  | Bhavya | Admin   | 100000 | NULL  | 30      | 2018-01-12 |
| 1006  | Priya  | Clerk   | 20000  | 0     | 10      | 2020-06-12 |
+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

Consider the table emp and identify which query is correct to get following output.

NoOfPost
3

- a. Select post noofpost from emp;
 - b. Select distinct post noofpost from emp;
 - c. Select count(distinct post) from emp;
 - d. Select distinct count(post) from emp;
4. Which query is correct to get departmentwise total number of employees in which more than 3 employees are working?

- Select deptno, count(*) from emp where count(*)>3 group by deptno;
- Select deptno, count(*) from emp having count(*)>3 group by deptno;
- Select deptno, count(*) from emp group by deptno where count(*)>3;
- Select deptno, count(*) from emp group by deptno having count(*)>3;

5. What will the output of the following query?

SELECT deptno, sum(sal) from emp where comm is not null group by deptno;

A	B	C	D																				
<table border="1"> <thead> <tr> <th>Deptno</th> <th>Sum(sal)</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>130000</td> </tr> <tr> <td>20</td> <td>123000</td> </tr> <tr> <td>30</td> <td>100000</td> </tr> </tbody> </table>	Deptno	Sum(sal)	10	130000	20	123000	30	100000	<table border="1"> <thead> <tr> <th>Deptno</th> <th>Sum(sal)</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>100000</td> </tr> <tr> <td>30</td> <td>100000</td> </tr> </tbody> </table>	Deptno	Sum(sal)	10	100000	30	100000	<table border="1"> <thead> <tr> <th>Deptno</th> <th>Sum(sal)</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>100000</td> </tr> <tr> <td>30</td> <td>100000</td> </tr> </tbody> </table>	Deptno	Sum(sal)	10	100000	30	100000	None of these
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6. What will be the output of the following query?

Select count(comm) from emp group by comm;

A	B	C	D																						
<table border="1"> <thead> <tr> <th>Comm</th> <th>Count(*)</th> </tr> </thead> <tbody> <tr> <td>3000</td> <td>1</td> </tr> <tr> <td>10000</td> <td>2</td> </tr> <tr> <td>NULL</td> <td>2</td> </tr> <tr> <td>0</td> <td>1</td> </tr> </tbody> </table>	Comm	Count(*)	3000	1	10000	2	NULL	2	0	1	<table border="1"> <thead> <tr> <th>Comm</th> <th>Count(*)</th> </tr> </thead> <tbody> <tr> <td>3000</td> <td>1</td> </tr> <tr> <td>10000</td> <td>2</td> </tr> <tr> <td>0</td> <td>3</td> </tr> </tbody> </table>	Comm	Count(*)	3000	1	10000	2	0	3	<table border="1"> <thead> <tr> <th>Comm</th> <th>Count(*)</th> </tr> </thead> <tbody> <tr> <td>NULL</td> <td>5</td> </tr> </tbody> </table>	Comm	Count(*)	NULL	5	Query is wrong
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7. What query you will write to display records in ascending order of post and descending order of salary?

- Select * from emp where order by post, sal desc;
- Select * from emp order by sal desc, post;
- Select * from emp order by post, sal desc;
- Select * from emp order by post ascending and sal descending;

6. What query you will write to display department wise total salary in descending order?

- Select * from emp group by deptno order by sum(sal) desc;
- Select deptno, sum(sal) from emp group by deptno order by sum(sal) desc;
- Select deptno, sum(sal) from emp where order by sum(sal) desc group by deptno;
- None of these.

7. What query you will write to display department wise total salary where department total salary is more than 125000?

- Select deptno, sum(sal) from emp where sum(sal)>125000;
- Select deptno, sum(sal) from emp where sum(sal)>125000 group by deptno;
- Select deptno, sum(sal) from emp group by deptno having sum(sal)>125000;
- Select deptno, sum(sal) from emp group by where having sum(sal)>125000;

8. What query you will write to display department wise total number of employess who joined in the year 2019 or 2020?

- Select deptno, count(*) from emp where year(doj)=2019 and year(doj)=2020;
- Select deptno, count(*) from emp where year(doj)=2019 or year(doj)=2020;
- Select deptno, count(*) from emp where year(doj)=2019 and year(doj)=2020 groupby deptno;
- Select deptno, count(*) from emp where year(doj)=2019 or year(doj)=2020 group bydeptno;

Topic: Union, Intersection, Minus, Cartesian Product and Joining

Q1. Fill in the blanks:

1. _____ is used to combine two or more different queries.
2. _____ is used to view all records which have been combined together including duplicate records.
3. _____ picks only common records as output from the queries combined together.
4. _____ operation gets all the records from the output of first query which are not present in second query.
5. _____ join occurs only when both tables have common field name with same name.
6. If a table X has 100 records and 15 columns and table Y has 10 records and 4 columns then in cartesian product _____ rows and _____ columns will be displayed.
7. If a table X has 100 records and 15 columns and table Y has 10 records and 4 columns then in natural join _____ columns will be displayed.

Q2. State True or False:

1. You can apply other conditions with joining conditions to filter records.
2. In cross joins both rows and columns are multiplied.
3. In natural join if tables do not have common column name with same name, then Cartesian product will take place.
4. Union and Union All produces same result.
5. If no record is common from both the queries then intersection will produce empty set as a result.
6. While using Natural Join you need to specify the condition in where clause for joining.
7. Equi Join and Natural Join produces same result set.
8. In equi join it is not compulsory that common field name should have same name.
9. With equi join other conditions may also be applied to filter records.
10. JOIN and CROSS JOIN are two keywords for cartesian product.

Q3. Consider the following tables and write the query based on it.

Table : Item

ItemID	ItemName	Price	Dateofmanufacturing	DateofExpiry	SupplierID
1001	Kitkat	20	2021-01-25	2023-01-25	S001
1002	Silk	60	2021-03-02	2022-03-02	S001
1003	Temptation	50	2020-12-15	2022-12-15	S003
1004	5 Star	25	2020-11-25	2021-02-25	S001
1005	Fruit & Nuts	30	2019-02-05	2020-02-05	S002
1006	Perk	5	2021-02-10	2024-02-10	S002
1007	Dairy Milk	20	2021-02-10	2021-06-10	S001

Table : Supplier

SupplierID	SupplierName	SupplierCity
S001	Rahul	Jaipur
S002	Vijay	Ajmer
S003	Vinay	Udaipur

Q1. Write queries for the followings:

1. Write a query to display all records from item and supplier table.
2. Write a query to display supplier name and item name.
3. Write a query to display item name of supplier "Vijay".
4. Write a query to display the name of supplier whose products expired.
5. Write a query display those records which are supplied from "Jaipur" whose price is less than more than 20.
6. Write a query to display supplier name and total items being supplied by supplier.
7. Write a query to display supplier name with maximum price of item.
8. Write a query to display the average price of each supplier.
9. Write a query to display Itemname, price, suppliername using natural join of those items which were manufactured in the year 2021.
10. Write a query to display itemname, suppliername and total number of days for which the item is usable.
11. Write a query to display all the records using natural join in ascending order of supplier name and descending order of price

APPLIED ART

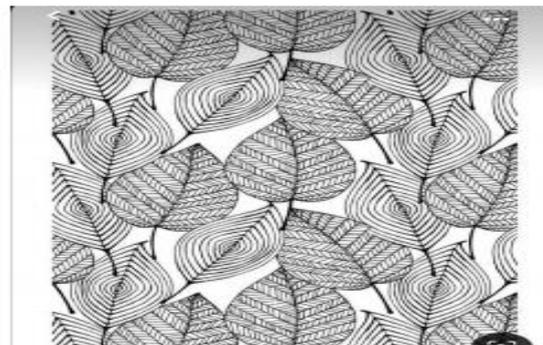
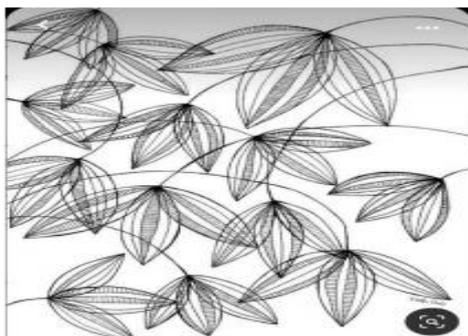
*Topics for posters(half imperial size)

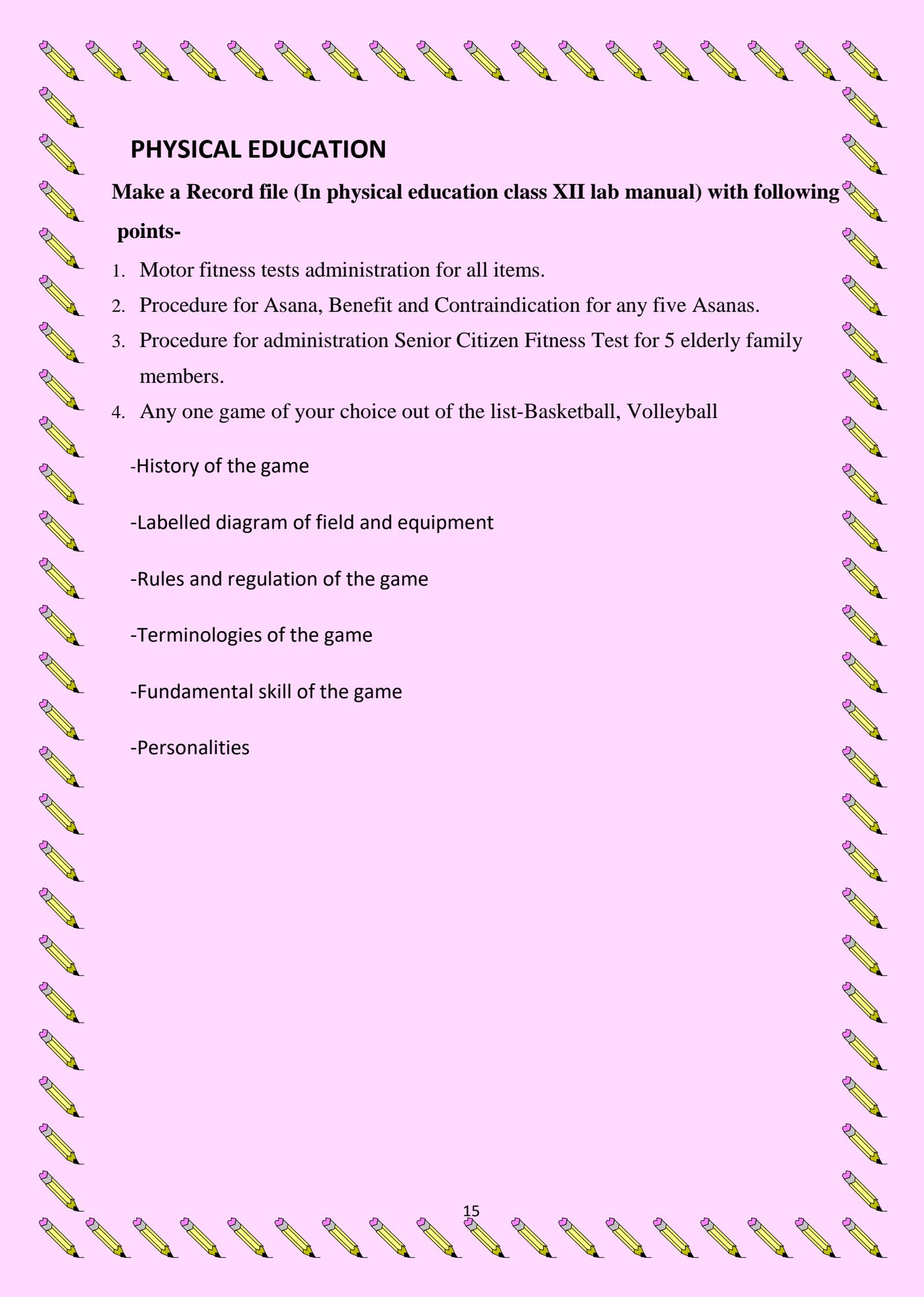
- a) Social issues(any 2):Child labour , Domestic Violence(Covid, Etiquette Aids
- b)International/national:Terrorism, Population, Global warming
- c)Travel and tourism
- d)Commercial product

*Topics for illustrations(22 x30 cms)+1 inch border

- a)Linear techniques in black and white (Follow linear techniques samples)Any 2
- b) Culture : Dance, Theatre,Art, Music
- c)Professional/Profession







PHYSICAL EDUCATION

Make a Record file (In physical education class XII lab manual) with following points-

1. Motor fitness tests administration for all items.
2. Procedure for Asana, Benefit and Contraindication for any five Asanas.
3. Procedure for administration Senior Citizen Fitness Test for 5 elderly family members.
4. Any one game of your choice out of the list-Basketball, Volleyball

-History of the game

-Labelled diagram of field and equipment

-Rules and regulation of the game

-Terminologies of the game

-Fundamental skill of the game

-Personalities