



MODY SCHOOL, LAKSHMANGARH
SUMMER HOLIDAY HOMEWORK
CLASS XII SCIENCE

ENGLISH CORE

EXTENDED READING BASED PROJECT:

1. Prepare a ppt on any chapter of your choice from flamingo (literature reader) (min.11 slides)
2. Prepare a creative project file on the theme and characters of any chapter from vistas supplementary reader (Min.15 pages)
3. Read two new chapters and prepare projects on them.

PHYSICS

1. Prepare an investigatory project report on one of the topic given below
 - i. Galvanometer
 - ii. Transformer
 - iii. AC Generator
 - iv. Fiber Optics
 - v. Optical Instruments
 - vi. Atomic Models
 - vii. PN junction Diode

Note: Select the topic which is given according to your Roll No. in the class.

2. Make a power point presentation of at least five slides along with audio from the chapter Ray Optics.
3. Complete the assignment in your physics notebook:

WORKSHEET 1 - WAVE OPTICS

1. Yellow light of wavelength 6000 \AA produces fringes of width 0.8 mm in Young's double slit experiment. What will be the fringe width if the light source is replaced by another monochromatic source of wavelength 7500 \AA and the separation between the slits is doubled?

2. In a Young's double slit experiment, fringes are obtained on a screen placed a certain distance away from the slits. If the screen is moved by 5 cm towards the slits, the fringe width changes by $30\ \mu\text{m}$. Given that the slits are 1 mm apart, calculate the wavelength of the light used.
3. Laser light of wavelength 630 nm incident on a pair of slits produces an interference pattern in which the fringes are separated by 8.1 mm. A second light produces an interference pattern in which the fringes are separated by 7.2 mm Calculate the wavelength of the second light.
4. In Young's double experiment, the two parallel slits are made one millimeter apart and a screen is placed one meter away. What is the fringe separation when blue green light of wavelength 500 nm is used?
5. In Young's experiment, the width of the fringes obtained with light of wavelength $6000\ \text{\AA}$ is 2.0 mm. Calculate the fringe width if the entire apparatus is immersed in a liquid medium of refractive index 1.33

WORKSHEET 2 - RAY OPTICS

1. A small air bubble in a glass sphere of radius 2 cm appears to be 1 cm from the surface when looked at, along the diameter. If the refractive index of glass is 1.5 find the true position of the air bubble.
 Ans: virtual, $u = 1.2\ \text{cm}$ from the surface
2. A point 'O' marked on the surface of a glass sphere of diameter 20 cm is viewed through glass from the position directly opposite to the point O. If the refractive index of glass is 1.5 find the position of the image formed. Also draw the ray diagram for the formation of the image.
 Ans: virtual, $v = -40\ \text{cm}$ from the surface
3. (i) If $f = 0.5\ \text{m}$ for a glass lens, what is the power of the lens?
 (ii) The radii of curvature of the faces of a double convex lens are 10 cm and 15 cm. Its focal length is 12 cm. What is the refractive index of glass?
 (iii) A convex lens has 20 cm focal length in air. What is focal length in water? (Refractive index of air-water = 1.33, refractive index for air-glass = 1.5.)

4. The real image is formed by the lens at a distance of 20 cm from the lens. The image shifts towards the combination by 10 cm when a second lens is brought in contact with the first lens. Determine the power of the second lens.

Ans: $F_2 = 20 \text{ cm}$, $P = 5 \text{ D}$

5. A convex lens of focal length 25 cm is placed coaxially in contact with a concave lens of focal length 20 cm. Determine the power of the combination. Will the system be converging or diverging in nature.

Ans: $P = -1 \text{ D}$, Diverging

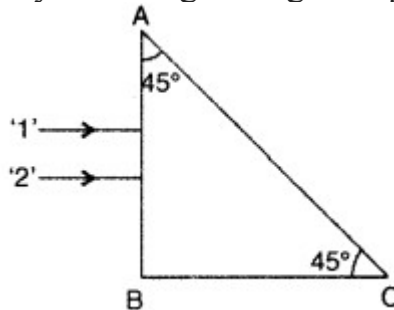
6. A ray of light is incident on a face of an equilateral prism shows minimum deviation of 30° . Calculate the speed of light through the prism.

Ans: $v = 2.12 \times 10^8 \text{ m/s}$

7. An equilateral glass prism has a refractive index 1.6 in air. Calculate the angle of minimum deviation of the prism when kept in a medium of refractive index $\frac{4\sqrt{2}}{5}$.

Ans: 30°

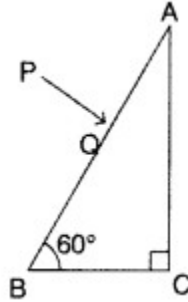
8. Two monochromatic rays of light are incident normally on the face AB of an isosceles right angled prism ABC. The refractive indices of the glass prism for the two rays '1' and '2' are respectively 1.35 and 1.45. Trace the path of these rays entering through the prism.



9. You are given two converging lenses of focal lengths 1.25 cm and 5 cm to design a compound microscope. If it is desired to have a magnification of 30, find out the separation between the objective and the eyepiece.

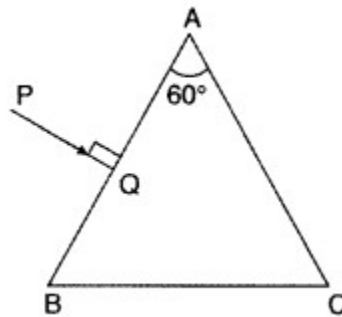
10. A ray PQ incident normally on the refracting face BA is refracted in the prism BAC made of material of refractive index 1.5. Complete the path of

ray through the prism. From which face will the ray



11. A small illuminated bulb is at the bottom of a tank, containing a liquid of refractive index upto a height H . Find the expression for the diameter and area of an opaque disc, floating symmetrically on the liquid surface in order to cut-off the light from the bulb.

12. A ray PQ is incident normally on the face AB of a triangular prism of refracting angle of 60° , made of a transparent material of refractive index $\frac{2}{\sqrt{3}}$, as shown in the figure. Trace the path of the ray as it passes through the prism. Also calculate the angle of emergence and angle of deviation.



MATHEMATICS

Complete the activities given below in the file. Do examples of each activity by yourself.

- 1 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.
- 2 To demonstrate a function which is not one-one but is onto.

- 3 To explore the principal value of the function $\sin^{-1}x$ using a unit circle.
- 4 To find analytically the limit of a function $f(x)$ at $x = c$ and also to check the continuity of the function at that point.
- 5 To construct an open box of maximum volume from a given rectangular sheet by cutting equal squares from each corner.
- 6 To understand the concepts of absolute maximum and minimum values of a function in a given closed interval through its graph.
- 7 To explain the computation of conditional probability of a given event A, when event B has already occurred, through an example of throwing a pair of dice.
- 8 To verify geometrically that $\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$.
- 9 To understand the concepts of decreasing and increasing functions.
- 10 To measure the shortest distance between two skew lines and verify it analytically.

BIOLOGY

Prepare the investigatory project on the assigned topics.

The topics are mentioned below:

1. Human genomic project—genome of x chromosome.
2. Sickle cell anemia
3. In vivo fertilization-ZIFT
4. Human disease----AIDS
5. Conservation of biodiversity--- Ramsar sites
6. Human evolution
7. DNA finger printing—crime scene
8. Cancer—brain tumor
9. Transgenic animal—Rosie cow
10. Immunity –primary lymphoid organs

The project must compose of the following pages

- Cover page
- Certificate
- Acknowledgement
- Index/content
- Aim /objective of the study
- Content must include-research analysis data collection ,data analysis,.

- Methodology
- Result
- Conclusion
- Bibliography
- Teacher remark

CHEMISTRY

1. Complete your investigatory project for the session 2024-25 which you have been already allotted (except the observation part if you haven't performed your project).

Project file should contain pages in following order:

- a) CERTIFICATE
- b) ACKNOWLEDGEMENT
- c) AIM OF PROJECT
- d) INTRODUCTION
- e) THEORY
- f) APPARATUS REQUIRED
- g) PROCEDURE
- h) OBSERVATION
- i) CONCLUSION
- j) PRECAUTION
- k) BIBLIOGRAPHY

STRICTLY ADHERE TO ABOVE MENTIONED ORDER

2. Practice all the Questions from Previous 10 Years Question Bank, for the following chapters-

- Haloalkanes and Haloarenes
- Alcohols, Phenols, and Ethers.

3. Read and prepare self-study notes for the chapter **Biomolecules**. Write 20 self-made questions, and their answers for the chapter.

4. Make a list of all the **Named Reactions** in chapter 10 and 11 and write them in your assignment register.

5. Write all the **Reaction Mechanism** in chapter 10 and 11 in your assignment register.
6. List five **Distinguish Test** with example studied till yet.

COMPUTER SCIENCE

1. Complete your project file for the session 2024-25 – **As Discussed in class**
Project file should contain pages in following order:
 - a) INDEX
 - b) CERTIFICATE
 - c) ACKNOWLEDGEMENT
 - d) AIM OF THE PROJECT
 - e) NEED OF THE PROJECT
 - f) INTRODUCTION
 - g) EXISTING SYSTEM
 - h) MODULE LIST
 - i) FLOW CHART
 - j) CODING
 - k) DATABASE
 - l) OUTPUT
 - m) BIBLIOGRAPHY
 - n) HARDWARE AND SOFTWARE REQUIRED

STRICTLY ADHERE TO ABOVE MENTIONED ORDER

2. Complete Predict the output from the chapter **Function**.
3. Complete the notes from the chapter **Function**.

INFORMATION PRACTICES

1. Complete your project file for the session 2024-25 – **discussed in class**
Project file should contain pages in following order:
 - a) INDEX
 - b) CERTIFICATE

- c) ACKNOWLEDGEMENT
- d) AIM OF THE PROJECT
- e) NEED OF THE PROJECT
- f) INTRODUCTION
- g) EXISTING SYSTEM
- h) MODULE LIST
- i) FLOW CHART
- j) CODING
- k) DATABASE
- l) OUTPUT
- m) BIBLIOGRAPHY
- n) HARDWARE AND SOFTWARE REQUIRED

STRICTLY ADHERE TO ABOVE MENTIONED ORDER

Kindly complete your project and send to swapnikapatria@modyschool.ac.in

INSTRUMENTAL TABLA

Prepare a project on biography of renowned TABLA musicians

It must include

- Gharana
- Baaj
- Awards

Pictures of the various parts of TABLA.

PAINTING

Complete your project file

1. Still life study
2. Composition
3. Nature study
4. Medium
5. Any Color

PHYSICAL EDUCATION

Complete your project file for the session of 2024-25 board practical.

HINDUSTANI VOCAL MUSIC

Prepare a project with pictures on biography of a famous vocalist.

DANCE (KATHAK)

Complete your project file on the following titles.

1. Classical Dances of India.
2. Gharanas of Kathak.
3. Prominent kathak dancers(3/4)
4. Types of Abhinaya.
5. Rasa and Bhava.
6. Parts of the body(Anga, Upanga and Pratyanga).

HOME SCIENCE

Complete the project as explained and assigned in the class

Project 1 Study an integrated community based nutrition/health programme.

Project 2 Interview adolescents and adults regarding their perception of person with special needs

Project 3 Profile any one person with special needs to find out their diet, clothing, activities, physical and psychological needs

Project 4 Planning messages for nutrition, health and life skills using different mode of communication for different focal group

Project 5 Market survey of any five processed foods, packaging and label information