

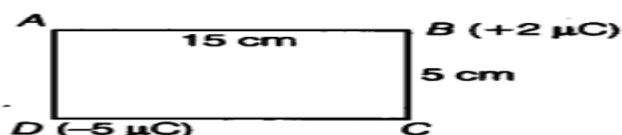
Lt. Col. MEHAR LITTLE ANGELS SR. SEC. SCHOOL

SUMMER HOLIDAY HOMEWORK

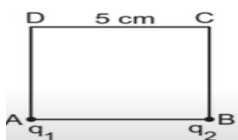
CLASS- XII (2026-27)

PHYSICS

1. Two charges $+10\mu\text{C}$ and $+20\mu\text{C}$ are placed at a separation of 2 cm. Find the electric potential due to the pair at the middle point of the line joining the two charges.
2. Two point charges q and $2q$ are kept at distance d apart. Find the location of the point relative to charge q at which potential due to this system of charges is zero.
3. Two point charges one of $+100\mu\text{C}$ and another of $-400\mu\text{C}$, are kept 30 cm apart. Find the point of zero potential on the line joining the two charges.
4. The sides of a rectangle ABCD are 15 cm and 5 cm as shown in the figure. Point charges of $-5\mu\text{C}$, $+2\mu\text{C}$ are placed at the corners D and B, respectively. Calculate electric potential at A and C. Also, calculate work done in carrying a charge of $3\mu\text{C}$ from A to C.

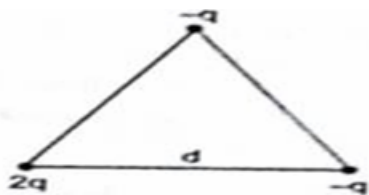


5. Charges $2.0 \times 10^{-6}\text{C}$ and $1.0 \times 10^{-6}\text{C}$ are placed at corners A and B of a square of side 5.0 cm as shown in figure. How much work will be done against the electric field in moving a charge of $1.0 \times 10^{-6}\text{C}$ from C to D?



6. ABCD is a rectangle. At corners B, C and D of the rectangle are placed charges $+10 \times 10^{-10}\text{C}$, $-20 \times 10^{-12}\text{C}$, and $10 \times 10^{-12}\text{C}$, respectively. Calculate the potential at the fourth corner. (The side $AB=4\text{ cm}$ and $BC=3\text{ cm}$)
7. Positive charges of 6, 12 and 24 nC are placed at the three vertices of a square. What charge must be placed at fourth vertex so that total potential at the centre of the square is zero?

8. Two equal charges, $2.0 \times 10^{-7} \text{C}$ each, are held fixed at a separation of 20cm. A third charge of equal magnitude is placed midway between the two both the charges. How much work is done by the electric field during the process?
9. Two charges $-q$ and $+q$ are located at points $A(0, 0, -a)$ and $B(0, 0, +a)$ respectively. How much work is done in moving a test charge from point $P(7,0,0)$ to $Q(-3,0,0)$?
10. Equipotentials at a great distance from a collection of charges whose total sum is not zero are approximately
- A) Sphere B) planes C) paraboloids d) ellipsoids.
11. If the net electric flux through a closed surface is zero, then we can infer
- A) NO net charge enclosed the surface uniform electric field exists within the surface
- C) electric potential varies from point to point inside the surface
- D) charge is present inside the surface
12. 27 drops of same size are charged 220V each. They coalesce to form a bigger drop. Calculate the potential of bigger drop.
13. A particle of charge 2mC and mass 1.6 g is moving with a velocity $4\mathbf{i} \text{ ms}^{-1}$. At $t = 0$ the particle enters in a region having an electric field $\mathbf{E} = 80\mathbf{i} + 60\mathbf{j}$. Find the velocity of the particle at $t = 5 \text{ s}$.
14. An electric dipole of length 2 cm is placed at an angle of 30 degree with an electric field $2 \times 10^5 \text{ N/C}$. If the dipole experiences a torque of 8 times 10^{-3} Nm the magnitude of either charge of the dipole is _____. ?
15. Two equal and opposite charges of $2 \times 10^{-10} \text{ C}$. are placed at a distance of 1 cm forming a dipole and are placed in an electric field of $2 \times 10^5 \text{ N/C}$. The maximum torque on dipole is__?
16. An electric dipole is placed in a uniform electric field. The net electric force on the dipole
- A. is always zero
- B. depends on the orientation of the dipole
- C. can never be zero
- D. depends on the strength of the dipole
17. Three charges are arranged on the vertices of an equilateral triangle as shown in figure. Find the dipole moment of the combination.



18. An electron and proton are kept same electric field will their experience same force and same acceleration
19. A charged particle is free to move in an electric field. Will it always move along an electric line of force ?
20. A small test charge is released at rest at a point in an electrostatic field configuration.
- Will it travel along the field line passing through that point?
21. Why does the charge reside on the surface in a conductor?
22. Why is electric field intensity inside a charged conductor zero ?
23. Why do the electrostatic field lines not form closed loop?

CHEMISTRY

YOU GET WHAT YOU WORK FOR, NOT WHAT YOU WISH FOR

1. Practise following questions from Textbook for class XII Chemistry part 1 Book (NCERT):

(Do in classwork notebook)

CHAPTER NO. 1: SOLUTION

Intext Questions – 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12

Exercises - 1.2, 1.6, 1.7, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.20, 1.21, 1.22, 1.23, 1.24, 1.25, 1.25, 1.27, 1.28, 1.29, 1.30, 1.31, 1.32, 1.33, 1.34, 1.35, 1.36, 1.37, 1.38, 1.39, 1.40, 1.41.

2. Complete the practical work (Experiment no. 1-19) in chemistry practical notebook from the pdf file.

MATHS

Attempt all questions in a separate notebook.

Show complete steps for every solution.

Use proper mathematical notations.

1. Write and learn all formulae of trigonometry.
2. Write and learn all formulae of mensuration.
3. Write and learn all formulae of integration.
4. Download last four years CBSE (Delhi Set-1) Question paper from 2023 to 2026. Do all questions based upon chapters Relations and Functions, Matrices, Determinants and Inverse Trigonometric Functions.

BIOLOGY

1. Prepare investigatory project on topic assigned.
2. Solve last 5 Years questions of CBSE board in your biology notebook.
3. Revise Unit VI Reproduction and Read Ch- 12,13

ENGLISH

Q1. Make a project on the lesson - Lost Spring.

Depict the conditions of poverty and child exploitation through the lives of 'Saheb' and 'Mukesh'. Paste the related pictures.

OR

Prepare a project based on the poem - 'My Mother at Sixty-Six'.

(Cover the aspects like- about the poet, theme of the poem, summary of the poem, analysis etc.)

Compose a short poem expressing gratitude and affection for your mother.

Q2. Interview based Research Project Work

Topic: Balancing Studies and Screen Time among Students

Guidelines:

1. Conduct interviews with:
 - School students
 - Parents
 - Teachers
2. Prepare a Questionnaire (you may include):

- Name
 - Age
 - Class/Profession
 - How many hours do you spend on screens daily?
 - How much time is spent on studies vs entertainment?
 - Do you think screen time affects academic performance?
 - What are the benefits of using screens for learning?
 - What are the harmful effects of excessive screen time?
 - How do you manage or balance screen time?
 - Suggestions to maintain a healthy balance
3. Keep separate pages for each interview
 4. Write a Report (400–500 words) including:
 - Introduction
 - Key Findings
 - Conclusion
 - Suggestions

PROJECT PORTFOLIO MUST INCLUDE:

1. Cover Page
2. Statement of Purpose / Objectives
3. Certificate of Completion
4. Action Plan
5. Questionnaire
6. Interview Records
7. Analysis / Findings
8. Final Report (400–500 words)
9. Photographs

10. Bibliography (list of books, websites, articles, or any other materials you referred to while completing your project)

Instructions to be followed:

- All work should be done on A4 size sheets
- Maintain neatness and proper presentation
- Both projects are COMPULSORY
- Viva will be conducted based on the research project
- Marks will be included in Internal Assessment

COMPUTER SCIENCE(CS)

I. Create a PowerPoint Presentation on Emerging Trends (AI, IoT, Blockchain, etc.)

Include the following topics: Meaning, History, Advantages, Applications/Uses, Software Involved, Types

Note: Prepare 17 – 20 slides and make effective use of all PowerPoint tools and features.

II. Create a Poster on Data Types used in Python and its uses.

III. Practice the Functions importance in python from the assignment provided and prepare a document file.

IV. Learn and practice Chapter 1: Python Function Types.

Note: Bring your work in a clear bag.

Q1. Write the python code to display the total bill amount of the Telephone Billing System:

Call Slot Calls	Price per call
0 – 200	0/-
201 – 400	0.80/-
401 – 600	1.00/
601 – 800	1.50/-
801-1000	2.00/-
>1000	2.50/-

Calculate the total bill amount after accepting no of calls from user and generate the final bill with

Following details

Bill charges + Fixed Rent (100/-) + GST 12% on total amount + 10% Late

Penalty charges

Q2 Write the answers of the following Questions:

1. Define python library
2. What is the role of PD function in python.
3. Define various types of function parameters.
4. Define the terms actual and formal parameters.
5. Differentiate between SDF and UDF used in python.
6. What is meant by def keyword in python
7. What is the role of return statement in python functions.
8. Describe various types of parameters used in python functions.
9. What is the role local and global functions used in python.
10. Define default and list parameters in functions.

PHYSICAL EDUCATION

1. SAI KHELO INDIA YOUTH FITNESS TEST

Prepare the following details:

Introduction of Khelo India Program

Importance of Fitness Testing

List and explanation of fitness tests:

50m Speed Test

600m Run/Walk

Sit and Reach Test

Strength Test (Push-ups / Modified Push-ups)

Standing Broad Jump

Procedure of each test

Benefits of fitness assessment

2. YOGA FOR COMMON LIFESTYLE DISEASES

Prepare the following for each condition:

Diseases:

- Asthma
- Hypertension
- Obesity
- Diabetes
- Back Pain & Arthritis

For each disease include:

- Meaning / Definition
- Causes
- Symptoms
- Yoga Asanas (at least 2–3)
- Benefits of Yoga
- Picture of Asanas

3. GAME / SPORT (ANY ONE OF YOUR CHOICE)

Choose any one game (e.g., Cricket, Football, Basketball, Volleyball, etc.) and include:

- Introduction of the game
- History
- Number of players
- Field & Equipment
- Basic Rules
- Skills involved
- Important tournaments

HOME SCIENCE

(1) Write mind Maps & NCERT Question Answers of chapter 1 to 6.

(2) Complete Assignment 1 to 6.

(3) Learn and revise chapter 1 to 6.

(4) Complete Home Science file & project work according to the guidelines and sample file.

ACCOUNTANCY

Choose any Indian company.

Steps-

1. Cover page
2. Acknowledgement (name, board roll no., class section)
3. Certificate
4. Specific project 1- Ratio analysis
5. Meaning of Financial Statement Analysis and its inclusions (balance sheet, statement of profit and loss, notes to accounts, cash flow statement)
6. Meaning of Ratio analysis
7. Objectives of Ratio analysis
8. Introduction about company
9. Print out of balance sheet current year and previous year in rupees and statement of profit and loss in rupees
10. Introduction to liquidity ratios theory and formula and calculation
11. Introduction to solvency ratio theory and formula and calculation
12. Introduction to turnover ratio theory and formula and calculation
13. Introduction to profitability ratio theory and formula and calculation
14. Conclusion of company's performance as per the accounting ratios.
15. Specific project 2 cash flow statement

Paste the balance sheet and statement of profit and loss of the chosen company

Prepare handwritten cash statement along with the working notes

Prepare the graph represent the cash flow from operating activities, investing activities and financial.

Conclusion of various activities

16. Bibliography

Note- You are supposed to do entire theory work, writing the formulas in proper sequence.

Do not do the calculation of ratios leave space for that.

Work has to be done on A4 size sheets.

ECONOMICS

I- Complete the following questions in economics register.

1. Define a Budget.
2. What are the two types of taxes?
3. What are the main items of Capital Receipt?
4. What are the four different concepts of Deficits?
5. Give two examples of Developmental Expenditure.
6. Define Surplus Budget.
7. What are the two types of Revenue Receipts?
8. Define Direct taxes and Indirect taxes. Also give two examples of each.
9. Explain the three different concepts of Budget deficit.
10. Explain the objectives of the Government Budget.

II - Complete your Economics Project file as per the topics given and discussed in the class.

BUSINESS STUDIES

I. Project One: Elements of Business Environment

1. Changes witnessed over the last few years on mode of packaging and its economic impact. The teacher may guide the students to identify the following changes:
 - a) The changes in transportation of fruits and vegetables such as cardboard crates being used in place of wooden crates, etc. Reasons for above changes.
 - b) Milk being supplied in glass bottles, later in plastic bags and now in tetra-pack and through vending machines.
 - c) Plastic furniture [doors and stools] gaining preference over wooden furniture.

- d) The origin of cardboard and the various stages of changes and growth.
- e) Brown paper bags packing to recycled paper bags to plastic bags and cloth bags.
- f) Re use of packaging [bottles, jars and tins] to attract customers for their products.
- g) The concept of pyramid packaging for milk.
- h) Cost being borne by the consumer/manufacturer.
- i) Packaging used as means of advertisements

2. The reasons behind changes in the following:

Coca – Cola and Fanta in the seventies to Thums up and Campa Cola in the eighties to Pepsi and Coke in nineties.

The students may be asked to enquire about

- a) Reasons of stopping the manufacturing of the above mentioned drinks in India THEN.
- b) The introduction of Thums up and Campa cola range.
- c) Re entry of Coke and introduction of Pepsi in the Indian market.
- d) Factors responsible for the change.
- e) Other linkages with the above.
- f) Leading brands and the company having the highest market share.
- g) Different local brands venturing in the Indian market.
- h) The rating of the above brands in the market.
- i) The survival and reasons of failure in competition with the international brands.
- j) Other observations made by the students

3. Changing role of the women in the past 25 years relating to joint families, nuclear families, women as a bread earner of the family, changes in the requirement trend of mixers, washing machines, micro wave and standard of living.

4. The changes in the pattern of import and export of different Products.

5. The trend in the changing interest rates and their effect on savings.

6. A study on child labour laws, its implementation and consequences.
7. The state of 'anti plastic campaign,' the law, its effects and implementation.
8. The laws of mining /setting up of industries, rules and regulations, licences required for running that business.
9. Social factors affecting acceptance and rejection of an identified product.
(Dish washer, Atta maker, etc)
10. What has the effect of change in environment on the types of goods and services? The students can take examples like:
 - a) Washing machines, micro waves, mixers and grinder.
 - b) Need for crèche, day care centre for young and old.
 - c) Ready to eat food, eating food outside, and tiffin centres.
11. Change in the man-machine ratio with technological advances resulting in change of cost structure.
12. Effect of changes in technological environment on the behaviour of employee.

II. Project Two: Principles of Management

The students are required to visit any one of the following:

1. A departmental store.
2. An Industrial unit.
3. A fast food outlet.
4. Any other organisation approved by the teacher. They are required to observe the application of the general Principles of management advocated by Fayol.

Fayol's principles 1. Division of work. 2. Unity of command. 3. Unity of direction. 4. Scalar chain 5. Espirit de corps 6. Fair remuneration to all. 7. Order. 8. Equity. 9. Discipline 10. Subordination of individual interest to general interest. 11. Initiative. 12. Centralisation and decentralisation. 13. Stability of tenure. 14. Authority and Responsibility

OR

They may enquire into the application of scientific management techniques by F.W. Taylor in the unit visited. Scientific techniques of management.

1. Functional foremanship. 2. Standardisation and simplification of work. 3. Method study. 4. Motion Study. 5. Time Study. 6. Fatigue Study 7. Differential piece rate plan.

III. Project Three: Stock Exchange

The purpose of this project is to teach school students the values of investing and utilising the stock market. This project also teaches important lessons about the economy, mathematics and financial responsibility.

The basis of this project is to learn about the stock market while investing a specified amount of fake money in certain stocks. Students then study the results and buy and sell as they see fit.

This project will also guide the students and provide them with the supplies necessary to successfully monitor stock market trends and will teach students how to calculate profit and loss on stock.

The students are expected to:

- a) Develop a brief report on History of Stock Exchanges in India. (your country)
- b) Prepare a list of at least 25 companies listed on a Stock Exchange.
- c) To make an imaginary portfolio totalling a sum of Rs. 50,000 equally in any of the 5 companies of their choice listed above over a period of twenty working days.

The students may be required to report the prices of the stocks on daily basis and present it diagrammatically on the graph paper.

- They will understand the weekly holidays and the holidays under the Negotiable Instruments Act. They will also come across with terms like closing prices, opening prices, etc
- During this period of recording students are supposed to distinctively record the daily and starting and closing prices of the week other days under the negotiable instrument act so that they acquire knowledge about closing and opening prices.
- The students may conclude by identifying the causes in the fluctuations of prices. Normally it would be related to the front page news of a business journal, for example,
 - Change of seasons.
 - Festivals.
 - Spread of epidemic.
 - Strikes and accidents Natural and human disasters.

- Political environment.
- Lack of faith in the government policies.
- Impact of changes in government policies for specific industry.
- International events.
- Contract and treaties at the international scene.
- Relations with the neighbouring countries.
- Crisis in developed countries, etc.

The students are expected to find the value of their investments and accordingly rearrange their portfolio. The project work should cover the following aspects;

1. Graphical presentation of the share prices of different companies on different dates.
2. Change in market value of shares due to change of seasons, festivals, natural and human disasters.
3. Change in market value of shares due to change in political environment/ policies of various countries/crisis in developed countries or any other reasons
4. Identify the top ten companies out of the 25 selected on the basis of their market value of shares. It does not matter if they have made profits or losses

IV. Project Four: Marketing

1. Adhesives 2. Air conditioners 3. Baby diapers 4. Bathing Soap 5. Bathroom cleaner 6. Bike 7. Blanket 8. Body Spray 9. Bread 10. Breakfast cereal 11. Butter 12. Camera 13. Car 14. Cheese spreads 15. Chocolate 16. Coffee 17. Cosmetology product 18. Crayons 19. Crockery 20. Cutlery 21. Cycle 22. DTH 23. Eraser 24. e-wash 25. Fairness cream 26. Fans 27. Fruit candy 28. Furniture 29. Hair Dye 30. Hair Oil 31. Infant dress 32. Inverter 33. Jams 34. Jeans 35. Jewellery 36. Kurti 37. Ladies bag 38. Ladies' footwear 39. Learning Toys 40. Lipstick 41. Microwave oven 42. Mixers 43. Mobile 44. Moisturizer 45. Music player 46. Nail polish 47. Newspaper 48. Noodles 49. Pen 50. Pen drive 51. Pencil 52. Pickles 53. Razor 54. Ready Soups 55. Refrigerator 56. RO system 57. Roasted snacks 58. Salt 59. Sarees 60. Sauces/ Ketchup 61. Shampoo 62. Shaving cream 63. Shoe polish 64. Shoes 65. Squashes 66. Suitcase/ airbag 67. Sunglasses 68. Tea 69. Tiffin Wallah 70. Toothpaste 71. Wallet 72. Washing detergent 73. Washing machine 74. Washing powder 75. Water bottle 76. Water storage tank 77. Wipes

Now the students are required to make a project on the identified product/service keeping in mind the following:

1. Why have they selected this product/service?

2. Find out '5' competitive brands that exist in the market.
3. What permission and licences would be required to make the product?
4. What are your competitors Unique Selling Proposition.[U.S.P.]?
5. Does your product have any range give details?
6. What is the name of your product?
7. Enlist its features.
8. Draw the 'Label' of your product.
9. Draw a logo for your product.
10. Draft a tag line.
11. What is the selling price of your competitor's product?
 - (i) Selling price to consumer
 - (ii) Selling price to retailer
 - (iii) Selling price to wholesaler What is the profit margin in percentage to the Manufacturer. Wholesaler. Retailer
12. How will your product be packaged?
13. Which channel of distribution are you going to use? Give reasons for selection?
14. Decisions related to warehousing, state reasons.
15. What is going to be your selling price?
 - (i) To consumer (ii) To retailer (iii) To wholesaler
16. List 5 ways of promoting your product.
17. Any schemes for
 - (i) The wholesaler (ii) The retailer (iii) The consumer
18. What is going to be your 'U.S.P'?
19. What means of transport you will use and why?
20. Draft a social message for your label.
21. What cost effective techniques will you follow for your product.

22. What cost effective techniques will you follow for your promotion plan. At this stage the students will realise the importance of the concept of marketing mix and the necessary decision regarding the four P's of marketing.

- Product
- Place
- Price
- Promotion

On the basis of the work done by the students the project report should include the following:

1. Type of product /service identified and the (consumer/industries) process involve there in.
2. Brand name and the product.
3. Range of the product.
4. Identification mark or logo.
5. Tagline.
6. Labeling and packaging.
7. Price of the product and basis of price fixation.
8. Selected channels of distribution and reasons thereof.
9. Decisions related to transportation and warehousing. State reasons.
10. Promotional techniques used and starting reasons for deciding the particular technique.
11. Grading and standardization.

INFORMATICS PRACTICES (I.P)

I. Create a PowerPoint Presentation on Emerging Trends (AI, IoT, Blockchain, etc.)

Include the following topics: Meaning, History, Advantages, Applications/Uses, Software Involved, Types

Note: Prepare 17 – 20 slides and make effective use of all PowerPoint tools and features.

II. Create a Poster on Data Structure in Python and its uses.

III. Practice the Series and Data Frame from the assignment provided and prepare a document file.

IV. Learn and practice Chapter 1: Data Handling using Pandas.

Note: Bring your work in a clear bag.

Q1. Write the python code to display the following output using list and data series (S1):

Index	Columns
Jan	31
Feb	28
March	31
April	30
May	31
June	30

Write the output of the following commands on the basis of above data

1. S1>30
2. S1>=30
3. S1<30
4. S1==28
5. S1!=30
6. S1[S1>29]
7. S1[S1<31]
8. S1[S1==31]
9. S1[S1!=31]
- 10 S1[S1>=30]

Q2 Write the answers of the following Questions:

1. Define python library
2. What is the role of numpy library in python
3. Define various types of data structures used in python
4. Define the terms head() and Tail() in python data structures.
5. Differentiate between series and dataframe in python
6. What is meant by index values in data structures in python
7. What is the role of dataframe data in python.

8. How list can be integrated in a data structure in python
9. What is the role of data dictionary in data structure in python
10. How can user use data dictionary in data structure in python.

POLITICAL SCIENCE

Complete your project files as per the following topics allotted to you:-

Project topics:-

1. End of Bi-polarity
2. United Nations
3. Globalization
4. India's foreign policy
5. National Emergency in India
6. Party and the Party system in India
7. Indian Politics after Nehru
8. Regional aspirations in India
9. Relationship between India and Russia/ China/ Pakistan/ Bangladesh. (Any one)

Your project file must include the following:-

1. A cover page. Mention your name, class and subject on it.
2. First page should consist of your Project topic.
3. Certificate and acknowledgement
4. Index
5. Introduction
6. Explanation of the topic (Variety of Contents)
7. Conclusion
8. Bibliography

HISTORY

Complete your project files as per the following topics allotted to you:-

Project topics:-

1. The Indus Valley Civilization- Archaeological Excavations and New Perspectives
2. The History and Legacy of Mauryan Empire
3. 'Mahabharat'- The Great Epic of India
4. The History and Culture of the Vedic Period
5. The Philosophy of Guru Nanak Dev
6. A Comprehensive History of Jainism
7. Bhakti Movement- Multiple Interpretations and Commentaries
8. The Mystical Dimensions of Sufism
9. Global Legacy of Gandhian Ideas
10. Life of Women in Mughal Rural Society

Your project file must include the following:-

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