



MILESTONE ACADEMY
SUMMER VACATION HOME WORK SCIENCE(2026-27)

CLASS-XII

DATE OF SUBMISSION-16.06.2026

ENGLISH

Q. 1 Go through the following chapter. Prepare hand written presentation in the form of project file in not more than 15-20 pages.

a. The third level.

Q.2 LETTER TO EDITOR :-

1. Nowadays we see the rise in prices of edible things like pulses, onions, oils and some other products. The layman is facing hardship on account of it. Write a letter to the editor of reputed daily requesting him to highlight the difficulties him to highlight faced by common man due to rise in price. Sign yourself as Pranjal / Prerna at 124, Vivek vihar, Delhi.

Q.3 Notice :-

1. You are Shiva of D. P. Public School Nagpur. As students Editor of your school magazine, draft notice in not more than 50 words.
 2. Due to sudden landslide and inclement weather St. Francis School, Vasco has to be closed for a week. As principal of that school, draft a notice in not more than 50 words.
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PHYSICS

NOTE: Students have to prepare a hand written investigation project in project paper with cover Page, acknowledgement and submit the same in spiral bind.

Suggested Investigatory Projects

1. To study various factors on which the internal resistance/EMF of a cell depends.
 2. To study the variations in current flowing in a circuit containing an LDR because of a variation in (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.
 3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, a biconvex lens (made from a glass of known refractive index) and an adjustable object needle.
 4. 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.
 5. 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.
 6. To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
 7. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.
 8. To study the earth's magnetic field using a compass needle - bar magnet by plotting magnetic field lines and tangent galvanometer.
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CHEMISTRY

LIST OF PROJECTS

1. Study of the presence of oxalate ions in guava fruit at different stages of ripening.
 2. Study of quantity of casein present in different samples of milk.
 3. Preparation of soya bean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
 4. Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.).
 5. Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
 6. Comparative study of the rate of fermentation of the following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
 7. Extraction of essential oils present in Sauf (aniseed), Ajwain (carum), illaichi(cardamom).
 8. Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.
 9. Any other investigatory project you can choose which involves about 10 periods of work.
- IMP NOTE- Back exercises of Solution chapter should also be done during summer break.
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BIOLOGY

“Making an Investigatory PROJECT File” [Part of CBSE/AISSCE Final Practical Assessment]“Learn & Express”

Topic Selection:

Topic or Title of Project must be the part of our curriculum (C-12th)

Mode of Project:

Hand Written, Suitable Images, colourful diagrams etc. could be added to make it more presentable.

Paper Type & No. of pages:

A4 size bond paper could be use for written work, inclusive of few compulsory pages; 25 – 30 pages are rewarding for project. Writing Page No. is mandatory.

Project File:

Prepared pages should be kept in well spiral bounded form.

Note: 1. Do not hurry for binding without compulsory pages.
2. Once all written etc. work done, submit all pages of checking & after approval only go for final binding.

Resources:

Duly utilize authentic and standard materials from text book, science magazines and internet as well.

References / Bibliography:

Last page of file must carry names of material sources in alphabetical order.

Format for Compulsory Pages:

Front Page, Preface, Acknowledgement, Certificate etc. would be provided later.

Miscellaneous:

Any good contents or efforts which make file impressive, could be used consciously.

SUGGESTED TOPICS:

PCR, ECO SYSTEM, GAMETOGENESIS, VACCINE AND ANTIBIOTICS, POLLUTION IN AIR, POLLINATION, COVID-19, SEED DISPERSAL, BODY IMMUNITY, HIV / AIDS, CANCER, IVF, HYPERSENSITIVITY / ALLERGY, BIOTECHNOLOGY, DNA , RNA, PROTEINS, TECHNIQUES IN BIOTECHNOLOGY, MALARIA, HUMAN GENOME PROJECT, BIO- DIVERSITY, GENE THERAPY, R-DNA TECHNOLOGY, MENDELLIAN DISORDERS, PEDIGREE ANALYSIS etc.

MATHS:-

1. If a matrix has 8 elements, what are the possible orders it can have.
2. If A is a skew-symmetric matrix of order 3, then prove that $\det A = 0$.
3. If A, B are symmetric matrices of same order, then $AB - BA$ is a _____
4. Find x and y if $x + y = \begin{bmatrix} 5 & 2 \\ 0 & 9 \end{bmatrix}$ and $x - y = \begin{bmatrix} 3 & 6 \\ 0 & -1 \end{bmatrix}$
5. Obtain the inverse of the following matrix. $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$
6. If A is a square matrix such that $A^2 = A$, then $(I + A)^3 - 7A$ is equal to
7. Express the matrix $B = \begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix.
8. If matrix $A = \begin{bmatrix} 1 & -2 & 3 \\ 1 & 2 & 1 \\ x & 2 & -3 \end{bmatrix}$ is singular, find x.
9. If $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ find A^{-1} , using A^{-1} solve the system of equations
 $2x - 3y + 5z = 11$

$$3x + 2y - 4z = -5$$

$$x + y - 2z = -3$$

11. Use product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the system of equations.

$$x - y + 2z = 1$$

$$2y - 3z = 1$$

$$3x - 2y + 4z = 2$$

12. Find the value of: (i) $\tan^{-1}\left(\tan \frac{7\pi}{6}\right)$ (ii) $\sin^{-1}\left(\sin \frac{3\pi}{4}\right)$ (iii) $\cos^{-1}\left(\cos \frac{7\pi}{3}\right)$

(iv) $\sin^{-1}(\sin 5)$ (v) $\tan^{-1}(\tan 1)$ (vi) $\cos^{-1}(\cos 3)$

14. Prove that: $\tan^{-1}\left(\frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}}\right) = \frac{\pi}{4} - \frac{1}{2}\cos^{-1}x$

15. If $\cos^{-1}\frac{x}{a} + \cos^{-1}\frac{y}{b} = \alpha$. prove that $\frac{x^2}{a^2} - \frac{2xy}{ab}\cos\alpha + \frac{y^2}{b^2} = \sin^2\alpha$

16. Prove that: $\tan\left(\frac{\pi}{4} + \frac{1}{2}\cos^{-1}\frac{a}{b}\right) + \tan\left(\frac{\pi}{4} - \frac{1}{2}\cos^{-1}\frac{a}{b}\right) = \frac{2b}{a}$

ENGINEERING GRAPHICS

(i) To perform the following tasks (for One only) from the given views of the prescribed fifteen (15) machine blocks in ANNEXURE-I. Value-Points

1. Copy the given views 1
2. Drawing the missing view with hidden lines 2
3. Sketching the Isometric view without hidden edges 5
4. To make the machine block of the above in three dimensions.
(Not to scale but approximately proportionately drawn with
5. Any medium i.e., Soap-cake, plasticine, clay, wax, floral foam brick (available with florists), etc.

INFORMATION PRACTICES

Complete practical file

In Practical file (minimum 20 programs based on Pandas, 4 based on Matplotlib and 15 SQL queries must be included)

COMPUTER PRACTICES

IN Practical/Report file: (Minimum 25 Python programs. Out of this at least 4 programs should send SQL commands to a database and retrieve the result and 15 SQL queries must be included)

PHYSICAL EDUCATION

1. Prepare a project on:

Any physical activity is better than none!!! - Importance of physical activities during Covid-19 pandemic.

2. Prepare a project on any one game of your choice:

- | | | | |
|---------------|-------------|------------|------------|
| 1. Basketball | 2. Football | 3. Kabaddi | 4. Kho-Kho |
| 5. Volleyball | 6. Handball | 7. Hockey | 8. Cricket |

(It should include:

A. History, Labelled diagram of field and equipments, Rules and Regulations of the game
Terminologies, Skills, Technique of playing, Sport personalities of the game.

B. Physical Fitness Test

* Meaning of motor fitness

* AAPHER TEST(Pg no.158-160)

* BARROW THREE ITEM GENERAL MOTOR ABILITY TEST(Pg no:163-164)

C. Rules of track and field events:

- * Fundamental skills of Shot put
 - * Fundamental skills of Long jump
 - * Fundamental skills of Triple jump
 - * Fundamental skills of Broad jump
- D. Sports Injuries
- * Types of fracture
- E. Asanas related to each lifestyle diseases(Procedures, benefits and contraindications of any two asanas for each lifestyle diseases)

Note :- The total length of project will be 80to 90 pages. The project should be handwritten.

The project should be presented in a neat folder:-

- **The cover page should include the title of the project, student information, school and year.**
- **list of contents**
- **Acknowledge and preface**
- **introduction**
- **Topic with suitable heading**

PSYCHOLOGY

PROJECT WORK

1. Observe and interview 5 persons in your neighbourhood in order to see how they differ from each other in terms of certain psychological attributes. Cover all the five domains. Prepare a psychological profile of each person and compare.
2. Select 5 vocations and gather information about the nature of work done by people in these vocations. Also analyse these vocations in terms of the types of psychological attributes required for successful performance. Write a report.

YOGA

Project File

1. Prayer before meals
 2. Gayatri mantra
 3. 12 steps of Surya Namaskar
- A. Pics
B. Benefits
C. Precautions
4. Mudra (detail of all Mudras and pics)

ARTIFICIAL INTELLIGENCE

Project File (Capstone Project)

MULTIMEDIA

Project File (Maya Application Based Project)

HINDI

विद्यालय में मेरा प्रिय कोना इस वाक्य को आधार बनाकर अपने शब्दों में एक रचनात्मक लेख लिखिए ।

अथवा

‘भोजन पर सबका अधिकार’ इस विषय पर अपने विचार व्यक्त करते हुए एक लेख लिखिए।

PAINTING Practical

2 nature study

2 object study

1 indian folk art

Note -

- Use cartridge sheet.

- Per artwork will be done in half sheet. (22 × 14 inches)

- Paintings should be neat and clean.

- Write your name and class at the back side of every painting.

- Submit it in a handmade sheet envelope.

Vocal and mel. Ins

Project Work

Q-1--Write Thaah and Tigun of JhapTala And Dhamar Tala ,,,

Q-2--- Write about your favourite classical singer about his /her Khyal Gayaki in 200 words .

Q-3--Write the Life sketch and contribution of Ustad Bade Gulam Ali Khan(in 200 words),

Q 4-- Description of Sangeet granthas (300 Words)

1- Sangeet Ratnakar

2- Sangeet Parijat

Including The contents of the book .

Q-5 Write the method of tuning of Tanpura ,

HISTORY

1. Project Work

Topics (Any one)

- A. The Indus Valley Civilization - Archaeological Excavations and New Perspectives
 - B. The History and Legacy of Mauryan Empire
 - C. Mahabharat - The Great Epic of India
 - D. The History and Culture of the Vedic period
2. Map pointing - On political map of India
- A. Mature Harappan sites
 - B. Mahajanapda and cities
 - C. Distribution of Ashokan inscriptions
 - D. Important kingdoms and Towns

POLITICAL SCIENCE (028)

SUGGESTED TOPICS FOR PROJECT

1. NAM-1961 to present times.
2. Division of Germany with special focus on the construction and dismantling of the Berlin Wall.
3. CIS-Central Asian Republics
4. Disintegration of USSR with special focus on Gorbachev.
5. Cover the negative as well as positive aspects of relationship between India and the following countries :
Focus on any one of the following (current updates should be highlighted)
 - a) Relationship between India and Russia
 - b) Relationship between India and China
 - c) Relationship between India and Pakistan
 - d) Relationship between India and Bangladesh
2. India's Nuclear Policy
3. United Nations with focus on India's candidature in Security Council.
4. UN Agencies - UNICEF, UNESCO, WHO
5. Pandemics: Covid 19- Its global impact (focus on worldwide cooperation and preparedness along with controversies (please collect newspaper clippings for the same)
6. Partition of India-Theory behind it and its legacy
7. Comparison between NITI AAYOG and Planning Commission and their contribution in India's Development.
8. Election 2019-Rise of BJP and Downfall of Congress (1989-2019).
9. Imposition of Emergency in India
10. NDA III and NDA IV-Social and Economic welfare programmes.