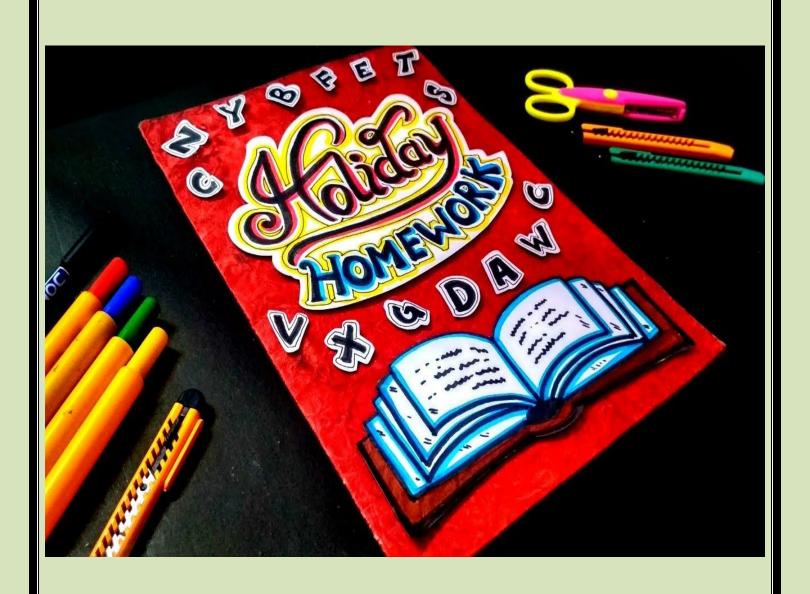# SHIVALIK PUBLIC SCHOOL PHASE- 6, MOHALI

CLASS XII (2024-25)

HOLIDAY HOMEWORK

ENGLISH CORE-

Task 1. Complete 10 comprehension passages in BBC.

Task 2. Complete 10 Notice writing task in BBC.

(Follow and stick to the format and the rules taught in the class.)

Task 3. Complete unit 1 in BBC Literature and Supplementary.

Task 4. Read the newspaper and cut 5 sample articles to create 5 Comprehension passages. Create 6 MCQ questions for each article.

Submit the answer key too.

Art Integrated project

1.   Visual Representation of Themes in "The Last Lesson" by Alphonse Daudet:
•   Objective: Create visual artwork that represents the themes of linguistic identity and patriotism depicted in the story, using traditional art forms from Odisha and Punjab.
•   Activities:
•   Read and analyze the themes in "The Last Lesson."
•   Research traditional art forms like Pattachitra from Odisha and Phulkari from Punjab.
•   Create artworks (paintings, embroidery, etc.) that symbolize the story's themes.
•   Present the artworks along with a written explanation connecting the visual elements to the story.

2.   Poster Presentation on "Lost Spring" by Anees Jung:
•   Objective: Create informative posters that highlight the issues of child labor and education, contrasting urban and rural settings in Odisha and Punjab.
•   Activities:
•   Read and analyze the essays in "Lost Spring."
•   Research child labor and educational initiatives in Odisha and Punjab.
•   Design posters that depict the challenges and solutions related to child labor in both states, using data, images, and traditional motifs.

PHYSICAL EDUCATION-

1. Complete notes of Unit 1(Management of sporting event) and 2(Children and women in sports).

2. Health and Physical Education:

Strand 1. Any one game of choice of following:

(Basketball, Badminton, Cricket, Football, Volleyball, Hockey, Table Tennis)

3. Record file shall include:

Practical 1. Fitness tests administration(SAI KHELO INDIA TEST).

Practical 2. Any one IOA recognised game/sport of choice.

4. Art Integration Project- The traditional sports of Punjab and Odisha through Art.

PHYSICS-

1. Make an innovative and decorative **Art Integrated Project** on the topic:
(Optics and Photography: The Art of Light and Shadow: Punjab and Odisha)
- **Punjab**: Use motifs and themes from Punjab's vibrant Bhangra dance and its colorful costumes to illustrate optical phenomena. Capture the reflections and refractions in traditional Phulkari embroidery.
-**Odisha**: Focus on the intricate designs of Odisha's Pattachitra paintings and the play of light and shadow in the Konark Sun Temple carvings.
2. Prepare an **Investigatory Project** as per the topics mentioned below according to class Roll nos.

List of Physics Projects- Topics (Roll no. wise)

1. To find the refractive indices of (a) water (b) oil (transparent) using a hollow prism. (Roll nos. 1, 11, 21, 31)

2. To study various factors on which the internal resistance/emf of a dry cell depends. (Roll no. 2, 12, 22)

3. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer. (Roll no. 3, 13, 23)

4. To investigate the dependence, of the angle of deviation, on the angle of incidence, using a hollow prism filled, one by one, with different transparent fluids. (Roll no. 4, 14, 24)

5. Optical fibres and its applications. (Roll nos. 5, 15, 25)

6. Refractive index of water, turpentine oil, ethyl alcohol, glycerine. (Roll nos. 6, 16, 26)

7. Effect of wavelength, d, D on b – Interference or Diffraction. (Roll nos. 7, 17, 27)

8. Resistance of pencil leads. (Roll nos. 8, 18, 28)

9. Variation in emergent ray using coloured glasses. (Roll nos. 9, 19, 29)

10. To investigate whether a pencil acts as a resister. And if so, find the variation of resistance with respect to length of the pencil. (Roll nos. 10, 20, 30)

GUIDELINES FOR INVESTIGATORY PROJECT OF PHYSICS AND CHEMISTRY ARE GIVEN IN ANNEXURE- A

3. Write the following Practicals/ Activities of Section- A in your Practical File as per the guidelines.
- To determine resistivity of two / three wires by plotting a graph for potential difference versus current.
- To find resistance of a given wire / standard resistor using metre bridge.
- To verify the laws of combination (series) of resistances using a metre bridge.
- To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
- To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.

- To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.

CHEMISTRY-

1. Make an innovative and decorative **Art Integrated Project** on the Topic- **"Exploration of Traditional Dyes and Pigments of Punjab and Odisha".**

    (**Points to be incorporated**- Introduction to Natural Dyes and Pigments, Difference between natural and synthetic dyes, Basic chemistry of dye molecules and how they bond with fabrics, Traditional dyes in Punjab (Turmeric, Indigo, Madder etc.), Traditional dyes in Odisha (Turmeric, Indigo, Catechu etc.), Cultural Significance, etc.), Chemical properties and dyeing process, Integration of dyes into the cultural and social fabric of Punjab and Odisha)

2. Prepare an **Investigatory Project** as per the topics mentioned below according to class Roll nos.

    ### List of Chemistry Project- Topics (Roll no. wise)

    1. Analysis of Cough Syrup. (Roll Nos. 1, 11, 21, 31)
    2. Comparative study and qualitative analysis of different brands of Cold Drinks (Roll No-2, 12, 22)
    3. Preparation of Sanitizer (Roll No -3, 13, 23)
    4. Analysis of Acidity of different samples of tea leaves (Roll No -4, 14, 24)
    5. Analysis of different samples of vinegar (Roll No -5, 15, 25)
    6. To study the quantity of casein present in different samples of milk (Roll No -6, 16, 26)
    7. Analysis of Chocolate (Roll No -7, 17, 27)
    8. To study the presence of oxalate ion content in Guava Fruit at different stages of ripening (Roll No -8, 18, 28)
    9. Investigating the hardness of different samples of Water. (Roll No -9, 19, 29)
    10. To analyze the given sample of commercial antacids by determining the amount of HCl they can neutralize (Roll No -10, 20, 30)

    GUIDELINES FOR INVESTIGATORY PROJECT OF CHEMISTRY AND PHYSICS ARE GIVEN IN ANNEXURE- A

3. Write the following Practicals in your Practical File as per the guidelines.
    - To prepare 500 ml of M/40 oxalic acid solution.
    - To determine molarity and strength of given $KMnO_4$ solution by titrating it against a standard solution of Oxalic acid.
    - To prepare 500 ml of M/20 Mohr salt solution.
    - To determine molarity, strength and percentage composition of given $KMnO_4$ solution (which was prepared by dissolving 2g of $KMnO_4$ per litre of water) by titrating it against a standard solution of Oxalic acid.
    - Preparation of double salt of Ferrous Ammonium Sulphate.
    - To prepare Crystals of Potassium Ferric Oxalate.

- To study Effect of concentration on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.
- To prepare a colloidal sol of starch.

BIOLOGY

1. Prepare an **Investigatory Project** on the topic: "To study the prevention methods for different types of bacterial and viral diseases"
   (Atleast 5 each)
2. Make an innovative and decorative **Art Integrated Project** on the Topic-
   'Endangered animals of Punjab and Odisha and Steps taken by Government of both the states to preserve the endangered species'

MATHEMATICS

1. Prepare an **Art Integrated project** on the topic- To understand and visually represent different types of relations (reflexive, symmetric, transitive, and equivalence relations) using creative and artistic methods w.r.t Punjab and Odisha.

2. Solve the following assignments:

Chapter: - Matrix and Determinants

1 marks question

Q1. Find total number of possible matrices of order 3x3 with each entry 2 or 0. Ans. 512.

Q2.If A = $\begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix}$ then find (A-2I)(A-3I). Ans. 0 .   Q3. Evaluate $\begin{vmatrix} \sin x & \cos x \\ \cos x & \sin x \end{vmatrix}$ When x=π/6 Ans . -1/2.

Q4.If for matrix A, $|A|$ =3, Find $|4A|$, Where matrix A is of order 2x2.   Ans. 48

Q5.Construct a 2x3 matrix whose element is given by $a_{ij} = \frac{1}{2}|-3i + j|$ Ans. $\begin{bmatrix} 1 & \frac{1}{2} & 0 \\ \frac{5}{2} & 2 & \frac{3}{2} \end{bmatrix}$

Q6.If A = $\begin{bmatrix} \cos x & -\sin x \\ \sin x & \cos x \end{bmatrix}$ then find x such that A+A'=I. Ans. π/3.

Q7If A = $\begin{bmatrix} 0 & a & 3 \\ 2 & b & -1 \\ c & 1 & 0 \end{bmatrix}$ is a skew symmetric matrix, find the values of a,b and c. Ans . -2, 0,-3,

Q8.If A= [3 5], B= [7 3], then find non -zero matrix such that AC=BC. Ans. $\begin{bmatrix} k \\ 2k \end{bmatrix}$ Where k is any real number.

Relation and Functions Case Study Questions

CASE STUDY 1:

A general election of Lok Sabha is a gigantic exercise. About 900 million people were eligible to vote and voter turnout was about 75%, the highest ever. Let I be the set of all citizens of India who were eligible to exercise their voting right in general election held in 2019. A relation 'R' is defined on I as follows:

$R = \{(V_{1,2}): V_1, V_2 \in I$ and both use their voting right in general election – 2019}. Based on given information, answer the following questions

Q1) Is R a reflexive relation? Justify your answer. (1M)
Q2) Is R a symmetric relation? Justify your answer. (1M)
Q3) Is R a transitive relation? Justify your answer. (1M)
Q4) Is R an equivalence relation? Justify your answer. (1M)

CASE STUDY 2

Sherlin and Danju are playing Ludo at home during Covid-19. While rolling the dice, Sherlin's sister Raji observed and noted the possible outcomes of the throw every time belongs to set {1,2,3,4,5,6}. Let A be the set of players while B be the set of all possible outcomes A i.e. A ={S, D} and B = {1,2,3,4,5,6}, based on given information, answer the following questions.

Q1) Let $R : B \longrightarrow B$ be defined by $R = \{(x, y) :$ y is divisible by x}. Is R an equivalence relation? Justify your answer. (3M)

Q2) Raji wants to know the number of functions from A to B. How many number of functions are possible? (1M)

Relation and Functions MCQs

1) A relation R on set A = {1, 2, 3, 4, 5} is defined as R = {(1, 1), (2, 2), (3, 3), (4, 4), (5, 5)} then R is _____ relation

a) Reflexive   b) Symmetric   c) Transitive   d) Equivalence.

2) Let R be the relation on set A = { $x \in Z : x \leq 20$ }, defined by R = {(a, b) : Ia - bI is a multiple of 3}, then [4], the equivalence class of 4, is

a) {0, 4, 8, 12, 16, 20}   b) {1, 4, 7, 10, 13, 16, 19}

c) {0, 1, 4, 7, 10, 13, 16, 19}   d) A

3) If a relation R on the set {a, b, c, d} is defined as R = {(a, b)}, then R is _____ relation

a) Reflexive   b) Symmetric   c) Transitive   d) simply a relation

4) The function $f : R \rightarrow Z$, defined as $f(x) = [x]$ is (Z is set of integers)

a) neither one – one nor onto   b) one – one but not onto

c) onto but not one – one   d) one – one and onto

5) The function $f(x) = 5 - |\sin(4x)|$ has maximum value 'a' and minimum value 'b', then (a, b) =

a) (4, 5)   b) (5, 4)   c) (5, 6)   d) (6, 5)

6) The function $f : R \rightarrow R$, given by $f(x) = |x|$ is

a) Surjective   b) Injective   c) Bijective   d) neither surjective nor injective.

7) A relation R on set A = {a, b, c} is defined as R = {(a, b), (b, b)} then R will be _____ relation when (b, a) will be added

a) Reflexive   b) Symmetric   c) Transitive   d) Equivalence

8) The function $f : R \rightarrow R$, given by $f(x) = 3x + 2$ is

a) Surjective   b) Injective   c) Bijective   d) neither surjective nor injective.

9) The maximum number of equivalence relation on the set A = {a, b, c} are

a) 2   b) 3   c) 5   d) 6

INVERSE TRIGONOMETRIC FUNCTIONS

MULTIPLE CHOICE QUESTIONS

1. If $\sin^{-1} x - \cos^{-1} x = \frac{\pi}{6}$, then $x =$

   (a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{-1}{2}$ (d) $\frac{-\sqrt{3}}{2}$

2. If $\tan^{-1} (\cot \theta) = 2\theta$, then θ is equal to

   (a) $\frac{\pi}{3}$ (b) $\frac{\pi}{4}$ (c) $\frac{\pi}{6}$ (d) None of these

3. $\cot(\frac{\pi}{4} - 2 \cot^{-1} 3) =$

   (a) 7 (b) 6 (c) 5 (d) None of these

4. The principal value of $\tan^{-1}(\tan 3\pi/5)$ is

   (a) $2\pi/5$ (b) $-2\pi/5$ (c) $3\pi/5$ (d) $-3\pi/5$

5. $\sin[\pi/3 - \sin^{-1}(- \frac{1}{2})]$ is equal to:

   (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) -1 (d) 1

6. The domain of $\sin^{-1}(2x)$ is

   (a) $[0, 1]$ (b) $[-1, 1]$ (c) $[-1/2, 1/2]$ (d) $[-2, 2]$

7. If $\sin^{-1} x + \sin^{-1} y = \pi/2$, then value of $\cos^{-1} x + \cos^{-1} y$ is

   (a) $\pi/2$ (b) π (c) 0 (d) $2\pi/3$

8. The domain of $y = \cos^{-1} (x^2 - 4)$ is

   (a) $[3, 5]$ (b) $[0, \pi]$ (c) $[-\sqrt{5}, -\sqrt{3}] \cap [-\sqrt{5}, \sqrt{3}]$ (d) $[-\sqrt{5}, -\sqrt{3}] \cup [\sqrt{3}, \sqrt{5}]$

9. The value of the expression $\sin [\cot^{-1} (\cos (\tan^{-1} 1))]$ is

   (a) 0 (b) 1 (c) $1/\sqrt{3}$ (d) $\sqrt{2}/\sqrt{3}$

COMPUTER SCIENCE:

➢ Complete notes of Chapter –Working with Functions
➢ Art Integrated Project: Create Info graphic using Online tools (Canva, Piktochart,Miro, Mindmiester...) (Hardcopy of the infographics)
   o Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
   o Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)
   o Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP
➢ Compare the key initiatives and measures implemented by the Punjab government and Odisha Government to enhance Cyber security- Art Integrated Project
➢ Solve the Assignment in the Notebook:
   o FUNCTIONS
   o REVISION TOUR 2
   o REVISION TOUR 1

Annexure- A

- Prepare an Investigatory project (as assigned to you)

  Guideline for project:
  - Project work should be done on A4 project sheets in project file.
  - Text should be handwritten supported with relevant figures/ pictures/ photo.
  - Figures/ Pictures/ photo etc. should be on left side.
  - There should be at least 10 - 12 pages in project Excluding title page, Certificate, Acknowledgement, Index/ Content and Bibliography.
  - Informative projects should have detailed as well as recent work supported with data.
  - Title, certificate and acknowledgement should be as per instructions given in class/ format sent in group.
  - Bibliography should not include web site of search engines such as google, Wikipedia, yahoo etc.

➢ The project file must contain (with pictures/ real sample if possible)
  - Front page
  - Certificate
  - Acknowledgement
  - Aim
  - Index
  - Introduction
  - Brief History
  - Requirements
  - Theory
  - Procedure
  - Observation Table/ Diagram
  - Result and Conclusion
  - Bibliography
  - Thank You page with Science Quote

➢ The Investigatory project file should be made in an innovative and decorative manner because it carries 5 marks in your final Board Practical.
➢ **ASSIGNMENTS TO BE SOLVED IN FAIR NOTEBOOKS ONLY.**
  ART INTEGRATED PROJECT SHOULD BE DONE ON LOOSE SHEETS.

➢ **FORMAT FOR THE CERTIFICATE**

  Ensure that you change the particulars on the Certificate according to the subject and The Project Allotted.

CERTIFICATE

This is to certify that   , a student   of   Class   XII   has successfully completed the research on the

                                under   the guidance of   (

teacher) during the year   in partial fulfillment of chemistry practical examination conducted by **AISSCE**, NEW DELHI.

_____   _____

Sign of internal   Sign of external
examiner   examiner