

CBSE PROJECT / PRACTICAL FILE ASSIGNMENT
Grade: 12 Medical / Non-Medical Stream (Session: 2023 - 2024)

ENGLISH:

1. Project can be made on any one topic based on current issue / idea.
2. The ideas highlighted in the Chapter / Poem / Dramas given in the prescribed books can also be developed in the form of a project.
3. The project can be made individually or with a group of 3 – 4 students.

The project – Portfolio may include the following:

- Cover page with title of Project, School details / Details of students
- Statement of Purpose / Objectives / Goals.
- Certificate of Completion under the Guidance of the teacher.
- Action plan for the Completion of the assigned tasks.
- Materials such as scripts for the theatre / role play / questionnaires for interviews / written assignments, essay / survey reports.
- Word capacity 800 – 1000 (essay / script / report).
- Student / Group reflection.
- If possible Photographs that capture the learning experiences of the students (s).
- List of Resources / Bibliography.

CHEMISTRY:

Write the following list of practicals in your chemistry Lab Manual as per the sequence discussed in class.

1. To prepare M/20 solution of Mohr's salt with the help of this solution determine the molarity and strength per litre of the given solution of potassium permanganate (KMnO_4).
2. To prepare M/50 solution of Oxalic Acid with the help of this solution. Find out the molarity and strength of the given potassium permanganate solution.
3. To prepare crystals of Ferrous Ammonium Sulphate.
4. To prepare crystals of potassium Ferric Oxalate.
5. To separate the pigments from extract of leaves and flowers by paper chromatography and determination of R_f value.
6. To detect the presence of functional group (Unsaturation, Carboxylic and Primary amino Group) in given organic compounds.
7. To detect the presence of carbohydrates, fats and proteins in given food stuffs.
8. To detect the presence of one cation and one anion radical in given salt:
 - a) Ammonium Chloride (NH_4Cl)
 - b) $\text{Pb}(\text{NO}_3)_2$
 - c) $\text{Al}_2(\text{SO}_4)_3$
 - d) BaCl_2
 - e) CaCO_3
 - f) $\text{Co}(\text{NO}_3)_2$
 - g) ZnSO_4
 - h) FeSO_4
 - i) $\text{Pb}(\text{CH}_3\text{COO})_2$

INVESTIGATORY PROJECT

Do any one out of the following project on assignment sheets as per the sequence discussed in class.

1. Study of the presence of oxalate Ions in guava fruit at different stages of ripening.
2. Study the quantity of casein present in different samples of milk.
3. Preparation of soybean milk and its comparison with natural milk with respect to curd formation, the effect of temperature, etc.
4. Study of the effect of Potassium Bisulphate as a food preservative under various conditions (temperature, concentration, time, etc.)
5. Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
6. Study of common food adulterants in fat, oil, butter, sugar, turmeric power, chilli powder and pepper.

BIOLOGY:

Prepare Lab Manual as per the instructions given in class.

LIST OF EXPERIMENT

1. Prepare a temporary mount of onion root tip to study mitosis.
2. Study and observe pollen germination on stigma through a permanent slide.
3. Prepare a temporary mount to observe pollen germination.
4. Study and observe flowers adapted to pollination by different agencies (wind, insects, birds).
5. Study and observe controlled pollination – emasculation, tagging and bagging.
6. Study and identify the stages of gametes development. i.e. T.S. of testis and T.S. of ovary through permanent slides.
7. Study and observe meiosis in onion bud cells through permanent slides.
8. Study and identify T.S. of blastula through permanent slides.
9. Study mendelian inheritance using seed of different colours / size.
10. Prepare pedigree chart of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widows's peak and colour blindness.
11. Study and observe flash cards / models showing examples of homologous and analogous organs.
12. Study common disease causing organism like Ascaris, Entamoeba, Plasmodium, and fungus causing ringworm through permanent slides.
13. Isolate DNA from available plant material.
14. Study and observe models / specimen showing symbiotic association in root nodules of leguminous plants, cuscuta on host, lichens.
15. Study the plant population density by quadrat method.
16. Study the plant population frequency by quadrat method.

PHYSICS:

Section – A

Experiment:

1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.
2. To find resistance of a given wire / standard resistor using metre bridge.
3. To verify the laws of combination (series) of resistances using a metre bridge.
4. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.

Activity:

1. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
2. To assemble the components of a given electrical circuit.

3. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

Section – B

Experiment:

1. To determine angle of minimum deviation for a given prism by plotting a graph.
2. To determine refractive index of a glass slab using a travelling microscope.
3. To find the refractive index of a liquid using a concave mirror and a plane mirror.
4. To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.

Activity:

1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
2. To study the nature and size of the image formed by a convex lens.
3. To study the nature and size of the image formed by a concave.

PHYSICAL EDUCATION:

1. Prepare Practical File. It should consist of following practicals:
 - A. Physical Fitness Test:
 - SAI Khelo India Test.
 - Brockport Physical Fitness Test.
 - B. Asanas:

Write procedure, benefits and contraindication of any two Asanas for each life style disease.
 - C. Write any one game of your choice out of the listed below mentioned games with labelled diagram of field and equipment (Rules, Terminologies and Skills).

a) Football	b) Kabaddi	c) Volleyball	d) Cricket
e) Hockey	f) Kho-Kho	g) Handball	h) Basketball
i) Badminton	j) Swimming		

MATHEMATICS:

1. To verify that the relation R in the set L of all lines in a plane, defined by $R = \{(\ell, m) : \ell \perp m\}$ is symmetric but neither reflexive nor transitive.
2. To verify that the relation in the set L of all lines in a plane, defined by $R = \{(\ell, m) : \ell \parallel m\}$ is an equivalence relation.
3. To demonstrate a function, which is not one – one but is onto.
4. To demonstrate a function, which is one – one but not onto.
5. To find analytically the limit of a function $f(x)$ at $x = c$ and also to check the continuity of the function at that point.
6. To understand the concepts of decreasing and increasing functions.
7. To understand the concepts of local maxima and local minima.
8. To construct an open box of maximum volume from a given rectangular sheet by cutting equal square from each corner.
9. To verify geometrically that - $\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$
10. To measure the shortest distance between two skew lines and verify it analytically.

APPLIED MATHEMATICS:

1. Prepare a questionnaire to collect information about money spent by your friends in a month on activities like travelling, movies, recharging of mobiles etc. And draw interesting conclusion.
2. Analysis of career graph of a cricketer (batting average for a batsman and bowling average for a bowler). Conclude the best year of his performance. It may be extended for other players also – tennis, badminton, athlete etc.

INFORMATICS PRACTICES:

1. Create a pandas series from a dictionary of values and an ndarray.
2. Given a Series, print all the elements that are above the 75th percentile.
3. Create a Data Frame quarterly sales where each row contains the item category, item name, and expenditure. Find shape and count of rows and columns.
4. Create a data frame based on ecommerce data and generate descriptive statistics (mean, median and mode).
5. Create a data frame for examination result and display row labels, column labels data types of each column and the dimensions.
6. Filter out rows based on different criteria such as duplicate rows.
7. Find the sum of each column, or find the column with the lowest mean.
8. Locate the 3 largest values in a data frame.
9. Subtract the mean of a row from each element of the row in a Data Frame.
10. Replace all negative values in a data frame with a 0.
11. Replace all missing values in a data frame with a 999.
12. Importing and exporting data between pandas and CSV file.
13. Importing and exporting data between pandas and MySQL database.
14. Create a Dataframe with 3 rows and 2 columns and iterate it row wise.