

SELAQUI INTERNATIONAL SCHOOL
HOLIDAY HOMEWORK
SUMMER VACATION 2019-20
(CLASS XI PURE SCIENCE)

ENGLISH

[The given assignment must be done in the English Note Book]

1. Draft the following advertisements:

- a) You are Aditya Kumar, The General Manager of The Gulmohar Tree Hotel, in Sector 55 Gurgaon. You need a front office assistant with good spoken English skills and knowledge of computers. Draft a classified advertisement for the local newspaper.
- b) You have a travel and tours company called All India Tours, MG Road Bangalore. Draft an advertisement for summer tours to places within India.

2. Write the following letters:

- a) You wish to place an order for air conditioners, water coolers, air purifiers for your office in Hauz Khas from Croma C-10, Gurudwara Rd, Nanak Pura, Rajouri Garden, New Delhi-110027 You are Sudipta Roy/ Srishti Rai the Manager of 'The Crafters' 21, Hauz Khas Market, New Delhi.
- b) Write a letter cancelling the above order. Give suitable reasons.
- c) Write a letter of complaint to the Secretary of your Resident Welfare association regarding the growing lawlessness in your colony. You are Ravi Raj/ Ravina Raj of Greenwood Colony, New Delhi.
- d) You bought sewing machines for your tailoring unit from "The Best Sewing Machine Company", 10. Nai Sarak, Chandni Chowk, Delhi. Three of those sewing machines have developed problems in functioning. Write a letter of complaint. You are Sam Sethna of The True Form Tailors, 21 Lajpat Nagar, New Delhi.

3. Write a debate in favour of or against the given topics:

- a. 'Academic advancement is the only requirement for a successful career'
- b. 'Online Smart Classes are the future of Education Methodology'

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The summer holiday assignment is as follows:

1. Make a project on King Tut in about 500 words including his achievements, challenges and mysteries unresolved about his death.
2. Select 3 articles from any English newspaper and paste them on file. Each article further will be used for making a note - making and summary writing.
3. **Write an article on any two of the following:**
 - (a) Woman empowerment and its challenges
 - (b) Achievements and failure of Indian democracy in last 6 decades.
 - (c) Role of Media in modern India: fact and lies.

PHYSICS

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SHEET – 01

1. What is the projection of $3\hat{i} + 4\hat{k}$ on the Y-axis? (1)
2. A vector of magnitude a is rotated through an angle θ . What is the magnitude of the change in the vector? (1)

3. Test by method of dimensions the correctness of the equation, $\delta = \frac{mgl^3}{4bd^3Y}$ where δ is the depression produced at the centre of a bar of length l , breadth b and depth d , placed symmetrically on two knife edges near its end and loaded in the middle of mass m and Y is the young's modulus of the material of the bar. (2)
4. Two vectors are given by $\vec{a} = \hat{i} + 2\hat{j} + 2\hat{k}$ and $\vec{b} = 3\hat{i} + 2\hat{j} + 6\hat{k}$. Another vector \vec{c} has the same magnitude as \vec{b} but has the direction as \vec{a} . Then find \vec{c} . (3)
5. A stone falls freely from rest from a height h and it travels a distance $\frac{9h}{25}$ in the last second. Find h . (3)
6. The maximum resultant of two vectors \vec{a} and \vec{b} , ($a > b$) is n times their least resultant. If θ be the angle between the vectors and their resultant be half the sum of the vectors, then show that $\cos \theta = \frac{n^2 + 2}{2(n^2 - 1)}$. (5)

SHEET – 02

1. If the unit of force is 1×10^3 N, the length is 1 km and time is 100 second, what be the unit of mass? (1)
2. Let us consider a new hypothetical system of measurement in which the unit of energy is called 'eluoj'. Suppose, in this system, the gravitational force of attraction between two particles, each of mass 1 kg, separated by 1 km is taken as a unit of force. Then, how many joule are contained in one 'eluoj'? Given: $G = 6.67 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$. (1)
3. A hypothetical experiment conducted to determine Young's modulus, gave the formula, $Y = \frac{\cos \theta T^x \tau}{l^3}$, if T = time period, τ = torque and l = length, then find the value of x . (2)
4. An important milestone in the evolution of universe after the 'Big Bang' is the Planck time t_p , the value of which depends on three fundamental constant : (a) the speed of light (the fundamental constant of relativity), $c = 3 \times 10^8$ m/sec, (b) Newton's gravitational constant (the fundamental constant of gravity), $G = 6.67 \times 10^{-11} \text{ kg}^{-1} \text{ m}^3 \text{ sec}^{-2}$, and (c) Plank's constant (the fundamental constant of quantum mechanics), $h = 6.63 \times 10^{-34} \text{ kg m}^2 \text{ sec}^{-1}$. Based on dimensional analysis, find the value of Planck time. (3)
5. In two system of units, the relation between velocity, acceleration and force is $v_2 = \frac{v_1 e^2}{\tau}$, $a_2 = a_1 e \tau$ and $F_2 = \frac{F_1}{e \tau}$, where e and τ are constants. What is the relation between mass, length and time in the two systems? (3)

CHEMISTRY

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1. Prepare a Project on **Boyle's Law: Pressure vs. Volume of a Gas at Constant Temperature.**

You need to make a **project file** with *Abstract, Objective, Background, Materials & Procedures*. You also need to bring your **model** for the project.

The details of the project can be found at https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p011/chemistry/boyles-law-pressure-versus-volume-of-a-gas-at-constant-temperature#summary

OR

2. Prepare a Project on **Charles's Law: Volume vs. Temperature of a Gas at Constant Pressure.**

You need to make a project file with Abstract, Objective, Background, and Materials & Procedures. You also need to bring your model for the project.

The details of the project can be found at

https://www.sciencebuddies.org/science-fair-projects/project-ideas/Chem_p018/chemistry/charles-law-volume-versus-temperature-of-a-gas-at-constant-pressure#summary

OR

3. You will be **Building molecular models.**

You will watch the following videos:

<https://www.youtube.com/watch?v=Ewf7RIVNBSA>

<https://www.youtube.com/watch?v=cPDptc0wUYI>

<https://www.youtube.com/watch?v=Q9-JyAEqnU>

Then make a chart on any one of the following:

<https://i0.wp.com/www.compoundchem.com/wp-content/uploads/2014/11/VSEPR-Shapes-of-Molecules.png>

<https://ch301.cm.utexas.edu/svg/vsepr.svg>

Then you will make 3 dimensional models using Styrofoam balls, construction paper and toothpicks of Linear, Trigonal Planar, Tetrahedral, Trigonal Bipyramidal & Octahedral geometries.

You need to bring the chart as well as the models.

MATHEMATICS

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Chapter 1 Sets

Concept: Representation of a set

Concepts: Different types of sets – Subsets- Power sets – Universal set – Operations on sets – Compliment of a set – Practical Problems.

Text book questions

Ex: 1 Questions 3, 4, 5

Ex: 2 Questions 1, 2

Ex: 3 Questions 4, 5, 6, 7

Ex: 4 Questions 4, 6, 9

Ex: 5 Questions 4, 5

Misc.Ex: Questions 8, 9, 11, 15, 16

Example Question: 34

Note: * Important

** Very Important

Extra/HOT questions

1. Write the following sets in set builder form

I) $\{1/4, 2/5, 3/6, 4/7, 5/8\}$

II) $\{\dots, -5, 0, 5, 10, \dots\}$

III) $\{-4, 4\}$

2. Let A, B and C are three sets then prove the following:

i) $A - (A \cap B) = A - B$

ii) $(A - B) \cup (B - A) = (A \cup B) - (A \cap B)$

iii) $A - (B \cap C) = (A - B) \cup (A - C)$

iv) $A \cap (B - C) = (A \cap B) - (A \cap C)$

3. Draw Venn diagrams for the following sets:

i) $(A - B) \cap A$

ii) $(A \cap B \cap C)'$

iii) $(A \cap B)'$ if $A \subset B$

iv) $(A - B) \cap (A \cup B)$

v) $(A \cap B)'$ if A and B are disjoint sets

- vi) $(A \cup B \cup C)'$
vii) $(A - B) \cup (A \cap B)$

4. In a survey of 100 students, the number of students studying the various languages were found to be English only 18, English but not Hindi 23, English and Sanskrit 8, English 26, Sanskrit 48, Sanskrit and Hindi 8, Number of no language 24. Find
- How many students were studying Hindi?
 - How many students were studying English and Hindi
- [Ans:18,3]

5. In a survey of 25 students it was found that 15 had taken Maths, 12 had taken Physics and 11 had taken Chemistry, 5 had taken Maths and chemistry, 9 had taken Maths and Physics, 4 had taken Physics and Chemistry and 3 had taken all the three subjects. Find the number of students that had taken:
- Only Chemistry
 - Only Maths
 - Only Physics
 - Physics and Chemistry but not Maths
 - Maths and Physics but not Chemistry
 - Only one of the subject
 - At least one of the subjects
 - None of the subjects
- [Ans:3, 4, 2, 1, 6, 11, 23, 2]

6. Of the members of three athletic team in a certain school, 21 are in the Basketball Team, 26 in the Hockey team and 29 in the Football team. 14 play hockey and basketball, 15 play hockey and football, 12 play football and basketball and 8 play all the three. How many members are there in all?
- [Ans:43]

7. In a survey of 100 persons it was found that 28 read magazine A, 30 read magazines B, 42 read magazines C, 8 read magazines A & B, 10 read magazine B&C and 3 read all the three. Find:
- How many read none of the magazines?
 - How many read magazines C only?
 - How many read magazine A only?
 - How many read magazines B & C but not A ?
- [Ans:18,32,13,0]

8. Let A and B be two finites sets such that $n(A) = m$ and $n(B) = n$. If the ratio of number of elements of power sets of A and B is 64 and

$n(A) + n(B) = 32$. Find the value of m and n .

[Ans:19, 23]

9. In a survey of 400 students of a school, 100 were listed as smokers and 150 as chewers of Gum, 75 were listed as both smokers and gum chewers. Find out how many students are neither smokers nor gum chewers. [Ans:225]

10. In a university out of 100 teachers, 15 like reading newspapers only, 12 like learning computers only and 8 like watching movies only on TV in the spare time. 40 like reading news papers and watching movies, 20 like learning computer and watching movies, 10 like reading news paper and learning computer, 65 like watching movies. Draw a Venn diagram and show the various portions and hence evaluate the numbers of teachers who:

- i) Like reading newspapers
- ii) Like learning computers
- iii) Did not like to do any of the things mentioned above. [62, 39, 1]

PHYSICAL EDUCATION

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The summer holiday assignment is as follows:

Make a Record File which shall include

Practical-1: Labeled diagram of 400 M Track & Field with computations.

Practical-2: Computation of BMI from family or neighborhood & graphical representation of the data.

Practical-3: Labeled diagram of field & equipment of any one game of your choice out of the list mentioned in the CBSE curriculum.

Practical-4: List of current National Awardees (Dronacharya Award, Arjuna Award & Rajiv Gandhi Khel Ratna Award)

Practical-5: Pictorial presentation of any five Asanas for improving concentration

COMPUTER SCIENCE

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WRITE ALL THESE PROGRAMS IN A PRACTICAL FILE

1. **Write a simple python program in a Text Editor to print "Hello world".**
2. Write a simple python program to assign same value to multiple variables.
3. Write a simple python program to assign multiple values to multiple variables.
4. Write a simple python program using single line comment and multiline comment.
5. Write simple python program to get input from the user interactively using the built-in function input ().
6. Write a simple python program to get the input from the user and use int () or float () function with the read value to change the type.
7. Write a python program to print the area of a circle of radius 3.75 meters.
8. Write a simple python program to obtain three numbers and print their sum.
9. Write a simple python program to obtain length and breadth of a rectangle and calculate the area.
10. To obtain temperatures of 07 days and then display average temperature of the week.
11. **WAP to find no is -ve or +ve**
12. WAP to find no is even and odd
13. WAP to find given year is leap year or not
14. Write a program to compute area of square and triangle
15. WAP to display age is greater than 18 or not 7. Write a program to compute simple interest.
16. WAP to find Person is senior citizen or not, input age
17. WAP to find which no is greater no in 2 numbers
18. WAP to find which no is lowest no in 2 numbers
19. WAP to find which no is greater no in 3 numbers
20. WAP to check whether a number is divisible by 5 and 11 or not.
21. Take an integer input N from the user. Print N Fibonacci numbers. Recall that Fibonacci series progresses as 0 1 1 2 3 5 8...
22. Take an integer input N from the user. Find Factorial of N and print it .
23. Print first 10 prime numbers.
24. Take an integer input N from the user. Print the table of N.
25. WAP to check whether the given number is palindrome or not.