BCM SCHOOL

Basant City, Pakhowal Road, Ludhiana

HOLIDAY HOMEWORK

"Learning never takes a vacation!"

CLASS -XI(Non-Medical)

SESSION (2025-26)

SUBJECT-PHYSICS

Do the following activities in your lab manual

1. To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.
2. To make a paper scale of given least count, e.g., 0.2 cm, 0.5 cm.
3. To determine mass of a given body using a metre scale by principle of moments.
4. To plot a graph for a given set of data, with proper choice of scales and error bars.
5. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
6. To study the variation in range of a projectile with angle of projection.
7. To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).
8. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

Do the the following assignment:

SECTION A : MULTIPLE CHOICE QUESTION

1. The dot product of two vectors is zero when

a) vectors are parallel to each other

b) vectors are perpendicular to each other

c) vectors are anti-parallel to each other

d) None of these

2. In the Projectile Motion which of these is true

a) Horizontal component of the velocity changes

b) Vertical component of the velocity remains same

c) Horizontal component of the velocity remains same

d) None of these

3. The Horizontal Range of the Projectile is maximum when angle of projection in

degree is

a) 90

b) 45

c) 60

d) 30

4.For two vectors to be collinear the angle between then

a) The Cross Product to be zero

b) The Dot Product to be zero

c) The Cross Product to be non zero

d) The Dot Product to be non zero

5. The greatest height to which a man can throw a stone is H. What will be the greatest distance upto which he can throw the stone?

a) H

b) 2H

c) 3H

d) 4H

SECTION B : SHORT ANSWERS QUESTIONS

6. State and illustrate Triangle Law of Vector Addition.

7. State with the help of two vectors that their dot product is Commutative and cross product is Anti Commutative.

8. A man in rain holds his umbrella inclined to the vertical even though the rain drops are falling vertically downwards. Why?

9. A Projectile is fired horizontally with a velocity u. Show that its trajectory is a parabola. Also obtain expressions for its Time of Flight, Horizontal Range and Velocity at any time.

10. Obtain an expression for instantaneous acceleration in terms of its rectangular components.

SECTION C : LONG ANSWER QUESTIONS

11. What is Projectile? A Projectile is fired with a velocity u making an angle Q with the horizontal. Show that its trajectory is parabola.

12. Derive an expression for the centripetal acceleration of a particle moving with a uniform speed v along a circular path of radius r. Explain how it acts along the radius towards the centre of circular path.

13. State Parallelogram Law of Vector Addition. Show that the resultant of two

vectors A and B inclined at an angle α is $(A^2 + B^2 + 2ABCos\alpha)^{1/2}$

14. Two tall buildings face each other and are at a distance of 180 m from each other.With what velocity must a ball be thrown horizontally from a window 55 m above the

ground in one building so that it enters a window 10.9m above the ground in second

building?

15. A motorboat is racing towards north at 25 km/h and the water current in that

region is 10 km/h in the direction 60 degree east of south. Find the resultant velocity.

Make a project based on the following topic(any one):

1. Projectile Motion:

Experiment Launching a projectile (e.g., a ball) and analysing its trajectory.

Analysis: Determine the range, maximum height, and time of flight using kinematic equations and graphing the trajectory.

Simulation: Use software to simulate projectile motion with different initial velocities and angles, observing the effects on range and trajectory.

Presentation: Present the experiment, simulation results, and calculations in a report, including graphs, diagrams, and explanations.

2. Circular Motion:

Experiment: Observe and analyze the motion of an object moving in a circle (e.g., a ball on a string).

Analysis: Calculate the centripetal acceleration, tangential velocity, and period of the circular motion.

Simulation: Use software to simulate circular motion with varying radii and speeds, observing the effects on centripetal force and trajectory.

Presentation Present the experiment, simulation results, and calculations in a report, including graphs, diagrams, and explanations.

3. Relative Motion:

Experiment: Observe the motion of an object relative to different observers (e.g., a boat moving on a river).

Analysis: Calculate the relative velocity of the object with respect to different observers.

Simulation: Use software to simulate relative motion with different velocities and directions.

Presentation: Present the experiment, simulation results, and calculations in a report, including graphs, diagrams, and explanations.

4. Combining Projectile and Circular Motion:

Experiment: Simulate a situation where an object is launched from a rotating platform (e.g., a rotating table).

Analysis: Analyse the projectile motion in a non-inertial frame of reference (the rotating platform) and compare it to the projectile motion in an inertial frame of reference.

Simulation: Use software to simulate this scenario, observing the effects of rotation on the projectile's trajectory.

Presentation: Present the experiment, simulation results, and calculations in a report, including graphs, diagrams, and explanations.

Subject-Chemistry

1) Revise ch -

• some basic concepts of chemistry

• atomic structure

2) Write down all NCERT questions (Do Intext and Back-exercise) of all the

three chapters in your chemistry notebook.

3) Prepare any one project on the topic prescribed by CBSE, or the topic of your

choice based on XI syllabus like -

• rusting of iron (from ch- Redox Reaction)

• electrochemical cell

• Food adulteration

• Periodic properties

• Atomic structure

SUBJECT -MATHS

Solve The Following Questions on sheets

Q.1. In a music competition, half the number of judges voted for contestant A; $\frac{2}{3}$ of them voted for contestant B; 10 voted for both and 6 did not vote for either contestant A or contestant B. Find how many judges in all, were present there.

Q.2. For any three sets A, B and C, Prove using properties of sets that

(i) A – (BUC) = (A - B) ∩ (A - C) (ii) A – (B∩C) = (A- B) U (A - C)

Q.3. If A = {x: x = 4^n – 3n – 1 and n ∈ N}, B = {y: y = 9(n – 1) and n ∈N}. Prove that A⊂ B.

Q.4. If $f(x) = \frac{a^x - a^{-x}}{a^x + a^{-x}}$, then prove the following:

(a) $f(x)$is an odd function. (b) $f(x+y) = \frac{f(x)+f(y)}{1+f(x)f(y)}$

Q.5. If f(x) = $\log\left(\frac{1+x}{1-x}\right)$, prove that f($\frac{2x}{1+x^2}$) = 2 f(x).

Q.6. Let f and g be real functions defined by f(x) = 2x + 1 and g(x) = 4x - 7

(i) for what real numbers x, f(x) = g(x)? (ii) for what real numbers x, f(x) < g(x)?

Q.7. Prove that $\left(1+\cos\frac{\pi}{8}\right)\left(1+\cos\frac{3\pi}{8}\right)\left(1+\cos\frac{5\pi}{8}\right)\left(1+\cos\frac{7\pi}{8}\right)=\frac{1}{8}$

Q.8. Find all other trigonometric ratios if $\sin\theta=\frac{-2\sqrt{6}}{5}$ and θ is in III[rd] quadrant.

Q.9. If $a\mathit{Sin}\theta=b\mathit{Cos}\theta$, then find the value of $\mathrm{Sin}\,2\theta$.

Q.10. Show that: $\sqrt{2+\sqrt{2+\sqrt{2+2\cos 8\theta}}}=2\cos\theta$

Do the following activities in your practical file:

Activity – 1: To verify that for two sets A and B, n (A×B) = pq and the total number of relations

from A to B is 2pq, where n(A) = p and n(B) = q.

Activity – 2: To represent set theoretic operations using Venn diagrams.

Activity – 3: To verify distributive law for three given non-empty sets A, B and C, that is,

A ∪ (B ∩ C) = (A ∪ B) ∩ (A ∪ C).

Activity – 4: To plot the graphs of sin x, sin2x, 2sinx and sin2x, using same coordinate axes.

Do the Following Project

Project: To prepare a model to illustrate the values of sine function and cosine function for different angles which are multiples of π andπ

Subject English Core – Project Work Guidelines (2025–26)

🔷 Objective:

To promote critical thinking, creativity, and independent learning by exploring literary texts, themes, or current social issues using language skills (reading, writing, speaking, and presentation).

✅ Project Topics

1. Book Review / Literary Analysis

Choose a novel, play, or collection of short stories or poems.

Analyze:

Plot

Characters

Themes

Style and tone

Your personal opinion

Example: “The Diary of a Young Girl” by Anne Frank or “To Sir, With Love” by E.R. Braithwaite.

2. Biographical Study

Research and write about a famous literary figure (author or poet).

Include:

Life history

Major works

Writing style

Influence on literature

Example: Rabindranath Tagore, Ruskin Bond

3. Theme-Based Project

Choose a theme like:

Gender equality

Climate change

Mental health

Technology in modern life

Collect articles, poems, short stories, and visuals related to that theme and write your reflections in 120 words

📁 Project Format:

Your project should include:

Cover Page (with title, name, roll number, class, and school)

Index / Table of Contents

Acknowledgement

Introduction

Main Content / Research / Analysis

Conclusion

Bibliography

Appendix (if needed)

📏 Presentation Guidelines:

Word limit: Around 200–250 words.

Medium: Neatly handwritten or typed

Visuals: Use pictures, graphs, or charts to enhance appeal.

Originality: Avoid copying

🎤 Oral Presentation

Be prepared to give a 3–5 minute presentation of your project in class.

Talk about what you did, what you learned, and your experience doing the project.

SUBJECT: INFORMATICS PRACTICES

1. Explain Decision making statements. Write any 3 Python programs that are suitable examples for Decision making statements.

2. Explain iterative statements. Write any 2 Python programs that are suitable examples for iterative statements.

3. Learn the topics List and Dictionary. Understand the topic and write one program each using List and Dictionary

Subject-Psychology

Dear Students,

As you head into your summer break, here are your Psychology homework instructions:

Revision Work

Please revise the following chapters thoroughly:

- Chapter 1: What is Psychology?

- Chapter 2: Methods of Enquiry in Psychology

- Chapter 3: Human Development

You will have a test based on these three chapters when school reopens, so prepare well!

Preview Work

Take a look at Chapter 4: Sensory, Attentional and Perceptual Processes

This will help you get familiar with the next topic. We will begin Chapter 4 after the summer break.

Important Note

Kindly come back after the holidays with full preparation. Make your notes, revise regularly, and enjoy your break wisely!

Wishing you a happy, healthy, and productive summer vacation! □□

See you soon!

SUBJECT : PAINTING

INSTRUCTIONS:

All Three Projects Are Compulsory.

Work should be Neat and presentable.

PROJECT 1

Make 1 Landscape sheet,1 Still-Life sheet and 1 Composition sheet on A2 sized sheet.

PROJECT 2

Make a beautiful Assignment File with pictures on any one chapter from your course of study.

PROJECT 3

Make any one hand painted JUTE BAG.

SAMPLES:-

Subject-Music

PROJECT WORK

*Students have to prepare the project file.

Guidelines for preparing file.

1.Practical file should be hand written.

2. File should be presented neatly.

Contents for project will be

1)Talas along with single, double, tigun, chogun

*TeenTala

*Ek Tala

*Char Tala

2) Ragas: Full description and Notation

*Bhairavi

*Bhimpalasi

(Paste pictures of musical instruments and Musicians)

Subject-Yoga

□□ practical File

□□Surya Namaskar

□□ Five Aasan

□□ Two Pranayam

□□ Two Bandh

□□ Two Mudra

□□ prepare a project file your favourite Asana & Pranayam

Subject-Dance

Dear Students,

As part of your summer holiday homework, please complete the following assignments related to Indian Classical Dance:

□□ Drawings on A2 Sheet

1. Draw pictures of the **8 Indian Classical Dances** on an A2 size sheet.
(Bharatanatyam, Kathak, Kathakali, Kuchipudi, Manipuri, Mohiniyattam, Odissi, Sattriya)

□□ **Please be sure it is hand-drawn only and not a printed one.**

□□ Dance Terminology Chart

2. Prepare a neat and creative chart showing the following classical dance movements:

- Shiro Bhed (Head Movements)
- Drishti Bhed (Eye Movements)
- Griva Bhed (Neck Movements)
- Asamyukt Hastmudra (Single-hand Gestures)
- Samyukt Hastmudra (Double-hand Gestures)

□□ **Make sure this chart is also completely hand-drawn and not printed.**

Make sure your work is neat, colourful, and labelled properly. Submit it on the first day after summer vacation.

Enjoy your holidays and explore the beauty of Indian Classical Dance! □□

Best wishes,

Dance Teacher

Subject-Physical education

Practical-1:

Fitness tests administration.

Practical-2: Procedure for Asanas, Benefits

& Contraindication for any five Asanas for each lifestyle disease.

Practical-3: Any one game of your choice out of the list above. Labelled diagram of field & equipment (Rules, Terminologies & Skills)

Subject-Legal Study

Unit I- Theory and Nature of Political Institutions

Chapter 1- Concept of Nation and state

1. Fill in the blanks:

a. _____ is described as society politically organized.

b. _____, in his work, An Introduction to politics, defines state as a territorial society, divided into government and subjects claiming within its allotted physical area having supremacy over other associations.

c. Primitive Australian tribes were divided into tribes known as_____.

d. Patriarchal Theory finds support from _____, who explained that the state developed out of the family as a legitimate legal system developed out of the unrestrained autocracy of the family head.

e. According to _____ theory, state is governed by God or some super human power or the king as his agent and the religious scriptures. This theory adds _____ character to state functions.

f. The literary work, Leviathan was written by_____

One mark

2. Define society.

3. What is state?

4. How does Aristotle define State?

5. Name the three proponents of Social contract Theory.

6. What is the basic premise of the Social Contract Theory?

7. Who governed the people according to Rousseau, after they entered into Social Contract?

8. What is a Modern welfare state?

9. What is the ideal type of state as viewed by modern liberals and democratic socialists?

Two Mark

10. What is the criticism of the Patriarchal and Matriarchal theories?

11. What are the five theories on the origin of State? Name the political philosophers who propounded/supported these theories.

12. What were Aristotle and Montesquieu‟s opinions on the size of the territory of a state?

Three Mark

13. Compare the state of nature as given by Hobbes and Locke.

14. What are the two types of contracts that individual entered into, according to Locke‟s social contract theory. Describe each briefly.

15. Write a short note on the concept of a nation.

Five Mark

16. Describe the social contract theory as explained by Thomas Hobbes. Why has it been criticized?

17. What are the various types of state according to their origin? Explain each briefly.

18. „Garner‟s definition of state contains all the elements of the state‟- What is the definition of state as given by Garner? What are the four elements of state? Describe each briefly.

19. Describe the classification of states according to their role.

20. Compare the social contract theory as given by Hobbes, Locke and Rousseau.