

BCM School, Basant City, Pakhowal Road, Ludhiana
Summer Break Holiday Homework (2026-27)
Grade XII Non Medical

PHYSICS

1. Assignment

An assignment consisting of 20 questions (covering all varieties of examination-based questions) will be provided.

2. Investigatory Project

Prepare a project on the allotted topic from the following:

1. The Magic of the P-N Junction: Gateway to Modern Electronics
2. Charging Up Curiosity: The Secret Life of Capacitors
3. From AC to DC: The Power of Rectifiers in Everyday Life
4. Light on a Leash: The Wonders of Optical Fibers
5. Invisible Forces at Work: Exploring the World of Electromagnetism
6. When Light Takes a U-Turn: Amazing Applications of Total Internal Reflection
7. Coils That Communicate: Discovering Self and Mutual Induction

Instructions:

The project file must consist of 15-20 pages prepared neatly in your own handwriting.

Include the following in the project file:

- Cover Page
- Acknowledgement
- Index
- Introduction
- Theory/Concept
- Diagrams/Figures
- Applications in Daily Life
- Collage
- Conclusion
- Bibliography

Use colored diagrams and proper headings wherever required.

Maintain neatness and originality in presentation.

CHEMISTRY

1. Investigatory Project Work

Prepare a detailed investigatory project on any one of the following topics:

Topics:

- Study of adulterants in food items
- Analysis of pH of different water samples
- Preparation of soap and study of cleansing action
- Study of corrosion and methods to prevent it

- Extraction of essential oils from natural sources

Project should include:

- Aim
- Introduction
- Theory
- Materials required
- Procedure
- Observations
- Result & Conclusion
- Applications
- Bibliography

Submission Format: Project File (Handwritten)

2. Infographic Assignment

Design an infographic on any one chapter:

Choose one:

- Solutions
- Electrochemistry
- Haloalkanes and Haloarenes

Must include:

- Concept map
- Key formulas
- Flowcharts/reactions
- Real-life applications

Submission Format: Digital infographic / Chart paper

3. Complete Practical files of Chemistry

4. Assignment of competency-based questions will be provided.

5. Solve NCERT questions of chapters done in class in a separate notebook.

MATHEMATICS

Dear Students,

You are hereby instructed to prepare a Mathematics Project Report on the topic allotted to you. This project is intended to enhance your conceptual understanding and connect Mathematics with real-life applications.

Each student will work on one assigned topic, and the project must reflect originality, clarity, and depth of understanding.

OBJECTIVES OF THE PROJECT

The project aims to:

- Develop a deeper understanding of mathematical concepts.

- Analyze and evaluate real-world applications of Mathematics.
- Demonstrate conceptual clarity through examples, diagrams, and explanations.
- Strengthen logical reasoning and analytical thinking.
- Improve communication and presentation skills.
- Encourage independent and self-directed learning.

GENERAL INSTRUCTIONS

- The project must be neatly handwritten.
- Submit the work in a properly labelled file/folder.
- The content should be clear, relevant, and well-organized.
- Use diagrams, graphs, illustrations, and examples wherever necessary.
- Ensure the work is original and prepared independently.
- Maintain proper margins, headings, and neat presentation throughout.

FORMAT OF THE PROJECT FILE

1. Cover Page (Name, Class, Section, Roll Number, Topic)
2. Declaration
3. Bonafide Certificate
4. Acknowledgement
5. Index (Table of Contents)
 - Content Sections
 - Objectives of the Project
 - Introduction
 - Definitions and terminology
 - Basic concepts
 - Types/Classifications (if applicable)
 - Main Content
 - Detailed explanation of the topic
 - Mathematical concepts involved
 - Examples and applications
 - Diagrams/graphs and illustrations
 - Conclusion
 - Summary of key learnings
 - Importance of the topic
 - Bibliography
 - Books, websites, references used

LIST OF PROJECT TOPICS

Students must include the following guiding points in their respective topics:

1. Periodic Motion in Amusement Rides
 - Study motion in Ferris wheels and swings
 - Graphs using sine/cosine functions
 - Concepts of amplitude and time period
2. Trigonometry in Navigation by Stars
 - Angle measurement and celestial navigation

- Finding latitude using stars
- Historical methods
- 3. Triangulation in GPS Technology
 - Concept of triangulation
 - Working of GPS systems
 - Practical applications
- 4. Trigonometry in Sundials
 - Mathematical principle of shadow and angles
 - Designing a basic sundial
 - Time calculation
- 5. Optimization of Shapes for Minimal Surface Area
 - Comparison of shapes (sphere, cylinder, cone)
 - Real-life applications in packaging
- 6. Rates of Change in Chemical Reactions
 - Concept of derivatives
 - Graphical representation
 - Examples from Chemistry
- 7. Velocity and Acceleration in Sports
 - Motion in games (cricket, athletics)
 - Graphs and real-life analysis
- 8. Volume Optimization in Product Design
 - Maximizing volume and minimizing material
 - Industrial applications
- 9. Population Growth Models
 - Linear and exponential growth
 - Graphs and real-life case studies
- 10. Prime Numbers in Cryptography
 - Properties of prime numbers
 - Application in encryption

ASSESSMENT RUBRIC (Total: 20 Marks)

Criteria	Marks	Description
Content & Conceptual Understanding	6	Accuracy, depth of concept, relevance of topic
Application & Analysis	4	Real-life connections and examples used
Presentation & Organization	4	Neatness, structure, formatting, diagrams
Creativity & Originality	3	Innovative approach, effort, independent thinking
Conclusion & Learning Outcome	2	Clarity of summary and understanding
Viva / Explanation	1	Ability to explain the project confidently

IMPORTANT NOTE

- Focus on understanding the concepts rather than copying content.
- Include relevant diagrams, graphs, and examples.
- Ensure your work reflects sincerity, creativity, and clarity.

Submission Date: Friday, 17th July, 2026

ENGLISH

FOR MAKING THE PROJECT

- The marks allotted for ASL PROJECT :10 marks (5 for Project+ 5 for Viva)
- Choose any ONE from the below given topics.
- Viva based on the project will be taken by the Internal examiner
- The portfolio of project may include all the points given in each project.
- The project must contain at least 20-25 sheets
- Use as many pictures / photographs as you require
- Use sketch pens for headings and coloured pens for content.
- Use A4 size coloured / designer paper sheets for the project and after compiling everything it should be submitted in spiral binding / Project file

NOTE: THE PROJECT SHOULD BE HANDWRITTEN PROJECT 1: PLIGHT OF OLD AGED PEOPLE

1. Index
2. Acknowledgement
3. Certificate of Completion 4.Objectives
5. About the Poetess (with photos)
6. Poetess' Personal Experience - Common Paradox of Human Relationships 7.Portrayal of Sensational Separation Between a Mother and a Daughter
8. Plight of Old Aged People : Ugly Truth About Old Age (with photos)
9. Reasons Behind the Need of Old Age Homes
10. Efforts for Stress-Free and Secured Life of Aged People
11. Visit to an Old Age Home (photos of some aged people living in such homes)
12. How to Strike a Balance Between Duties and Responsibilities of Children and Society
13. Role of Youth to Improve the Plight of Aged People. 14. Bibliography or References

PROJECT 2: INDIGO - THE EMANCIPATION OF SHARECROPPERS BY MAHATMA GANDHI

1. Index
2. Acknowledgement 3.Certificate of Completion 4 Objectives
5. About the author
6. What is Indigo Sharecropping? (Brief history)
7. Natural Indigo Harvesting and its uses (pictures)
8. Theme of Indigo
9. Role of Rajkumar Shukla
10. Summary of Indigo
11. Efforts by Gandhi to put an end to Sharecropping in Champaran
12. Gandhi as an effective leader
13. Bibliography

PROJECT 3: THE RATTRAP: ESSENTIAL GOODNESS CAN BE AWAKENED THROUGH UNDERSTANDING AND LOVE.

1. Index 2.Acknowledgement 3.Certificate of Completion. 4.Objectives
5. Author's Biography.(With Pictures)
- 6.Introduction: THEME- loneliness/ need for a bonding/ faith in humanity/ kindness/ compassion
- 7.Summary and analysis
- 8.Character sketch of major characters
- 9- The letter by Rattrap peddler- Significance 10.Bibliography or References.

PROJECT 4: A THING OF BEAUTY AND IT'S ROLE IN HUMAN LIFE

1. Index
2. Acknowledgement
3. Certificate of Completion
4. Objective
5. About author John Keats (pictures)
6. Different characteristics of nature like it's eternal ,changeless, perfect, source of true happiness, etc)(beautiful pictures of Nature)
7. Comparison of human life and Nature (1page) For example:

HUMAN	NATURE
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Change	Changeless
Mortal	Immortal
Death & \Decay	Eternal

8. Description of beautiful things in nature like

- Rivers: Symbol of excitement ,adventure ,healing, never ending supply of life...
- Sun: equality, light ,hope royalty ,divinity ,positivity power..
- Trees: lively, wisdom ,prosperity ,transformation...
- Animals: divine, moving ,growing, fertility ,happiness elegance, strength, energy wisdom....
- Flowers: purity ,hope ,beautiful, Innocence ,humility, youthful....
- Beauty of Mighty dead :Stories of Saints and sages ,their work and deeds, how they immortalized themselves

(Maximum 6 -7 pages with pictures) 9.Any 10 Central idea of -THING OF BEAUTY.

10.Bibliography or References.

PROJECT 5 :CHILD LABOUR IN INDIA (LOST SPRING}

1. Index
2. Acknowledgement
3. Certificate of Completion 4.Objective
5. Child Labour with reference to Lost spring (summary)
6. Lives of children like Saheb and Mukesh
7. Describe - Seemapuri (with pictures)
8. Hazards of Bangle making industry 9.Initiative against child labour by
9. Indian government Various NGOs
- 10.SOS Children's Village in India
- 11.The Child Labour Prohibition And Regulation Act ,1986
12. Ways to eliminate child labour Bibliography

ACKNOWLEDGEMENT

I would like to extend my sincere and heartfelt obligation towards all those who have helped me in making this project. Without their active guidance, help, cooperation and encouragement, I would not have been able to present the project on time.

I am extremely thankful and pay my sincere gratitude to my teacher__for her valuable guidance and support for completion of this project.

I also acknowledge with a deep sense of reverence, my gratitude towards my parents,

other faculty members of the school and friends for their valuable suggestions given to me in completing the project.

Date:

Place:

CERTIFICATE OF COMPLETION= CERTIFICATE

This is to certify that the project work on___based on the curriculum of CBSE has been completed by _____ of BCM SCHOOL,BASANT CITY, LUDHIANA

The above mentioned project work has been completed under my guidance during the academic year 2026-27

Signature of Teacher

PAINTING

Practical Work (Art Integrated)

Make 1 Composition on Social Theme using any medium.

Create 1 Nature Study / Landscape with perspective and colour effect.

Prepare 1 Folk Art Composition based on Indian traditional art.

Complete Still Life studies with light and shade effects.

Prepare a practical portfolio with minimum 5 completed artworks as per CBSE syllabus.

Write short notes with illustrations on any 3 Indian painters/art styles from syllabus.

Art Integrated Activity

1.1.2 Study of lines, strokes, colours,

shades, tones, textures, etc. while organizing two- dimensional space

with two dimensional and three dimensional shapes and forms Mathematics, Physics, Textile

Design, Fashion Studies

PHYISCAL EDUCATION

1. Make a Practical file

Procedure for Asanas, Benefits & Contraindication for any five Asanas for each lifestyle disease from your textbook.

2. Do the following practicals in a practical file/notebook.

Fitness tests administration for all items.

Motor fitness is a term that describes an athlete's ability to perform effectively during sports or any other physical activity.

Motor Fitness Test -

- | | |
|------------------------|------------------------------|
| 1. 50 M Standing Start | 2. 600 M Run/Walk |
| 3. Sit & Reach Test | 4. Partial Curl Up |
| 5. Push Ups (Boys) | 6. Modified Push Ups (Girls) |
| 7. Standing Broad Jump | 8. Shuttle Run (4x10 M) |

3. Fitness Through Dance : Art Integration

Combine physical fitness with dance forms.

Bhangra

Garba

Zumba

Folk dances

Project work : Prepare the project file on any sports person.

Minimum pages are 20.

MUSIC

Students have to prepare the Project file

Guidelines for preparing file

1. Practical file should be handwritten.
2. File should be presented neatly.

Contents for project will be

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

i. Dhamar Tala

ii. Roopak Tala

iii. Jhap Tala

2) Write any one life sketch

i. Ustad Faiyaz Khan

ii Krishna Rao Shankar Pandit

iii.Ustad Bade Ghulam Ali Khan.

3.Ragas: full description and notation

1.bhairav

2.malkauns

3.bageshri

(paste pictures of musical instruments and musicians)

INFORMATION PRACTICES

	Solve the given below Questions in IP Register
1)	Consider the decimal number x with value 8459.2654. Write commands in SQL to: i. round it off to a whole number ii. round it to 2 places before the decimal.
2)	Anjali writes the following commands with respect to a table employee having fields, empno, name, department, commission. Command1 : Select count(*) from employee; Command2: Select count(commission) from employee; She gets the output as 4 for the first command but gets an output 3 for the second command. Explain the output with justification.
3)	Consider the following SQL string: "Preoccupied" Write commands to display: a. "occupied" b. "cup" OR Considering the same string "Preoccupied" Write SQL commands to display: a. the position of the substring 'cup' in the string "Preoccupied" b. the first 4 letters of the string
4)	Write the output of following queries:- i. SELECT SUBSTR('Aakila', -3); ii. SELECT LEFT('Toolbar', 4);

5)	<p>Raghav writes the following commands with respect to a table Flight having Fields FLCODE, START, DESTINATION, NO_STOPS.</p> <p>Command1 : Select count(*) from FLIGHT;</p> <p>Command2: Select count(DESTINATION) from FLIGHT;</p> <p>He gets the output as 5 for the first command but gets an output 3 for the second command. Explain the output with justification.</p>
6)	<p>Write the output for following queries:</p> <ul style="list-style-type: none">i. select MOD(11,4) "Modulus", power(3,2) "Raised";ii. select CURDATE()+10; <p>OR</p> <ul style="list-style-type: none">i. select length('CORONA COVID-19');ii. select lcase('COMputer Science');
7)	<p>Consider the decimal number x with value 7459.3654. Write commands in SQL to:</p>

	<p>i) round it off to a whole number ii) round it to 2 places before the decimal.</p>
8)	<p>Shailly writes the following commands with respect to a table Employee having fields, empno, name, department, commission.</p> <p>Command1 : <i>SELECT COUNT(*) FROM EMPLOYEE;</i></p> <p>Command2 : <i>SELECT COUNT(COMMISSION) FROM EMPLOYEE;</i></p> <p>She gets the output as 7 for the first command but gets an output 5 for the second command. Explain the output with justification.</p>
9)	<p>Consider the following SQL string: "SELFMOTIVATION". Write commands to display:</p> <p>a. "MOTIVATION" b. "MOT" OR</p> <p>Considering the same string "SELFMOTIVATION". Write SQL commands to display:</p> <p>a. the position of the substring 'MOTIV' in the string "SELFMOTIVATION" b. the last 6 letters of the string</p>
10)	<p>(i) Consider a table "Employee" that have fields - empno, name, department, salary.</p> <p>Based on the above table "Employee", Manvendra has entered the following SQL command: <i>SELECT * FROM Employee where Salary = NULL;</i></p> <p>But the Query is not executing successfully. What do you suggest to him in order to execute this query i.e. write the correct query.</p> <p>(ii) Write a SQL query to display the details of those employees whose Salary column has some values.</p>
11)	<p>Consider the following SQL string: "Master Planner". Write commands to display:</p> <p>a. "Master" b. "Plan"</p> <p>OR</p> <p>Considering the same string "Master Planner". Write SQL commands to display:</p>

	<p>a. the position of the substring 'Plan' in the string "Master Planner"</p> <p>b. the Last 4 letters of the string</p>
12)	<p>What are multiple row functions? Give examples OR</p> <p>What is Group by clause? How can we specify condition with Group by clause? Explain with an example.</p>
13)	<p>Consider the following SQL string: "Mental Toughness Helps You Succeed" Write commands to display following using functions:</p> <p>a. "Toughness"</p> <p>b. "Succeed" OR</p> <p>Considering the same string: "Mental Toughness Helps You Succeed" Write SQL commands to display:</p> <p>a. the position of the substring "Helps" in the string "Mental Toughness Helps You Succeed"</p> <p>b. the first 6 letters of the string</p>

14)

Write the SQL functions which will perform the following operations:

- i) To display the name of the month of the current date .
- ii) To remove spaces from the beginning and end of a string, " Panorama " .
- iii) To display the name of the day eg, Friday or Sunday from your date of birth, dob.
- iv) To display the starting position of your first name(fname) from your whole name (name).
- v) To compute the remainder of division between two numbers, n1 and n2
OR

Consider a table SALESMAN with the following data:

SNO	SNAME	SALARY	BONUS	DATE OF JOIN
A01	Beena Mehta	30000	45.23	29-10-2019
A02	K. L. Sahay	50000	25.34	13-03-2018
B03	Nisha Thakkar	30000	35.00	18-03-2017
B04	Leela Yadav	80000	NULL	31-12-2018
C05	Gautam Gola	20000	NULL	23-01-1989
C06	Trapti Garg	70000	12.37	15-06-1987
D07	Neena Sharma	50000	27.89	18-03-1999

Write SQL queries using SQL functions to perform the following operations:

- a) Display salesman name and bonus after rounding off to zero decimal places.
- b) Display the position of occurrence of the string "ta" in salesman names.
- c) Display the four characters from salesman name starting from second character.
- d) Display the month name for the date of join of salesman
- e) Display the name of the weekday for the date of join of salesman

PSYCHOLOGY

Part A - Case Profile

Prepare one detailed Case Profile using Observation, Interview, and Psychological

Testing on the topic allotted by the teacher.

Case Profile Format:

1. Introduction to the Disorder
2. Objectives
3. Identification Data
4. Observation Report
5. Interview Schedule
6. Psychological Assessment
7. Analysis and Interpretation
8. Suggestions
9. Conclusion
10. Bibliography

Part B – Practical File

Prepare practical records of the following psychological tests:

1. The Group Test of General Mental Ability – Jalota
2. Adjustment Inventory for School Students – Sinha & Singh
3. Sinha's Comprehensive Anxiety Test – Sinha & Sinha
4. Eysenck Personality Questionnaire (EPQ-R) – Eysenck
5. Self-Concept Questionnaire – R.K. Saraswat

Format for Each Test:

- Aim
- Introduction (with relevant theory)

- Design
- Methodology
- Procedure
- Scoring
- Result
- Interpretation
- Introspective Report
- Precautions
- References

Part C - Revision Work

Revise Chapter 1 to Chapter 4 thoroughly:

1. Variations in Psychological Attributes
2. Self and Personality
3. Meeting Life Challenges
4. Psychological Disorders

Important:

A Psychology test from Chapters 1 to 4 will be taken immediately after the summer break ends. Students must revise all chapters thoroughly and come well prepared.

Instructions

- Complete all work neatly in a practical file.

- Handwritten work is compulsory.

Fine Arts

INSTRUCTIONS-

- ALL 2 Projects of Holidays H..W are compulsory.
- Work should be Presentable and neat, only presentable work should be accepted.

Project 1 -Make 1 Landscape on A2 sized sheet,2 Still -Life sheets on A2 sized sheets and 2 Composition paintings on Topic Folk art of Punjab and Odisha.

PROJECT 2-Make an Assignment file with pictures pasting on given topic(take help from theory book)-Choose any one out of three topics.

- 1.Paintings of Rajasthani school of art .
2. Paintings of Mughal school of art.
3. Paintings of Pahari school of art.

YOGA

 practical File


 Surya Namaskar

 Five Aasan

 Two Pranayam

 Two Bandh

 Two Mudra

 prepare a project file your favourite Asana & Pranayam