# SAINIK SCHOOL CHITTORGARH

## Autumn VACATION HOLIDAY HOMEWORK

| INFORMATION | |
|---|---|
| **SUBJECT NAME: Mathematics** | **CLASS & SECTION: Class XI A & B** |
| **SUBJECT TEACHER NAME: Rakesh Rampuria & Manish Jain** | |

**INSTRUCTIONS:**

**1.** Use separate Note book for Mathematics.

**2.** Writing should be very neat and clean.

**3.** Do all work with date & day.

**4.** Introduce yourself (Name of cadet, School No, Class & Section)

**5.Compulsory to attempt all Project Work in Lab Manual/Record file.**

## ASSIGNMENT

### CHAPTER 1 : SETS

**Q.1.** List all the elements of the following sets:

$$b = \left\{x : x = \frac{1}{2n-1}, 1 \leq n \leq 5\right\}$$

**Q.2.** Write the set $\left\{\frac{1}{2}, \frac{2}{5}, \frac{3}{10}, \frac{4}{17}, \frac{5}{26}, \frac{6}{37}, \frac{7}{50}\right\}$ in the set-builder form.

**Q.3.** In a group of 950 persons, 750 can speak Hindi and 460 can speak English. Find:

i. How many can speak both Hindi and English.

ii. How many can speak Hindi only.

Iii how many can speak English only

**Q.4.** A survey of 500 television viewers produced the following information;285 watch football, 195 watch hockey, 115 watch basketball, 45 watch football and basketball, 70 watch football and hockey, 50 watch hockey and basketball, 50 do not watch any of the three games. How many watch all the three games? How many watch exactly one of the three games?

**Q.5.** For any two sets A and B, prove the following:

$A \cap (A \cup B') = \phi$

**Q.6.** Prove that: $(A \cup B) \times C = (A \times C) = (A \times C) \cup (B \times C)$

Q.7. Let A and B be sets. If $A \cap X = B \cap X = \Phi$ and $A \cup X = B \cup X$ for some set X,show that A = B.

Q.8. Using properties of sets show that (i) $A \cup (A \cap B) = A$ (ii) $A \cap (A \cup B) = A$.

## CHAPTER 2: RELATIONS AND FUNCTIONS

**Q.9.** Determine the domain and range of the relation R defined by R= {(x, x3): x is a prime number less than 10}

**Q.10.** Let A= {1, 2, 3,….,14}. Define a relation on a set A by R= {(x, y): 3x – y = 0, where x, y A}. Depict this relationship using an arrow diagram. Write down its domain, co-domain and range.

**Q.11.** If $R = \{(x, y) : x, y \in Z, x^2 + y^2 \leq 4\}$ is a relation defined on the set Z of integers, then write domain of R.

**Q.12.** If R is a relation from set A = {11, 12, 13} to set B = {8, 10, 12} defined by y = x − 3, the write $R^{-1}$.

**Q.13.** If A = {1, 2}, form the set A x A x A.

**Q.14**. Find the domain and range of the following real function:

**(i)** $f(x) = -|x|$

**(ii)** $(x) = \sqrt{9 - x^2}$

**Q.15**. Define a relation R on the set **N** of natural numbers by R = {($x$, $y$): $y = x + 5$, $x$ is a natural number less than 4; $x$, $y \in$ **N**}. Depict this relationship using roster form. Write down the domain and the range.

Q.16. Let $f$ be the subset of **Z** × **Z** defined by $f$ = {($ab$, $a + b$): $a$, $b \in$ **Z**}. Is $f$ afunction from **Z** to **Z**: justify your answer.

Q.17. Let A = {a, b}. List all relations on A and find their number.

## CHAPTER 3 : TRIGONOMETRIC FUNCTIONS

**Q.18.** Convert 40° 20′ into radian measure.

Q.19. Find the radius of the circle in which a central angle of 60° intercepts an arc of length 37.4 cm. (use $\pi = 22/7$ ).

Q.20. If the arcs of the same lengths in two circles subtend angles 65°and 110° at the centre, find the ratio of their radii.

Q.21. If cos x = – 3/5 , x lies in the third quadrant, find the values of other five trigonometric functions.

Q.22. Find the value of cos (–1710°).

Q.23. Prove that : $\frac{\sin(x+y)}{\sin(x-y)} = \frac{tanx + tany}{\tan x - tany}$

Q.24. Show that tan 3 x tan 2 x tan x = tan 3x – tan 2 x – tan x

Q.25. Prove that : $\cos\left(\frac{\pi}{4} + x\right) + \cos\left(\frac{\pi}{4} - x\right) = \sqrt{2}\, cosx$

Q.26. Prove that : $cos^2 x + \cos^2\left(x + \frac{\pi}{3}\right) + \cos^2\left(x + \frac{\pi}{3}\right) + \cos^2\left(x - \frac{\pi}{3}\right) = \frac{3}{2}$

**Q.27. Prove that :** $\cos 6x = 32\cos^6 x - 48\cos^4 x + 18\cos^2 x - 1$

## CHAPTER 4 : COMPLEX NUMBERS AND QUADRATIC EQUATIONS

Q.28 If $(a + ib)(c + id)(e + if)(g + ih) = A + iB$, then show that

$(a^2 + b^2)(c^2 + d^2)(e^2 + f^2)(g^2 + h^2) = A^2 + B^2$

Q.29 Find the number of non-zero integral solutions of the equation $|1 - i|^x = 2^x$

Q.30 If $(x + iy)^3 = u + iv$, then show that $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$

## CHAPTER 5 : LINEAR INEQUALITIES

Q.31 A solution of 8% boric acid is to be diluted by adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid. If we have 640 litres of the 8% solution, how many litres of the 2% solution will have to be added?

Q.32 A manufacturer has 600 litres of a 12% solution of acid. How many litres of a 30% acid solution must be added to it so that acid content in the resulting mixture will be more than 15% but less than 18%?

Q.33 Solve the system of inequalities: $3x - 7 < 5 + x$ ; $11 - 5x \leq 1$ and represent the solutions on the number line.

## CHAPTER 6 : PERMUTATIONS AND COMBINATIONS

Q.34 Find the number of arrangements of the letters of the word INDEPENDENCE. In how many of these arrangements, (i) do the words start with P (ii) do all the vowels always occur together (iii) do the vowels never occur together (iv) do the words begin with I and end in P?

Q.35 Find the number of words with or without meaning which can be made using all the letters of the word AGAIN. If these words are written as in a dictionary, what will be the $50^{th}$ word?

Q.36 How many numbers greater than 1000000 can be formed by using the digits 1, 2, 0, 2, 4, 2, 4?

## CHAPTER 7 : BINOMIAL THEOREM

Q.37 Find the expansion of $(3x^2 - 2ax + 3a^2)^3$ using binomial theorem.

Q.38 Expand using Binomial Theorem $(1 + \frac{x}{2} - \frac{2}{x})^4$ , $x \neq 0$.

Q.39 If a and b are distinct integers, prove that $a - b$ is a factor of $a^n - b^n$, whenever n is a positive integer.

## CHAPTER 8 : SEQUENCES AND SERIES

Q.39 Find the 20th term of the series $2 \times 4 + 4 \times 6 + 6 \times 8 + ...$ + n terms.

Q.40 If a, b, c, d are in G.P, prove that $(a^n + b^n)$, $(b^n + c^n)$, $(c^n + d^n)$ are in G.P.

Q.41 Let S be the sum, P the product and R the sum of reciprocals of n terms in a G.P. Prove that $P^2R^n = S^n$.

Q.42 A person writes a letter to four of his friends. He asks each one of them to copy the letter and mail to four different persons with instruction that they move the chain similarly. Assuming that the chain is not broken and that it costs 50 paise to mail one letter. Find the amount spent on the postage when 8th set of letter is mailed.

# PROJECT-WORK

**Activity -1** To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is $2^n$ .

**Activity -2** To verify that for two sets A & B, n(A XB ) = pq and the total number of relations from A to B is $2^{pq}$ , where n(A) = p and n(B) = q

**Activity -3** To represent set theoretic operations using Venn diagrams.

**Activity - 4** To verify distributive law for three given non-empty sets A, B and C, that is $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

**Activity- 5** To identify a relation and a function.

# SAINIK SCHOOL CHITTORGARH

## AUTUMN VACATION HOLIDAY HOMEWORK

| SUBJECT NAME | |
|---|---|
| CLASS & SECTION: XI A & B | SUBJECT TEACHER NAME: MRS. POOJA SINGH SISODIA |
| INSTRUCTIONS: **Cadets are required to do this assignment using their creativity and add relevant pictures on A4 size sheet and compile it in a file or make a digital project on the given topic.** | |

## ASSIGNMENT

**Chapter- Mother's Day**

**Content: Prepare a short video on the theme 'My Mother's life Journey: A Day in reflection. '**

**Objective: To appreciate the role of mothers by documenting and analyzing their daily responsibilities and life journey, while also strengthening empathy and expression.**

**Project Description: Cadets are required to prepare a short video presentation on the theme 'A Day in My Mother's Life.'**

**Guidelines:**

**a) Document a typical day in your mother's life and interview her about childhood, teenage years, education, friends, career etc.**
**b) Draft interview questions in advance.**
**c) Record the video using a mobile phone.**
**d) Edit with captions and background music using your creativity.**
**e) Conclude the video by expressing your bond with your mother.**

**Note:- This project is a part of internal assessment. E-mail your assignment on the id: poojexamination@gmail.com**

**Or**

**Poem: Father to Son – Elizabeth Jennings**

**Title of the Project: Bridging the Gap – A Reflection on Father to Son**

**Objective: To understand the central idea of the poem Father to Son by exploring the generational communication gap between parents and children and to encourage reflection on family relationships through creative expression.**

**Project Description: Cadets are required to compile a project file on the theme 'Bridging the Gap.' The project should highlight the ideas presented in the poem Father to Son while also**

**connecting them with real-life experiences.**

**<u>Guidelines for the Project File</u>:**

**1. Cover Page – Title, Cadet's details, relevant illustration.**
**2. Introduction – Note on poet Elizabeth Jennings and summary of the poem.**
**3. Central Idea of the Poem.**
**4. Themes and Poetic Devices.**
**5. Research Component – Interview with father/father figure (6–8 questions).**
**6. Creative Expression – Self-composed poem/article along with a photograph or drawing reflecting your bond with your father.**
**7. Conclusion – Student's reflection on learning.**
**8. Bibliography – NCERT, internet sources, personal interview.**

**<u>Note:</u> This project is a part of Internal Assessment. Submit your project file on 5th November, 2025**.

# SAINIK SCHOOL CHITTORGARH

## AUTUMN VACATION HOLIDAY HOMEWORK 2025-26

| SUBJECT NAME- BIOLOGY | |
|---|---|
| **CLASS & SECTION: XI B** | **SUBJECT TEACHER NAME: MANJIT SINGH** |

**INSTRUCTIONS:**

**1.** Make a separate note book for the HW

1. Define vital capacity. What is its significance?

2. Write a note on the mechanism of breathing.

3. What are the major transport mechanisms for CO2? Explain.

4. Name the major site where RBCs are formed.

5. Which part of the heart is responsible for initiating and maintaining its rhythmic activity?

6. What is specific in the heart of crocodiles among reptilians?

7. What physiological circumstances are responsible for erythroblastosis foetalis?

8. What is the significance of the hepatic portal system in the circulatory system?

9. Given below are the abnormal conditions related to blood circulation. Name the disorders.

a) Acute chest pain due to failure of oxygen supply to heart muscles.
b) Increased systolic pressure.

10. What are the main processes of urine formation?
11. Show the structure of renal corpuscles with the help of a diagram.
12. Distinguish between skeletal muscle and cardiac muscle.
13. Where does the selective reabsorption of Glomerular filtrate take place?
14. What is the role of sebaceous glands?
15. Why is a haemodialysis unit called an artificial kidney?
16. Draw a labelled diagram showing the reabsorption and secretion of major substances at different parts of the nephron.
17. . State the functions of the following in blood.
a) Fibrinogen
b) Globulin
c) Neutrophils
d) Lymphocytes
18. What is the importance of plasma proteins?
19. Name the components of the formed elements in the blood and mention one major function of each.
20. Why is SA Node termed as Pacemaker?

(MANJIT SINGH)
PGT BIOLOGY

**SAINIK SCHOOL CHITTORGARH**

**AUTUMN VACATION HOLIDAY HOMEWORK**

**SUBJECT:** COMPUTER SCIENCE (083) | **CLASS & SECTION :** XI-A

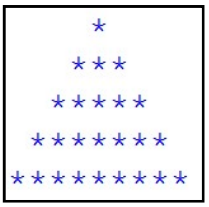
**SUBJECT TEACHER:** MR ABHISHEK BHARDWAJ

**INSTRUCTIONS**

*(i) Do your homework by yourself.*
*(ii) Use same notebook for holiday homework.*
*(iii) Don't use computer to find the output of a program.*
*(iv) Answers should be neat & clean with concepts.*
*(v) Do all work with date & day.*
*(vi) Try to do your written work regularly to enhance your writing power.*
*(vii) Pay special attention towards your health and caring.*
*(viii) Completed Homework notebook to be submitted on* **07 Nov 2025** *positively.*
*(ix) In case of any difficulty please mail me at* **ssccomputerscience@gmail.com**

## Chapter 9 : Flow of Control

1. Explain 'for' loop and 'while' loop with the help of syntax and example.
2. WAP in Python to print whether a given **3** digits number is **Armstrong Number**?
3. WAP in Python to print table of a given number using 'for' loop.
4. Write a program in Python to print Stars '*' in Pyramid Shape given below.




**Dry Run & Find the Outputs of the following programs**

5.
```
count = 1
while count <= 5:
    print(count)
    count = count + 1
```

6.
```
num = 1
while True:
    print(num)
    if num == 3:
        break
    num = num + 1
print("Loop finished.")
```

7.
```
n = 5
total_sum = 0
counter = 1
while counter <= n:
    total_sum += counter
    counter += 1
print(f"Sum of numbers from 1 to {n} is: {total_sum}")
```

# SAINIK SCHOOL CHITTORGARH

## AUTUMN VACATION HOLIDAY HOMEWORK

| SUBJECT NAME | |
|---|---|
| **CLASS & SECTION: XI** | **SUBJECT TEACHER NAME: Mr GYANESHWAR SINGH** |
| **INSTRUCTIONS:** Write the balanced chemical equations if possible in the question. | |

## ASSIGNMENT

### CHAPTER 1: Some Basic Concepts of Chemistry

**1.** State and explain Avogadro's Law.

**2.** Express 0.005 in scientific notation.

### CHAPTER 2: Structure of Atom

**1.** Derive de Broglie equation.

**2.** Calculate the mass of photon with wavelength 3.6 $A^o$

### CHAPTER 3: Classification of Elements and Periodicity in Properties

**1.**Why do noble gases have low melting and boiling points?

**2.** Reactivity of halogens decreases down the group. Why?

### CHAPTER 4: Chemical bonding and Molecular Structure

**1.**Draw the structure of $COCl_2$ , on the basis of hybridisation.

**2.**Why is $BF_3$ electron deficient?

### CHAPTER 5: Chemical Thermodynamics

**1.** Define Gibbs energy. Give its mathematical expression. What is Gibbs energy criteria for spontaniety.

**2.** Give brief notes – (a) Standard enthalpy of combustion (b) Standard enthalpy of formation

### CHAPTER 7: Redox Reactions

**Complete the following redox reaction and balance:**

**1.** $Cu^{2+} + I^- \text{ -----}\rightarrow$

**2.** $H_2SO_3 + H_2O_2 \text{ -----}\rightarrow$

PROJECT WORK: Complete the project file on the topic assigned to the cadets individually in the class.

*Note*: Kindly allocate the required number of questions.*

# SAINIK SCHOOL CHITTORGARH

## WINTER VACATION HOLIDAY HOMEWORK-2025-26

| INFORMATION | |
|---|---|
| **SUBJECT NAME:** PHYSICS | **CLASS & SECTION: XI (A,B,)** |
| **SUBJECT TEACHER NAME: Mr Onkar Singh, Mr Bhandarkar C L** | |
| **INSTRUCTIONS: Please prepare file in support of model.**<br>**Use your own creativity.**<br>**Marks for projects will be counted for annual assesment.** | |

## ASSIGNMENT

**CHAPTER 1:UNITS AND MEASUREMENT**

**Content 1.** Find the Dimensions of Latent Heat and Specific Heat.

**Content 2.** . Write the number of significant figure in 0.000345.

**Content 3.** Write the advantages and disadvantages of SI. system of units.

**Content 4.** State the SI unit of solid angle and define it.

**Content 5.** Explain why dimensional analysis can be used to rule out incorrect physical formulae.

**Content 6.** Perform a dimensional analysis on the formula for the time period of a simple pendulum and derive it

**CHAPTER 2:MOTION IN ASTRAIGHT LINE**

**Content 1.** A boy on a stationary lift throws a ball upwards. Calculate the time for the ball to return to his hands. What happens if the lift starts moving upwards with a uniform speed?

**Content 2.** A stone is dropped from the top of a cliff and found to travel 44.1m before diving at the last second. What is the cliff's height? (g = 9.8m/s2)

**Content 3.** A balloon is ascending at the rate of 4.9m/s. A pocket is dropped from the balloon when situated at a height of 245m. How long does it take the packet to reach the ground? What is its final velocity?

**Content 4.** Establish the relation $S_N = u + a/2\ (2n- 1)$ , where the letters have their usual meanings

**CHAPTER 3:Motion in a Plane**

**Content 1.** Find unit vector parallel to the resultant of the vector A= 2i +3j+4k and B= 3i+5j+k.

**Content 2.** Derive the expression for the velocity and acceleration of the object for uniform circular motion?

**Content 3.** A particle is moving along a straight line and its position is given by the relation $x= t^3 -6t^2 -15t +40$

Find

a) The time at which velocity is zero.

b) Position and displacement of the particle at that point.
c) Acceleration

**Content 4.** What is a projectile? Show that its trajectory is a parabola and derive its time of flight and horizontal range.

**Content 5.** A stone is thrown vertically upward and then it returns to the thrower. Is it a projectile? Explain

**CHAPTER 4: LAWS OF MOTION**

**Content 1.** A shell of mass 0.020 kg is fired by a gun of mass 100 kg. If the muzzle speed of the shell is 80ms−1, what is the recoil speed of the gun?

**Content 2.** Why does a cyclist lean to one side, while going along curve? In what direction does he lean?

**Content 3.** An elevator weighs 3000 kg. What is its acceleration when the tension supporting cable is 33000 N. Given that g=9.8 $ms^{-2}$

**Content 4.** Derive the expression for the force required to keep a body in circular motion.

**Content5.** A constant retarding force of 50N is applied to a body of mass 20kg moving initially with a speed of 15ms−1. How long does the body take to stop?

**CHAPTER 5: WORK, ENERGY,POWER**

**Content 1.** Define work, kinetic energy, and potential energy. State the work-energy theorem.

**Content 2.** Calculate the work done by a variable force.

**Content 3.** Explain the difference between elastic and inelastic collisions.

**Content 4.** What is the minimum velocity required to looping the vertical circle to a body? Derive an expression for the same.

**Content5.** Which Is physical quantity conserved in inelastic collision?

**CHAPTER 6: SYSTWEM OF PARTICALS & ROTATIONAL MOTION**

**Content 1.** Define moment of inertia. What factors affect it?

**Content 2.** Explain the conditions for rotational equilibrium.

**Content 3.** State and derive the formula for the torque acting on a rotating body.

**Content 4.** What is angular momentum? State the law of conservation of angular momentum.

**Content5.** Compare the rotational motion of a body with its linear motion.

**CHAPTER 7: GRAVITATION**

**Content 1**. At what height above the earth's surface value of acceleration due to gravity reduced to one fourth of its value on the earth's surface?

**Content 2.** What is gravitational potential? Derive an expression for the same?

**Content 3.** Name two factors which determines whether a planet has an atmosphere or not?

**Content 4.** What will be the weight of 1 quintal body if it taken to the height of 1600 km above the sea level?($R_{earth}$= 6400km)

**Content5.** Assuming the earth to be a sphere of uniform mass density, how much would a body weigh half way down to the centre of the earth if it weighted 250 N on the surface?

***** PREPARE AT LEAST ONE MODEL/PROJECT FROM THE FOLLOWING: -**

**1.** Hydraulic lift, hydraulic crane based on Pascals law.

**2.** Prepare a model visualizing circular motion in a vertical plane

**3.** Prepare model showing relation between centripetal force and the speed.

4. Show the types of flow of liquid—streamline ,turbulent etc.
(visit www.balesville.k12.in.us)

5.Using centre of mass concept making toy, lining tower.

(**YOU MAY PREPARE MODEL/PROJECT OF UR CHOICE RELAVANT TO PHYSICS XI CLASS LEVEL.)MARKS WILL BE GIVEN FOR ANNUAL ASSESMENT.**

**SAINIK SCHOOL CHITTORGARH**
**CLASS XI-B, A (2025-26)**
**PHYSICS PROJECT LIST**

**Prepare a working model or project assigned and file it in the following format –**
**1. Certificate 2. Material/Components 3. Working principle 4. Circuit diagram 5. Conclusion 6. Application 7. References.**

| SER | SCH NO | PROJECT WORK |
|---|---|---|
| 1 | 5990 | To make a toy based on centre of mass concept. |
| 2 | 5994 | Using Pascal's law construct hydraulic break. |
| 3 | 5997 | Using Pascal's law construct Hydraulic bridge |
| 4 | 6003 | Using Pascal's law construct Lemon cutter machine. |
| 5 | 6007 | Use Bernoulli's principle and construct a one model |
| 6 | 6012 | Water sprinkler machine using centrifugal force principle. (fan pipe) |
| 7 | 6022 | Effect on spring constant when springs r connected in series and parallel. Construct a model |
| 8 | 6038 | Demonstrate with model why we cannot feel motion of the earth. |
| 9 | 6039 | Study the motion of spinning top and rolling ball on the inclined plane, compare their motion, write your conclusion and observations. |
| 10 | 6040 | Conservation of energy- (Hanging balls, thread and clamp) |
| 11 | 6042 | Using Pascal's law construct a Hydraulic lift. |
| 12 | 6052 | How the gear box of car works, construct small gear model. |
| 13 | 6053 | Construct the model and show that pressure does not depend upon the shape of the container. |
| 14 | 6057 | Show with the help of experiment that time period of simple pendulum does not depends upon mass of the body attached to it. |
| 15 | 6061 | Using Pascal's law construct a model Boom gate/barrier gate for our school gate |
| 16 | 6068 | Construct the model showing rocket propulsion using electric motor etc. |
| 17 | 6073 | Study the rotation effect on changing the axis of rotation by making simple model using DC motor. |
| 18 | 6076 | To make floor cleaning machine using foam, DC motor, CD etc. |
| 19 | 6077 | How the changing centre of gravity changes the time period of simple pendulum. (Use Ball water, thread, ) |
| 20 | 6086 | How to increase water tap flow pressure using simple plastic bottle before tap. |
| 21 | 6088 | Projectile has maximum range at 45-degree construct model using small toy gun, or injection, protector. |
| 22 | 6090 | How the spray bottle works (Atomizer), write principle used its working and model. |
| 23 | 6096 | Demonstrate the regelation property of ice. |
| 24 | 6100 | Understanding surface tension by soap bubble and water drop. Compare the pressure inside two. |
| 25 | 6102 | Exploring surface tension with soap-powered boat |
| 26 | D-122 | Resonance with coupled pendulum (Use u-tube,Ref: wilburforce& double pendulums demonstrate) |

**-------CLB.**

## PHYSICS PROJECT-CLASS-XI-A

**Prepare a working model or project assigned and file it in the following format 1. Certificate 2. Material/Components 3. Working principle 4. Circuit diagram 5. Conclusion 6. Application 7.Reference/bibliography**

| SER | SCH NO | PROJECT WORK |
|---|---|---|
| 1 | 5983 | To make a toy based on centre of mass concept. |
| 2 | 5985 | Using Pascal's law construct hydraulic break. |
| 3 | 5986 | Using Pascal's law construct Hydraulic bridge |
| 4 | 5995 | Using Pascal's law construct Lemon cutter machine. |
| 5 | 6004 | Use Bernoulli's principle and construct a one model |
| 6 | 6009 | Water sprinkler machine using centrifugal force principle.(fan pipe) |
| 7 | 6015 | Effect on spring constant when connected in series and parallel. Construct a model |
| 8 | 6016 | Demonstrate with model why we cannot feel motion of the earth. |
| 9 | 6017 | Study the motion of spinning top and rolling ball on the inclined plane, compare their motion, write your conclusion and observations. |
| 10 | 6024 | Conservation of energy- (Hanging balls ,thread and clamp) |
| 11 | 6026 | Using Pascal's law construct a Hydraulic lift. |
| 12 | 6030 | How the gear box of car works. |
| 13 | 6031 | Construct the model and show that pressure does not depend upon the shape of the container. |
| 14 | 6032 | Show with the help of experiment that time period of simple pendulum does not depends upon mass of the body attached to it. |
| 15 | 6037 | Using Pascal's law construct a model Boom gate/barrier gate for our school gate |
| 16 | 6041 | Construct the model showing rocket propulsion using electric motor etc. |
| 17 | 6043 | Study the rotation effect on changing the axis of rotation by making simple model using DC motor. |
| 18 | 6045 | To make floor cleaning machine using foam, DC motor, CD etc. |
| 19 | 6046 | How the changing centre of gravity changes the time period of simple pendulum.(Use ice, thread, polythene) |
| 20 | 6047 | How to increase water tap flow pressure using simple plastic bottle before tap. |
| 21 | 6049 | Projectile has maximum range at 45 degree construct model using small toy gun, or injection, protector. |
| 22 | 6067 | How the spray bottle works, write principle used its working and model. |
| 23 | 6069 | Resonance with coupled pendulum (Use u-tube,Ref: wilburforce& double pendulums |
| 24 | 6071 | Study the rotation effect on changing the axis of rotation by making simple |
| 25 | 6074 | To make floor cleaning machine using foam, DC motor, CD etc |
| 26 | 6075 | How the changing centre of gravity changes the time period of simple pendulum Use Ball water, thread, ) |
| 27 | 6079 | How to increase water tap flow pressure using simple plastic bottle before |
| 28 | 6083 | Projectile has maximum range at 45-degree construct model using small toy gun, or injection, protector |
| 29 | 6085 | How the spray bottle works (Atomizer), write principle used its working and model |
| 30 | 6089 | Demonstrate the regelation property of ice. |
| 31 | 6095 | Understanding surface tension by soap bubble and water drop. Compare the pressure inside two. |
| 32 | D-210 | Exploring surface tension with soap-powered boat |
| 33 | D-217 | Construct the model showing rocket propulsion using electric motor etc |
| 34 | D-224 | Using Pascal's law construct hydraulic crane model |

# SAINIK SCHOOL CHITTORGARH

AUTUMN VACATION HOLIDAY HOMEWORK

| **SUBJECT NAME:** LIFE SKILLS & VALUE EDUCATION | |
|---|---|
| **CLASS & SECTION:** XI (All Sections) | **SUBJECT TEACHER NAME:** Pratibha Bishnoi |

**INSTRUCTIONS:**
Submission Date: All holiday homework must be neatly completed and submitted in the first week after the vacation.
Presentation Matters: Use neat handwriting/typing and organize your work clearly. Use a file/folder if required.
Creativity Encouraged: You are welcome to use diagrams, coloured pens, charts, or pictures to make your work more attractive and informative.
Original Work: Try to do the work independently. Avoid copying from the internet or friends.
Daily Practice: Do a little every day instead of rushing at the last moment.

**ASSIGNMENT:**

**Content 1 – Interview Task**
Interview an elder (parent, grandparent, teacher, or any respected person) about the **biggest lesson life taught them**.
Write a one-page reflection about their experience, what you learned from it, and how it can guide your own life.

**Content 2 – Self-Reflection Essay**
Write an essay on the topic: **"My Strength and My Weakness – How I Will Improve Myself."**
Discuss your key strengths, areas where you feel weak, and make a clear plan on how you will improve yourself in studies, sports, and personal life.

Be creative and honest in your work. You may also decorate your homework with drawings, slogans, or quotes.