AIR FORCE SCHOOL AGRA

HOLIDAY ASSIGNMENT (23-24)

CLASS XII

PHYSICS

Suggested Investigatory Projects
(Students having odd roll number will select one investigatory project out of 4 odd serial number projects and similarly students those having even Roll number will select one project of even serial number out of 4 projects; these investigatory project file have 3 marks in board practical)
Note: To complete your project take help form Google and you tube or ask any doubt on my personal whatsapp window)

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing an LDR because of a variation in
   (a) The power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).
   (b) The distance of a incandescent lamp (of fixed power) used to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equi convex lens (made from a glass of known refractive index) and an adjustable object needle.
4. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
5. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
6. To estimate the charge induced on each one of the two identical Styrofoam (or pith)balls suspended in a vertical plane by making use of Coulomb's law.
7. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.
8. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.

All students will make one activity file in which they will write at least any 4 activities from both parts (A&B) total 8 activities.in board practicals these file have 3 marks.

Activities Part-A

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using millimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, afuse and a power source.
4. To assemble the components of a given electrical circuit.

5. To study the variation in potential drop with length of a wire for a steady current.
6. 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.

Activities Part-B

1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
2. Use of millimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe diffraction of light due to a thin slit.
6. To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
7. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

Note :THIS IS MARKING SCHEME FROM CBSE BOARD FOR PRACTICALS

Two experiments one from each section	7+7 Marks
Practical record [experiments and activities]	5 Marks
One activity from any section	3 Marks
Investigatory Project	3 Marks
Viva on experiments, activities and project	5 Marks
	30 marks

CHEMISTRY

1. All Questions of UNIT - SOLUTIONS to be done in class note book.
2. To note down the Practical's sent on Google Classroom in Practical notebook
3. To Select a topic for Chemistry Investigatory Project and collect the required materials.

ENGLISH

1. Textual Questions (Lessons and Poem done so far) to be completed in the notebook.
2. Extra Questions for practice.
3. Project File (Report Writing) to be completed during the holidays. Listen to podcasts/ Interviews/radio or TV documentary on any current topic and prepare a report ——Countering or Agreeing with the speakers.

Write a report in 800-1000 words and submit it in a *PROJECT FILE.

PHYSICAL EDUCATION

1 . All Questions of Text book
Unit 1:planning in sports
Unit 2:Make a chart of balance diet and Nutrition

HISTORY

Visit to nearby museum and make a report of 500 words related to your first a d second chapter of history book
Complete the exercise of second chapter of your history book

GEOGRAPHY

#Do map skills of first four chapters
#Do exercise of first three chapters that are taught in your class
Prepare first two chapters for your ut test

MATHEMATICS

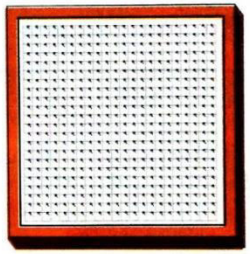
1. All Questions of Misc Ex from N C E R T and RD/ RS Book. (From Relation function, Inverse of T fns and Matrices)
2. Practical file is to be made, Material will be send in Google Class Room
(NOTEDOWN ALL THE ACTIVIES QUESTIONS IN YOUR SCHOOL NOTEBOOK)

Aim : To verify that the relation R in the set L of all lines in a plane, defined by $R = \{(l, m) : l \perp m\}$ is symmetric but neither reflexive nor transitive.

Previous Knowledge Required :

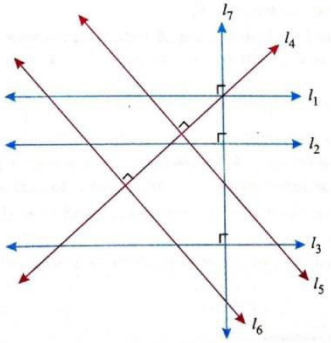
1. Knowledge of reflexive, symmetric and transitive relations.
2. Knowledge of cartesian product of two sets.

Materials Required : Geoboard, some rubber bands, white sheets, some spikes or nails or thumb pins and fevistik etc.



Geoboard : A geoboard is a square base board with an array of spikes on it as shown in figure. It can be prepared by using a wooden square base and nails. Take a wooden square base and paste a white sheet or graph paper on it of requisite size. Fix nails or spikes of thumb pins on the corners of the squares (see figure). We can make various types of geometric figures symmetric or unsymmetric on the geoboard using rubber bands or thread.

Preparation for the Activity : Take a geoboard and fix some rubber bands randomly on it, to get some lines such that some of them are perpendicular and some of them are parallel (see figure).



Here, $l_1 \parallel l_2 \parallel l_3$; $l_5 \parallel l_2$; l_4 is perpendicular to l_5 as well as l_6 and l_7 is perpendicular to l_1, l_2 and l_3.

Observations :

1. From the above figure, clearly no line is perpendicular to itself. So the given relation R is not reflexive.
2. Again, $l_1 \perp l_7$ and $l_7 \perp l_1$
   Similarly, $l_2 \perp l_7$ and $l_7 \perp l_2$
   $l_3 \perp l_7$ and $l_7 \perp l_3$
   $l_4 \perp l_5$ and $l_5 \perp l_4$
   $l_4 \perp l_6$ and $l_6 \perp l_4$
   Thus, the given relation R is symmetric.
3. Also, $l_1 \perp l_7$ and $l_7 \perp l_2 \Rightarrow l_1 \perp l_2$.
   Which is not true because l_1 is parallel to l_2.
   Thus, the given relation R is not transitive.

Result : Hence, the given relation R is symmetric but neither reflexive nor transitive.

NOTE *This activity can be used to find whether a given relation is an equivalence or not.*

Very Short Answer Type Questions

1. How many relations are possible from set A of n elements to set B of m elements ?

Sol. Number of relations from set A to set B having n and m elements $= 2^{nm}$.

2. State the reason for the relation R in the set {1, 2, 3} given by R = {(1, 2), (2, 1)} not to be transitive.

Sol. R is not transitive relation in the given set {1, 2, 3} because $(1, 2), (2, 1) \in R$ but $(1, 1) \notin R$.

3. Give an example of a relation which is symmetric but neither reflexive nor transitive.

Sol. Let set A = {a, b, c}, then the relation R = {(a, b), (b, a)} on set A is symmetric but neither reflexive nor transitive, because $(a, a) \in R$.

4. Let R be the relation defined on the set of natural numbers as $R = \{(x, y) : x \in N, y \in N$ and $x + y = 40\}$. Find the domain and the range of this relation R.

Sol. Given relation R is :

$R = \{(1, 39), (2, 38), (3, 37], ..., (39, 1)\}$

Hence, domain of R = range of R = {1, 2, 3, ..., 39}

5. Let A = {a, b, c} and the relation R be defined as : R = {(a, a), (b, c), (a, b)}, then write the minimum number of ordered pairs to be added in R to make R reflexive and transitive.

Sol. To make R reflexive, we must add (b, b) and (c, c) and to make R transitive,we must add (a, c).

Hence, the minimum number of ordered pairs to be added are (b, b), (c, c), (a, c).

Aim : To demonstrate a function which is one-one but not onto.

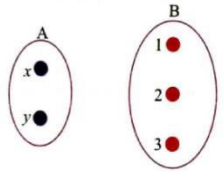
Previous Knowledge Required :

1. Knowledge of functions.
2. Knowledge of one-one function.
3. Knowledge of onto function.

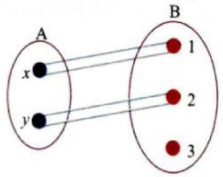
Materials Required : Cardboard, some rubber bands, white sheet, some spikes/nails/thumb pins, sketch pens, coloured sheet of paper, fevistik, geometry box etc.

Preparation / Presentation for the Activity :

1. Take a cardboard and paste two coloured strips of different colour in oval shape, label them as A and B.
2. Fix two spikes on strip A and three spikes on strip B and write the spikes as x, y and 1, 2, 3 respectively (see figure).



3. Join the spikes of the two strips with rubber bands (see figure).



4. Take the strip A as set A = $\{x, y\}$ and strip B as set B = $\{1, 2, 3\}$.

Observations :

1. The image of the element x of set A in set B is 1.
   The image of the element y of set A in set B is 2.
   Thus, the representation is one-one,as all the elements [illegible] unique image in set B.
2. The pre image of the element 3 in set B does not exist. Thus, the function is not onto.
   Hence, the above figure represents a function which is one-one but not onto.

Result : The given function is one-one but not onto.

NOTE *This activity is used to demonstrate the concept of one-one and not onto function.*

Very Short Answer Type Questions

1. Is the function $f : R \to R$ given by $f(x) = x^3$ is one-one or injective ?

Sol. Let $x_1, x_2 \in R$, such that

$f(x_1) = f(x_2)$

$\Rightarrow x_1^3 = x_2^3 \Rightarrow (x_1 - x_2)(x_1^2 + x_2^2 + x_1x_2) = 0$

$\Rightarrow x_1 = x_2$

Hence, f is one-one or injective.

2. If $f : A \to B$ is bijective function, such that $n(A) = 10$, then $n(B) = ?$.

Sol. We know that a bijective function is one-one as well as onto

$\therefore$ Range of 'f' = codomain of 'f' = B

$\therefore n(A) = n(B) = 10$

3. Let $f(x) = x^3$ be a function with domain $\{0, 1, 2, 3\}$, then find domain of f^{-1}.

Sol. Here, $f(x) = x^3$

$\therefore$ Domain of $f^{-1}(x) = \{0, 1, 8, 27\}$

4. Write the nature of the product of odd and even functions.

Sol. Here, $f(-x) = -f(x)$, odd function

and $f(-x) = f(x)$, even function.

Now, $(-f(x))(f(x)) = -(f(x).f(x))$ = odd function

5. What is the nature of an inverse of bijection function ?

Sol. Bijection.

ACCOUNTANCY

1. Additional questions given of chapter 2 of D K Goyal
2. Practical file (comprehensive problem to be solved on file papers)

Comprehensive project of Accountancy for CBSE class 12 (2022-2023)- On 1st March, 2021
Mr. Abhishek started a Furniture business in NEHRU NAGAR Mr. Abhishek invested Rs 50,00,000.

March 2 Cash deposited into the bank Rs. 30,00,000.
March 3 Goods purchased (3,000 Chairs) for cash Rs 8,00,000 at 25% trade discount.
March 4 Machinery Purchased for cash Rs.5,50,000 and installation expenses paid Rs. 50,000.
March 5 Computer Purchased paid by cheque Rs. 50,000.
March 6 Goods sold (2,000 Chairs) for Cash Rs. 7,00,000.
March 7 Carriage paid Rs. 18,000.
March 10 Goods purchased (1,000 Tables) from Dinesh & company Rs. 12,50,000 at 20% trade discount .
March 12 Goods Sold(500 Tables to Abhishek & Brother Rs.20,00,000 at 40% trade discount .
March 13 Investment purchased by cheque Rs. 2,00,000.
March 15 amount paid to Dinesh & company by cheques Rs. 4,00,000.
March 16 Furniture Purchased for office use paid by cheque Rs. 1,50,000.
March 17 Cash withdrawn for personal use Rs. 40,000.
March 18 Cheques received from Abhishek and brother Rs 8,00,000 and deposited into Bank same day.
March 19 Goods purchased (1000 Tables) from Dinesh & company Rs. 10,00,000 at 20% trade discount .
March 20 Goods sold for Cash Rs. 5,00,000.
March 21 Goods Sold (500 Chairs and 500 tables) to Abhishek & Brother Rs.10,00,000 at 20% trade discount .
March 22 Cash withdrawn from bank for office use Rs. 1,00,000.
March 23 Advertisement Expenses paid by cheque Rs. 1,20,000.
March 24 Insurance premium paid Rs. 20,000 by cheque.

March 25 Cash received from Abhishek & brother Rs 2,00,000.
March 26 Cash paid to Dinesh & company Rs. 1,50,000.
March 27 Commission Received Rs. 20,000.
March 28 wages paid Rs.15,000.
March 29 Cash withdrawn for personal use Rs. 40,000.
March 30 Salary Rs 25,000, Rent Rs. 16,000 paid by cheque.
March 31 Depreciation charge on machinery Rs. 5,0000.
March 31 Depreciation charge on Computer Rs. 2,5000.
March 31 Bank charges charged by bank Rs. 5,0000.
March 31. Interest received on investment Rs. 4,0000.

1. Journal Entries
2. Ledger
3. Trial Balance
4. Trading and Profit & Loss Account
5. Balance Sheet
5. Ratios

BUSINESS STUDIES

Case studies of chapter 1 and 2 to be solved in note book

1. Volvo Ltd.'s target is to produce 10,000 shirts per month at a cost of ₹ 100/- per shirt. The Production Manager achieved this target at a cost of ₹ 90/- per shirt. Do you think the Production Manager is effective? Give reasons in support of your answer. (1)
2. "Science is a systematised body of knowledge that explains certain general truths or the operation of general laws." In the light of this statement, describe whether management is a science. (4)
3. Sanjana is the branch manager of ABC Handicrafts Pvt. Ltd. The company's objective is to promote the sales of Indian handloom and handicraft products. Its sells fabrics, furnishings, readymades and household items made out of traditional Indian fabrics. Sanjana decides quantities, variety, colour and texture of all the above items and then allocates resources for their purchase from different suppliers. She appoints a team of designers and crafts people in the company, who developed some prints for bed covers in bright colours on silk. Although they looked very impressive, they were more expensive than they had planned to sell. Average customer could not afford to buy it. Praising their effort, Sanjana suggested that they should keep the silk bed covers for special occasions like Diwali and Christmas and offer the cotton bed covers on a regular basis to keep costs under control.
   Identify and state the functions of management which Sanjana performs by quoting the lines from the above para. (4)
4. "Coordination is the orderly arrangement of group efforts to provide unity of action in the pursuit of common purpose." In the light of this statement, explain the nature of coordination. (5)
5. H. Tech Ltd. is a company producing IT services. The company's profits are enough for the survival and growth. The management of the company believes that a satisfied employee creates a satisfied customer, who in turn creates profits that lead to satisfied shareholders. So, it pays competitive salaries and perks to all its employees. All the employees are happy working in the organisation because of personal growth and development.
   The company has a strong sense of social responsibility. It has set up an engineering college in which one-third of the students are girls to whom the company gives 50% scholarship.
   Is the management of H. Tech Ltd. fulfilling its objectives? Justify your answer by giving reasons. (6)

ECONOMICS

• Remember a well presented “Holiday Home Work‟ fetches you appreciation of the teachers and classmates.

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1. Prepare a Project file on the topic assigned to the students covering the aspects –

➢ Choose a title/topic
➢ Collection of the research material/data
➢ Headings: -

o Acknowledgement
o Index
o Cover page
o Introduction of the concept
o Analysis/explanation and interpretation
o Relevance of the topic
o History & background
o Research analysis
o Conclusion
o Credits / List of resources used / Bibliography

❖ Suggested topics are-

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·Micro and Small Scale Industries
·Food Supply Channel in India
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Contemporary Employment situation in India
·Disinvestment policy of the government
·Health Expenditure (of any state)
·Human Development Index
\ ·Inclusive Growth Strategy
·Self-help group
·Trends in Credit availability in India
·Monetary policy committee and its functions
·Role of RBI in Control of Credit
·Government Budget & its Components
·Trends in budgetary condition of India
·Exchange Rate determination – Methods and Techniques
·Currency War – reasons and repercussions
·Livestock – Backbone of Rural India
·Alternate fuel – types and importance
·Relation between Stock Price Index and Economic Health of Nation
·Minimum Wage Rate – approach and Application
·Digital India- Step towards the future
·Money and banking
.National Income

.foreign exchange
·Any other topic- from your book macroeconomics and Indian development (most recommended)

COMPUTER SCIENCE

PROGRAMS OF NOTEBOOK (SCHOOL COPY)

Q1. Write a program to accept a string and display the following:

Number of uppercase characters Numbers of lowercase characters Total number of alphabets Number of digits

Q2. Write a program to count the frequency of a character in a string.

Q3. Write a python program that reads a string and check whether it is a palindrome string or not.

input: MADAM output: Palindrome string

Q4. WAP to input any number and check whether it is found in the given List or not.

L=[40,20,10,50,60]

input n=10 output = FOUND input n=70 output = NOT FOUND

Q5. Write a python program to display the number of vowels and consonants in the given string.

Q6. Write the output of the following statements.

(i) print (len ("Corporation")) (ii) print ("school", Capitalize ()) (iii) print ("Welcome" center (15, '*'))

Q7. Write the output of the following statements.

(i) 'Python 2.3' . isalpha () (ii) 'Python Program' . is alnum () (iii) 'Python' . isupper ()

Q8. Write a program to accept a string and return a string having first letter of each word in capital.

Q9. Write a python program to display the number of vowels and consonants in the given string.

Q10. Find the output?

```
Fruit={}
f1=['Apple', 'Banana', 'apple', 'Banana']
for i in f1:
  if i in fruit:
    fruit[i]+=1
  else:
    fruit[i]=1
  print(fruit)
print(len(fruit))
```

PROGRAMS OF PRACTICAL COPY

Q1. Write a python program to sort a list using bubble sort techniques.

Q2. Write a python program to sort a list using insertion sort techniques.

Q3. Write a python program to input any string. Print the sting with their uppercase and lowercase letter reverse but the remaining characters should remain same as before.

input : Welcome To AGRa

output : wELCOME tO agrA

Q4. Write a python program to generate the Fibonacci series up to nth terms.

example

0,1,1,2,3,5,8,13,21,34……n terms

Q5. WAP to input any number and check whether it is prime number or not.

(prime number which is divisible by 1 or itself)

input = 5 output= prime number

input = 4 output= not prime number

INFORMATICS PRACTICES

PROGRAMS OF NOTEBOOK (SCHOOL COPY)

```
import pandas as pd
num = [000, 100, 200, 300, 400, 500, 600, 700, 800, 900]
id = ['A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J']
s = pd.Series(num, index=id)
```

Q1. print(s[2:4])

Q2. print(s[1:6:2])

Q3. print(s[:6])

Q4. print(s[4:])

Q5. print(s[:4:2])

Q6. print(s[4::2])

Q7. print(s[::-1])

Q8. print(s[::2])

Q9. print(s[-1:])

Q10. print(s[-6:4])

Q11. Explain Series in Pandas with example?
Q12. Explain Data Frame in Pandas with example?
Q13. Write 5 differences between the List & Series Object.
Q14. Write code to create a Series object using the Python sequence [4, 6, 8, 10]. Assume that Pandas is imported as alias name pd.
Q15. Write a program to create a Series object using three different words “I”, “am”, “laughing”.
Assume that Pandas is imported as alias name pd.

PROGRAMS OF PRACTICAL COPY

Q1. Write a program to create a Series object using a dictionary that stores the number of students in each section of class 12 in your school.
Q2. Write a program to create a Series object that stores the initial budget allocated (50000/ each) for the four quarters of the year: Qtr1, Qtr2, Qtr3 and Qtr4.
Q3. Consider the Series object s13 that stores the contribution of each section , as shown below:

A	6700
B	5600
C	5000
D	5200

Write code to modify the amount of section ‘A’ as 7600 and for section ‘C’ and ‘D’ as 7000. Print the changed object.
Q4. A Series object trdata consists of around 2500 rows of data. Write a program to print the following details:
(i) First 100 rows of data
(ii) Last 5 rows of data
Q5. Write a program to create a Series object using individual ‘o’, ‘h’, and ‘o’. Assume that Pandas is imported as alias name pd.

HINDI

1. संचार– परिभाषा, प्रक्रिया, और प्रकार।
2. समाचार – परिभाषा, तत्त्व और प्रक्रिया।
3. पत्रकारिता के प्रकार।
4. नाटक और कहानी– परिभाषा, तत्त्व और दोनों में समानता।
5. फीचर– परिभाषा, लेखन की प्रक्रिया और किसी विषय पर एक फीचर लेखन।