Maheshwari Public School

Jawahar Nagar, Jaipur

A Prestigious Co-Educational English Medium School

Governed by The Education Committee of The Maheshwari Samaj Society, Jaipur

Affiliated to CBSE, Delhi , Affiliation No. 1730004

It's summertime when faces light up with a smile as holidays are about to begin.
It's time for the children to feel free, unbound, high-spirited but safe at home.

Summer break is a vacation time students eagerly await for. So, now is the time to unlock the days creatively making the most while at home. So, adopt a herb, a house plant or a flower, bake a cake, sing-along, paint and draw and compose your own song or take up your hobby as the school announces the summer vacation.

To ensure that the children have a constructive holiday, some holidays' homework & projects have been given which will keep the child active and observant. These projects can easily be done by the children and parents could assist only where required. You can download the Holidays' Homework from the school website for your convenience and in case of any clarification, you may contact the teacher concerned as it shall be a part of the internal assessment.

Stay safe, stay healthy!

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HOLIDAY HOMEWORK

Session:2023-24

Class-11

GENERAL INSTRUCTIONS

1. **All the assignments have to be done in the respective subject notebook / A4 size sheet or as instructed by the teacher.**
2. **Work should be neat and tidy.**

Assignment should be according to the given guidelines.

ENGLISH

Prepare a file and neatly answer the questions that follow:

Ques.1. Every child is fortunate enough to have an adult in his/ her life who instills such values in him/her that inspire to achieve a coveted field. Share your feelings in the form of a write-up regarding such a role model. Use your real-life experience, imagination and creativity. (150-200 words)

Ques 2. Find and write at least two poems each on the given topics: -
(i) Patriotism
(ii) Childhood
(iii) Compassion
(iv) Friendship

Ques 3. Define and give two examples of the given Literary Devices - (any 10)
a. Alliteration
b. Simile
c. Metaphor
d. Personification
e. Pun
f. Oxymoron
g. Irony
h. Hyperbole
i. Allusion
j. Synecdoche
k. Transferred Epithet
l. Onomatopoeia
m. Assonance

APPLIED MATHEMATICS

1. Do the following activities in spread sheets (Use Microsoft excel spread sheets or Google spread sheets).

S. No	Name of Activity
1.	Simple interest and compound Interest.
2.	Pictographs.
3.	Pie chart and Bar graphs.
4.	Calculating Mean and Median for ungrouped and grouped data in spread sheet.
5.	Plot the graph of quadratic function on excel and explain the nature of function at various points.
6.	Prepare a spread sheet report card using scores of the last four exams and compare the performance.

1. Do a project based on the following topics.

- Use of prime numbers in coding and decoding of messages.
- Prime numbers and divisibility rules
- Logarithms for financial calculations such as interest, present value, future value, profit/loss etc. with large values)
- The cardinality of a set and orders of infinity.
- Comparing sets of natural numbers, rational numbers, real numbers, and others.
- Use of Venn diagram in solving practical problems.
- Fibonacci sequence: Its history and presence in nature
- Testing the validity of mathematical statements and framing truth tables

- Investigating Graphs of functions for their properties
- Visit the census site of India. Depict the information given there in a pictorial form.
- Prepare a questionnaire to collect information about money spent by your friends in a month on activities like travelling, movies, recharging of the mobiles, etc. and draw interesting conclusions.
- Check out the local newspaper and cut out examples of information depicted by graphs. Draw your own conclusions from the graph and compare it with the analysis given in the report.
- Analysis of population migration data – positive and negative influence on urbanization.
- Each day newspaper tells us about the maximum temperature, minimum temperature, and humidity. Collect the data for a period of 30 days and represent it graphically. Compare it with the data available for the same time - period for the previous year.
- Analysis of career graph of a cricketer (batting average for a batsman and bowling average for a bowler). Conclude the best year of his career. It may be extended for other players also – tennis, badminton, athlete.
- Vehicle registration data – correlating with pollution and the number of accidents.
- Visit a village near Delhi and collect data of various crops over the past few years from the farmers. Also, collect data about temperature variation and rain over a period for a particular crop. Try to find the effect of temperature and rain variations on various crops.
- Choose any week of your ongoing semester. Collect data for the past 10 – 15 years of the amount of rainfall received in Delhi during that week. Predict the amount of rainfall for the current year.
- Weather prediction (prediction of monsoon from past data)
- Visit Kirana shops near your home and collect the data regarding the sales of certain commodities over a month. Try to figure out the stock of a particular commodity which should be in the store in order to maximize the profit.
- Stock price movement
- Risk assessments by insurance firms from data.

- Predicting stock market crash.
- Predicting the outcome of an election – exit polls.
- Predicting mortality of infants

Note:

1. It is a sample list of projects. You can do any innovative project other than the listed projects.
2. Project should be made in Microsoft Excel or Google Spread Sheet.

MATHEMATICS

1. Complete the following list of activities:

   - Activity 1: To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is 2^n .
   - Activity 2: To verify that for two sets A and B, $n(A \times B) = p \times q$ and the total number of relations from A to B is 2^{pq}, where $n(A) = p$ and $n(B) = q$.
   - Activity 3: To represent set theoretic operations using Venn diagrams.
   - Activity 4: To verify distributive law for three given non-empty sets A, B and C, that is, $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
   - Activity 5: To identify a relation and a function.
   - Activity 6: To distinguish between a Relation and a Function.
   - Activity 7: To verify the relation between the degree measure and the radian measure of an angle.
   - Activity 12: To obtain a quadratic function with the help of linear functions graphically.
   - Activity 13: To verify that the graph of a given inequality, say $5x + 4y - 40 < 0$, of the form $ax + by + c < 0$, $a, b > 0$, $c < 0$ represents only one of the two half planes.
   - Activity 16: To obtain formula for the sum of squares of first n-natural numbers.

1. Do a project in Mathematics. Refer the following list of projects.

List of Projects

1. Project on history of Mathematicians: It may include history of Indian Mathematicians such as Aryabhata, Brahmagupta, Varahamihir, Sridhara, Bhaskar Acharya, Ramanujan etc., and history of foreign mathematicians such as Cantor, Pythagoras, Thales, Euclid, Apollonius, Descartes, Fermat, Leibnitz, Euler, Fibonacci, Gauss, Newton etc.

2. On linear Programming problems related to day-to-day life like collecting data from families of their expenditures and requirements from the factories to maximum output.

3. Collect data from dieticians, transporters, agents and formulate linear programming problems.

4. Make a chart of the formulae of applications of calculus.

5. Applications of conic sections, vectors, three-dimensional geometry, calculus, etc., in Mathematics and Physics.

6. Mathematics and Chemistry: Study structure of organic compounds.

7. Mathematics and Biology: Study of science of heredity etc.

8. Mathematics and Music

9. Mathematics and Environment

10. Mathematics and Arts: Construction of shapes using curves

11. Mathematics and Information and Communication Technology: Writing of Mathematical programmes, flow charts, algorithm, circuit diagrams etc.

12. Collection of statistical data and analysing it for standard deviation and mean deviation.

13. Observe the various patterns and properties in Pascal's triangle and make a project.

14. Prepare a project based on the Fibonacci sequence, their properties and similar pattern found in nature.

15. Form a differential equation for the growth of bacteria in different environments.

16. Study the nature of Mathematics and make a project showing where three aspects of nature of Mathematics - formalism, logic, intuition is applied in the development of mathematics.

17. Application of cavalier's principle in Mathematics.

Note: It is a sample list of projects. You can do any innovative project other than the listed projects.

PHYSICS

1. PROJECT WORK: -

FOR XI FINAL TERM PRACTICAL EXAMINATION, ONE INVESTIGATORY PROJECT IS TO BE PREPARED. (A list of suggested Projects has been attached at the end)

2. PROBLEMS OF CHAPTER "UNITS AND MEASUREMENT" OF PRACTICE SHEET DONE IN HOMEWORK COPY.

INVESTIGATORY PROJECT LIST

1. To study the changes in velocity of a body pulled by a constant force
2. To study the conservation of energy of a simple pendulum using ticker -timer and tape
3. To study conservation of energy of a body falling freely, using ticker timer and tape
4. To estimate the size of molecule of an oil
5. To study a thermocouple and variation of its e.m.f. with temperature
6. To study the motion of a ball using the double inclined track /channel
7. To study acceleration due to gravity with the help of ball rolling down an inclined plane and by applying the correction for rotatory motion
8. To study the effect of nature of surface on emission and absorption of radiation
9. To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body
10. To study the various factors (like distance between the electrode, concentration of electrolyte etc.) on which e.m.f. of the cell depends
11. To determine the refractive indexes of various liquids by using hollow glass prism

12. To study the effect of temperature on the elasticity of rubber band
13. To study the tension on the pitch of a string
14. To study the effect of mass on terminal velocity
15. To study full wave, half wave and bridge rectifier
16. To study the self-designed transformer
17. To study the coefficient of restitution of elastic solids
18. Calculate numerical aperture of the given optical fiber
19. Solar powered grill from recycled carton box
20. To light an LED using a thermistor
21. Raft powered by surface tension
22. To study the tangent galvanometer
23. To study about vibrational magnetometer
24. To calculate the specific heat capacity of water
25. To prepare the logic gates and study their input and output
26. Analysis of voice frequency across ethnic identities
27. To calibrate the ammeter by using potentiometer
28. To calibrate the voltmeter by using potentiometer
29. To study doppler effect and fiber gyroscope
30. Analysis of black hole thermodynamics.

PRACTICE SHEET

SUBJECT – PHYSICS

Q1. Using dimensional analysis, check the accuracy of the following relation: -

(a) $S_{nth} = u + a/2(2n-1)$ **(b)** $\lambda = h/mv$ **(c)** $T^2 = 4\pi^2 A$ **(d)** $T^2 = 4\pi^2 A^2/G$ **(e)** $E = mc^2$

(f) $S = ut + 1/2at^2$ **(g)** $v^2 = u^2 + 2as$

here T time period, G universal gravitational constant, m mass, c speed of light, v velocity, a acceleration, E energy, A amplitude, h plank constant, λ wave length

Q2. Volume V of water which passes any point of a canal during t second is connected with the cross A of the canal and the velocity u of water by the relation V=K A t u, where K is dimensional constant. verify the correctness of the relation.

Q3. The escape velocity from the surface of earth is given by $v=2\sqrt{GM/R}$ where M is mass and R is radius of the earth. Check the correctness of the formula.

Q4. Check by the method of dimensions, the formula $v=\frac{1}{\lambda}\sqrt{\frac{k}{d}}$ where k is coefficient of volume elasticity, v is velocity and d is density of the medium.

Q5. The rate of flow of liquid of liquid (V) through a pipe of radius (r) under the pressure gradient (p/L) is given by V=π/8 pr4/Lη, where η is coefficient of viscosity of liquid. Check the correctness of the formula by dimensional analysis.

Q6. Check the correctness of the following formula-
(a) Y=a sin 2πt/T (b) y=a sin vt (c) y=a/T sin t\a (d)$y=a/\sqrt{2}$ (sin 2πt /T + cos 2πt/T)

Q7. The critical velocity (v) of flow of a liquid through a pipe of radius (r) is given by v=η/ρr where ρ is density of liquid and η is coefficient of viscosity of the liquid. check the correctness of the formula.

Q8. Find out the dimension of a, b, c, d in the following question-
(a) $x=at^2+bt^3$ (b)v=a +b t+$\frac{c}{d+t}$ (c)v= a+ b t (d) $F=a\sqrt{x}+bt^2$ (e) $E=b-x^2/at$ (f)$P=a-t^2/bx$
(g) (P-a/v) (v-b) = RT
Here V velocity, t time, F force, x displacement, E energy, P pressure, v volume

Q9. If the velocity and time are taken as fundamental quantities, what would be the dimension of work?

Q10.A jet of water of cross-sectional area" A" and velocity v impinges normally on a stationary plate. The mass per unit volume of water is ρ. By dimensional analysis, determine an expression for the force exerted by the jet against the plate.

Q11.Calculate the dimensions of dimensions of linear momentum and surface in terms of velocity (v), density (ρ) and frequency (f) as fundamental unit.

Q12.Derive the expression for frequency of the tuning fork, which depends upon density(d), Young's modulus (γ)and length of the prong.

Q13.The frequency (f) of an oscillating drop may depends upon radius (r), density (d)of the liquid and surface tension(s)of the liquid. deduce the formula of frequency of drop.

Q14.The rate of flow of liquid depends upon radius of the tube(r), pressure gradient (P/l), and coefficient of viscosity (η) of the liquid, derive the formula of rate of flow of liquid. By using dimensional analysis.

Q15.The depth of (x) of the bullet penetrates into human body depends upon kinetic energy (K.E.) and coefficient of elasticity. Establish the relation between them.

Q16.A calorie is a unit of heat energy and it equals about 4.2 J, where 1J=1kg m^2/s^2.Suppose, we employ a system of units in which the unit of mass equals α kg, the unit of length equals β m and the unit of time is γ sec. Show that a calorie has a magnitude of 4.2 $\alpha^{-1} \beta^{-2} \gamma^2$ in terms of new unit.

Q17.If the velocity of light is taken as the unit of velocity and year is taken as the unit of time, what is the unit of length?

Q18.When one meter, one Kg and one minute are taken as fundamental units, the magnitude of a force is 36 units. what is the value of this force on the C.G.S. system?

Q19.The height of mercury column in a barometer In a Calcutta laboratory was recorded to be 75 cm. Calculate this pressure in S.I system and C.G.S. unit (given specific gravity of mercury =13.6, density of water=10^3 Kg/m^3.

Q.20 Convert one atmosphere pressure (10^5N/m^2) into Dyne/cm^2.

Q21.Convert a power of one megawatt on a system whose fundamental unit is 10kg, 1dm and 1mintue.

Q22.The value of Stefan 's constant is $\sigma=5.67x10^{-8}$J $S^{-1}m^{-2}K^{-4}$. Find its value in C.G.S.

Q23.Check formula is dimensionally correct or wrong.
$Sin^{-1}(Y/a) = \omega$ t. here y is displacement a amplitude, t time and ω angular velocity.

Q24. Write two examples of each dimensional constant, dimensionless variable.

CHEMISTRY

Q1. Prepare an investigatory project:

Instructions for the making of the project are as follows:

a) It must be handwritten in your neat handwriting.

b) It should include the main topic, certificate, acknowledgement followed by the index and main content.

c) Project must be neat and clean.

d) Make it more interesting by pasting pictures, photographs or samples wherever required.

e) Last page includes conclusion of the experiment and then ends with bibliography.

f) Selection of topic is as per the contents given in the syllabus (lab manual) or can search at cbse.nic.in

g) Analyze your result of the experiment in proper observation table with proper data.

h) You can take the help of reference books, lab manuals or go through CBSE site etc.

Q2. Solve these questions in Chemistry copy:

a) 1 gm of mixture of $CaCO_3$ and $MgCO_3$ on ignition gave 240 ml of CO_2 at STP. What is the % composition of the mixture? (Ans; 62.50%, 37.50%)

b) How many ml of 0.5 M H_2SO_4 are needed to dissolve 0.5 gm of copper carbonate?

c) Calculate the density of 3.60 M H_2SO_4 solution that is 29% H_2SO_4 by mass. (1.22 ml)

d) 50 cm^3 of 0.2 N HCl is titrated against .1 N NaOH solutions. The titration is discontinued after adding 50 cm^3 of NaOH solution. The remaining titration is completed by adding .5 N KOH solution. What is the volume of KOH required for the completion of titration? (Ans; 10 ml)

e) An organic compound on analysis was found to contain c= 34.6%, H = 3.85% and O= 61.55%. Calculate its empirical formula. ($C_3H_4O_4$)

f) What volume of oxygen at NTP is needed to cause the complete combustion of 200 ml of acetylene? Also calculate the volume of CO_2 formed.

g) Calculate the molarity of H_2SO_4 solution in which mole fraction is 0.85. (Ans: 9.8)

h) What is the difference between m and M?

i) How many atoms of O are present in 96 gm of ozone? (Ans: 9.612 X 10^{23}).

j) The vapor density of a mixture of NO_2 and N_2O_4 is 38.3 at 27^0 c. calculate the no. of moles of NO_2 in 100 gm of mixture. (Ans: 0.437).

BIOLOGY

PROJECT WORK: -

FOR XI TERM -2 PRACTICAL EXAMINATION, ONE BIOLOGICAL BASED PROJECT IS TO BE PREPARED ON ANY TOPIC BY USING NCERT TEXT BOOK AND CBSE.NIC.IN.

(A list of suggested Projects has been attached at the end)

Topics are as follows:

1.Different types of flora and fauna in India

2. Sacred groves

3. Radiation effect on living beings

4. Stem cells

5. Role of antioxidants in human body

6. Genetic disorder in human beings

7. Genome project

8. Endangered species of flora and fauna

9. Any chronic disease

10. Malfunctioning of junk food etc.

11. To Study the Genetic Mutation: Types and its Causes

12. To Study the Various DNA Separation Techniques

13. To Study the Radiation Effects on the DNA

14. To Study and Extract DNA from the Banana

15. To Study RNA Structure and Its Functions

16. To Study different DNA Extraction Methods

17. To Study the Process of the DNA Fingerprinting

18. To Study Chromosomes and DNA Packaging

19. To Study the Characteristics of the Genetic Code

20. To Study the Isolation of DNA from Animal Cell

21. To Study the Regulations of the Gene Expression

22. To Study the DNA Extraction from the Mango

23. To Study Chromosomal Disorder

24. To Study Mutualism and its different types

25. To Study DNA Sequencing Technologies Project

26. To Study the Gene Silencing: Mechanism and applications

27. To Study the Enzymes of DNA Replication Mechanism

28. To Study Developments in the Rice Genome Research

ACCOUNTANCY

1. Do Collection of Source Documents, Vouchers which are helpful for recording of transactions of Business Organisations and Banks. (Original no Photo copy).

BUSINESS STUDIES

Visit a commercial place like market, mall, departmental store etc. and prepare a pictorial project describing the types of economic and non-economic activities. Collect all possible proofs like photographs, certificate of the visit.

ECONOMICS

DEVELOP ECONOMICS PROJECT . REFER TO THE INSTRUCTIONS GIVEN BELOW:

1. Students should develop a questionnaire related to any subject of enquiry. Conduct a survey taking sample size as 30.

2. Organize data in the form of classified tables.

INFORMATICS PRACTICES

1. Write a python program to find average and grade for five subjects marks.

2. Write a python program to find net sale price of an item with cost given by the user and discount is 5% if sale amount is more than 15000.

3. What are the two basic modes available for writing a program in Python IDLE?

4. Identify the types of the identifier of the following: 15.859, 125, True, 'True', False, 'False', 0XDADA, 0o456, None, "None"

5. Find out errors in the following

```
x = 090

y = 0o123

z = 0o99

print x

print(y)

print (x AND y AND z)
```

WEB APPLICATION

1. Create a web page showing national flag of various countries using external CSS and try to incorporate all the various background and image features.
2. Design the cover page of your school Notebook Using Internal CSS.

Note: Write the code and stick the output in practical file

Psychology

Describe any one recent research which is based on observational method or experimental method.

HISTORY

1) Prepare a project file

Topic – As per chosen by you in class.

Note –

(a) Project should be handwritten with cover page, introduction to the topic, index page, acknowledgement and bibliography.

(b) Guidelines of the project will be given to you in your respective class group.

(c) Project must be based on art integrated activities.

(d) Also, prepare yourself for viva based on the project.

GEOGRAPHY

1) Prepare a Power point Presentation.

Topic: World Climate and Climate Change

On the following heads.

1.Meaning of Climate

2.Classify Climate based on various schemes by Koeppen with the help of a mind map in the slide.

3.Describe the causes and effects of global warming

4.Evaluate the climate changes in the recent past.

2) Complete Ch-1&2 in the practical file.

NOTE: The practical file should be handwritten with cover page, index page and acknowledgement.

PHYSICAL EDUCATION

Practical File Work

Practical 1 :- Fitness test administration (SAI Khelo India Test)

Practical 2 :- Procedure for Asanas, Benefits and contraindication for any two asanas for each lifestyle skills

Practical 3:- Any one IOA recognised sport/ game of choice. Labelled diagram of field and equipment, also mention its rules, terminologies and skills.