SUMMER VACATION

JYANTI PRASAD DAV PUBLIC SCHOOL
GARHI JHANJHARA ROAD, GANAUR
(UNDER THE DIRECT CONTROL OF DAV CMC, NEW DELHI)

HOLIDAYS' HOMEWORK

SESSION 2024-25

CLASS XI SCIENCE

FOR ANY QUERY CONTACT: **0130-2450641**

A fully English medium and the best school in area for all round development of students.

TOGETHER WE CAN

FROM JUNE 01, 2024 TO JUNE 30, 2024

Dear parents

We wish you a very happy and fruitful time with your children. Summer vacation is the most awaited time for the students as they want to play, enjoy and relish with their friends, neighbours and relatives. This is a time for them to stay away from the mundane schedule of daily life. They want to enjoy it in leaps and bounds. But we request you to keep their energy channelised. You should be a part of their enjoyment but time and again a check is required. Now it's your responsibility to make them stay connected with their studies along with fun and frolic & encourage them to do their homework in a neat and tidy manner.

Here are some of the suggested activities that you can do as a family:

1. Prepare a well-being plan for self.

2. Stick to routines or starting new ones.

3. Get up and go to sleep at regular times.

4. Help them explore new hobbies and interest.

5. Do karaoke, read, solve puzzles, play board games, etc.

6. Keep a gratitude journal. Writing down three things you are grateful for every day. Congratulate yourself and others on having a "MEGA DAY".

7. Take out time for Reading, Music, Dance, Singing, and Laughing.

8. Set Challenges- Encourage each other to take up new activities and complete them.

9. Be Creative with Space- Find a corner in the house and allow yourself and your children to decorate it.

10. Involve your children in household activities also.

11 Learn foreign languages through online courses available.

12. Take them for outing to place of their interest & let them explore the world.

13. Communicate with your children and let them know you fully.

As parents you are requested to keep a watchful eye on your children and stop them from engaging in :

1. Excessive use of mobile phones.   Be Safe

2. Playing online games

3. Spending a lot of time alone away from family members.

We're doing our homework to make sure we're prepared. - Gary Gait

Thomas A. Edison says "Genius is one percent inspiration and ninety-nine percent perspiration. As a result, a genius is often a talented person who has simply done all of his homework."

General Instructions:

1. Do your Homework in a separate 3 in 1 notebook (classes 1 and 2) & cover it properly.

2. Do your Homework in separate 10 rs/- notebooks subject wise (classes 3 to 12) & cover it properly.

3. Mention your details on your holiday's homework.

4. Start your homework from very beginning of holidays to avoid stress and ensure high quality work as it has been assigned.

5. Dedicate a specific time each day on your homework.

6. Choose a dedicated area that is free from distraction to focus on your work.

7. Present your homework in a neat and logical manner.

8. Use clear handwriting, proper formatting and consistent spacing.

Note:

➢ The best holiday homework of each class will be awarded.

➢ It is a part of internal assessment for the final examination.

WARM REGARDS
PRINCIPAL

PHYSICS
 Chapter 1: Units and Measurements
1. Read Chapter 2 attentively, focusing on the definitions of units, systems of units, and the importance of measurements in Physics.
Find out 5 Assertion Reason based Questions.

Chapter 2: Motion in a Straight Line
Read Chapter 2 thoroughly, understanding the concepts of motion in a straight line, uniform and non-uniform motion, and graphical representation of motion.
Find out 5 Assertion Reason based Questions.
 2. Problem-solving Practice:
   - Solve numerical problems based on the equations of motion, covering scenarios of objects moving in a straight line with uniform acceleration.
   - Work through additional practice problems(**NCERT EXEMPLAR**)to strengthen your problem-solving skills in this chapter.
3. Solve NCERT Exercise of chapter 2 2.6,2.8,2.10,2.15,2.16,2.17,2.18
Intext Examples-2.2,2.3,
Solve NCERT Exercise of chapter 3

 Investigatory Project:

Title: Investigating the Factors Affecting the Period of a Pendulum.

Aim:To explore how the length of a pendulum affects its period of oscillation.

Materials Required:
- Pendulum (string and weight)
- Stopwatch or timer
- Meter scale or ruler

Procedure:
1. Set up the pendulum by suspending a weight (such as a small bob) from a string of a known length.
2. Measure the length of the pendulum from the point of suspension to the center of the weight using a meter scale or ruler.
3. Allow the pendulum to swing freely and measure the time taken for a certain number of oscillations using a stopwatch or timer. Repeat this process for different lengths of the pendulum.
4. Record your observations in a table, noting down the length of the pendulum and the corresponding period of oscillation.
5. Analyze your data and plot a graph of length vs. period of oscillation.
6. Draw conclusions based on your observations and the graphical representation.

Chapter -3 (Motion in a plane)
1.Read the chapter attentively and find out 5 Assertion Reason questions.
2. Solve NCERT Exercise questions
3.6, 3.9, 3.10, 3.12, 3.13,3.17,3.18,3.19
Intext Examples-3.2, 3.3, 3.4, 3.5, 3.7,3.8
Derive following derivations
1.Discuss projectile motion. What are its characteristics? And derive expressions for path of projectile,time of flight , horizontal range , maximum height and velocity at any instant for angular and horizontal projectile.
2.Discuss analytical treatment of parallelogram law of vector addition.
Investigatory Project: Trajectory of a Projectile

Objective: To investigate the trajectory of a projectile and understand its characteristics.

Materials Required:
- A small ball or projectile
- Measuring tape or ruler
- Protractor
- Stopwatch or smartphone with a timer
- Graph paper
- Calculator

Procedure:-
1. Set up a flat surface area free from obstructions, such as a sports field or an open ground.
2. Mark a starting point on the ground.
3. Using a protractor, set the angle at which you want to launch the projectile. Start with angles like 30°, 45°, and 60°.
4. Measure and mark the launch angle on the ground.
5. Using the measuring tape or ruler, measure and mark the horizontal distance from the launch point to the spot where the projectile lands for each launch angle.
6. Repeat steps 3-5 for different launch angles, ensuring that the initial velocity remains constant.
7. Record the horizontal distances and the corresponding launch angles.
8. Plot a graph with launch angle on the x-axis and horizontal distance on the y-axis.
9. Analyze the graph to determine the relationship between the launch angle and the horizontal distance covered by the projectile.

Discussion:
- Describe the shape of the trajectory formed by the projectile.
- Discuss how the launch angle affects the horizontal distance covered by the projectile.
- Compare your experimental results with the theoretical predictions of projectile motion.
- Suggest ways to improve the accuracy of the experiment.

Conclusion:
Summarize the findings of the experiment and discuss the significance of understanding projectile motion in various real-life scenarios, such as sports, engineering, and astronomy.

CHEMISTRY
1.Learn and draw periodic table. (on chart)
2.Complete practical record in accordance with instructions given in class.
3. Study and prepare a   summarize note on work (any invention, discovery) of last
Three years in the field of chemistry including pictures , real facts etc. (Do it on
A4- size sheet)
4. Solve the assignments based on chapter 1,2and 3 in separate thin notebook.
ASSIGNMENT NO 1
1. Electrons are emitted with zero velocity from a metal surface when it is exposed to radiation of wavelength 6800 Å. Calculate threshold frequency (v_o) and work function (W_o) of the metal.
2. What is the wavelength of light emitted when the electron in a hydrogen atom undergoes transition from an energy level with n = 4 to an energy level with n = 7 ?
3. How much energy is required to ionise a H atom if the electron occupies n = 5 orbit? Compare your answer with the ionization enthalpy of H atom (energy required to remove the electron from n
=1 orbit).
4. (i) The energy associated with the first orbit in the hydrogen atom is-2.18 x 10-18 Jatom¹.
What
is the energy associated with the fifth orbit? (ii) Calculate the radius of Bohr's fifth orbit for hydrogen atom.
5. What is the energy in joules, required to shift the electron of the hydrogen atom from the first Bohr orbit to the fifth Bohr orbit and what is the wavelength of the light emitted when the electron returns to the ground state? The ground state electron energy is - 2.18 * 10 ^ - 11 ergs.
6.The electron energy in hydrogen atom is given by E_n = (-2.18 x 10-18)/n^2 J. Calculate the energy required to remove an electron completely from the n = 2 orbit. What is the longest wavelength of light in cm that can be used to cause this transition?

7. What transition in the hydrogen spectrum would have the same wavelength as the Balmer transition n = 4 to n = 2 of He spectrum?

8. An element with mass number 81 contains 31.7% more neutrons as compared to protons. Assign the atomic symbol.

9.. An ion with mass number 37 possesses one unit of negative charge. If the ion contains 11.1% more neutrons than the electrons, find the symbol of the ion.

10. A commercially available sample of H_2SO_4 is 15% H_2SO_4 by wt. (density = 1.10g/mL). Calculate molarity, molality and mole fraction of H_2SO_4 in the given solution.

11. When a proton of frequency 1×10^{15}/s was allowed to hit a metal surface, an electron having 1.988×10^{-19} J of kinetic energy was emitted. Calculate the threshold frequency of the metal. Show that an electron will not be emitted if a photon of wavelength 600 nm hits the metal surface.

12.Calculate the number of atoms in each of the following (i) 52 moles of Ar (ii) 52 u of He (iii) 52 g of He.

13.A piece of aluminium weighing 2.7g was heated with 100ml of 25% by mass H_2SO_4 (density= 1.18 g/cm³). After complete dissolution of metal, the solution is diluted further by adding water to 500mL. What is the molarity of free H_2SO_4 in the resulting solution?

14. Calcium carbonate reacts with aqueous HCI to give $CaCl_2$ and CO_2 according to the reaction, $CaCO_3$ (s) + 2 HCl (aq) → $CaCl_2$ (aq) + CO_2 (g) + H_2O(1) What mass of $CaCO_3$ is required to react completely with 25 mL of 0.75 M HCI?

15. Chlorine is prepared in the laboratory by treating manganese dioxide (MnO_2) with aqueous hydrochloric acid according to the reaction 4 HCl (aq) + MnO_2 (s) → $2H_2O$ (l) + $MnCl_2$ (aq) + Cl_2 (g) How many grams of HCI react with 5.0 g of manganese dioxide?

Assignment no 2

1. Define
i) Photoelectric effect
ii) Black body radiation

2. Differentiate
i) Absorption and Emission spectrum
i) Orbit and orbital

3. Which is more stable i) Mn^{2+} or Mn^{3+} ii) Fe^{2+} or Fe^{3+}? Give reason.

4. Among the following pairs of orbitals which orbital will experience the larger effective nuclear charge? (i) 2s and 3s, (ii) 4d and 4f, (iii) 3d and 3p.

5. Based on Bohr Bury rules arrange the following orbital's in the increasing order of energy.
(i) 5f, 4d, 7s, 7p (ii) 5p, 4d, 5d, 4f, 6s

6. Discuss the similarities and differences (t each) between a 1s and a 2s orbital.

7. a) How many electrons in an atom may have the
following quantum number?
(i) n = 4 ms = +1/2 (ii) n = 3,1 = 0
b) What are the atomic numbers of elements whose outermost electrons are represented by
(i) $3s^1$ (ii) $2p^3$ (iii) $3d^6$

8. What are the possible values of I and m for a) n=3 b) n=5

9. List the quantum numbers of
a) unpaired electrons in F, Ni^{2+} b) valence electrons in P, Ca

10. Electrons are emitted with zero velocity from a metal surface when it is exposed to radiation of wavelength 6800Ao. Calculate the threshold frequency and work function of the metal.

ASSIGNMENT :3

1. Assign the position of the element having outer electronic configuration (i)$3s^23p^4$ (ii)$4f^7$ $5d^26s^2$

2. Which of the following species has the largest and the smallest size Mg, Al, Al^{3+}

3. Arrange the given ions in order of decreasing radii Li, Be,B giving the reason..

4. Why is the second ionisation enthalpy always higher than the first ianisation enthalpy?

5. Why is the first ionisation enthalpy of N exceptionally higher?

6. Give the order of the first ionisation enthalpies of Na, Mg, Al and Si. Explain your choice.

7. Noble gases have larger size than halogens. Explain.

8. Write the IUPAC name and symbol for the element having 119 as the mass number. On the basis of the periodic table, predict the eletronic configuration of this element and also the formula of its most stable chloride and oxide.

9. The formation of F^- (g) from F(g) is exothermic whereas that of O is endothermic. Explain,

10. First and second ionisation enthalpies (IE, and IE₂) in kJ mol for a few elements are given. below:

Element	IE$_1$	IE$_2$
A	419	3051
B	1251	2297
C	2372	5250
D	738	1451

Which of the above elements is likely to be

(a) a reactive metal
(b) a reactive non-metal
(c) a noble gas
(d) a metal that forms a stable oxide of the formula MO?

11. Why is F is more reactive than Cl?

12. Negative electron gain enthalpy of fluorine is less than that of chlorine. Why?

13. Which element has the electronic configuration (Ar) 3d6?

14. Answer the following questions about the elements with the electronic configurations below:
A=3p64s2   B=3p63d104s24p5
(a) Is element A metal, metalloid or non-metal?
(b) Is element B metal, metalloid or non-metal?
(c) Which element has the highest ionization enthalpy?
(d) Which element has the electron gain enthalpy? (e) Which element should be smaller of the two?

15. Follow the periodic trends and give a brief explanation for each answer:
(a) Which has the highest first ionization enthalpy: B, Al, C and Si?
(b) Which has the highest electron gain enthalpy: F. CI, I or Br?
(c) Which has the lowest first ionization enthalpy: B, C, N or OP
(d) Which has the largest radius: O or F?

MATHEMATICS

1. Make a project on the topic **"SETS"**

    - Sets
    - Representation
    - Types of sets
    - Intervals as subset of R
    - Draw venn diagram
    - Operations on sets.

2. Do lab-manual activities in the activity file.(pdf share in maths group)

3. Solve the given assignments in the fair notebook:-

ASSIGNMENT -1

Q1. If A=$\{x|x$ is a letter of the word"IMITATE"$\}$ & B$\{y|y$ is a letter of the word"INTEGRATE"$\}$, then A $\cap$ B =?

Q2. For two sets A & B ,If n(A)=p , n(B)=q, then find total no. of non empty relations that can be defined from A to B.

Q3. Find the number of subsets of A=$\{K, I, T, E\}$. Also,write them.

Q4. For any three non- empty sets P,Q & R ,If Q$\subset$R, then prove that P-R $\subset P - Q$.

Q5. Find the domain and range of f(x)= $\frac{3}{2-x^2}$.

Q6. Out of 100 students,15 passed in English, 12 passed in Mathematics, 8 in Science, 6 in English and Mathematics, 7 in Mathematics and Science, 4 in English and Science , 4 in all three. Find how many passed ;

(a) In English and Mathematics but not in Science
(b) In Mathematics and Science but not in English
(c) In Mathematics only
(d) In more than one subject only.

Q7. Find domain and range of;
(a) $\sqrt{16 - x^2}$ (b)   x|x| (c) $\frac{1}{\sqrt{x-5}}$

Q8. The domain of the function $\sqrt{a^2 - x^2}$, (a> 0).

Q9. If f & g are two real valued functions defined as f(x)=2x+1 and g(x)=4x-7.Then find,
f+g , f-g, fg, f/g .

Q10. Find values of x for which f(x)= $3x^2 - 1$, g(x)= 3+x are equal.

ASSIGNMENT -2

Q1. What is the smallest positive integer n for which $(1+i)^{2n} = (1-i)^{2n}$.

Q2. Find the conjugate of $\frac{\sqrt{5+12i}}{\sqrt{5-12i}} + \frac{\sqrt{5+12i}}{\sqrt{5-12i}}$.

Q3. Evaluate $\sum_{n=1}^{13} i^n + i^{n+1}$, n∈ N.

Q4. Find multiplicative inverse of ;

   (a) 4-3i   (b)-i

Q5. Find all pairs of consecutive odd positive integers, both of which are smaller than 18 such that their sum is more than 20.

Q6. If x is a integer ,then solution of ;

   (a) -12x > 30   (b) 3x-5 < x+7.

Q7. How many litres of water will have to be added to 1350 litres of the 35% solution of acid so that the resulting mixture will contain more than 15% but less than 30% acid content.

Q8. Solve

(a) |3-4x| ≥ 9.   (b)|x-1|≤ 5.

BIOLOGY
- Prepare a 3-D or working model based on your syllabus.
- Prepare your practical record and complete all practical in it.
- Complete the given assignments in homework notebook.

ASSIGNMENT 1

Q1. Explain the rules for Binomial nomenclature with the help of any two examples.

Q2. What are the advantages of using scientific names?

Q3. Mention the distinguishing characteristics of cyanobacteria.

Q4. Differentiate between. .

   i) deuteromycetes and ascomycetes. ii) Virus and viroid's iii) Photobiont and mycobiont

Q5. Define red tides, diatomaceous earth, chemoautotrophs, karyogamy

Q6. Draw a well labelled diagram of a virus that has

   a) Single stranded RNA as genetic material, b) double stranded DNA as genetic material,

   c) Euglena, d) paramecium

Q1. Explain the following terms-

a) Protonema, b) Prothallus, c) Gemmae, d) Oogamy, e) Heterospory, f) sporophyll

Q2. Differentiate between-a) Red Algae and Brown Algae, b) Liverwort and Mosses

Q3. Describe the identifying characteristics of Bryophyta, Pteridophyte and Gymnosperms.

Q4. Prothallus of the fern is monoicous, Justify.

Q5. What are hydrocolloids? Give two examples.

Q6. Name two algae that yield agar. Mention two uses of agar.

Q7. Give reason- why are bryophytes called amphibians of the plants?

Q8. What is meant by Cytotaxonomy? How is it different from numerical taxonomy?

Q9. What is 5 Kingdom plan of classification? Explain with the characteristics of each Kingdom.

Q10. Mention few importance of bacteria & fungi.

Q11. What are lichens? Explain.

Q12. Write down scientific name of the followings :

Wheat, Tiger, Frog, earthworm, cockroach, Rose, China rose, lizard, onion & potato.

Informatics Practices

Q1. Prepare project reports in Fair Note Book (at least 10 pages each) on the following
Topics:
   i.   Evolution of Computer
   ii.   Types of Memory used in Computer
   iii. Proprietary and Free/Open Source Software
   iv.   Emerging Trends
   v.   Artificial Intelligence
   vi.   Augmented Reality and Virtual Reality
   vii. IoT and WoT
   viii. Sensors
   ix.   Blockchains Computing
   x.   Grid Computing
   xi.   Cloud Services
   xii. History of Python
   xiii. Fundamentals of Python

Note: All the details of research work should be handwritten in fair Note Book by the
student.
Q2.   Do the unsolved exercise, notes of Ch 1,2 and notes of Ch.3.
Q3   "Big data and data Science are two interrelated terms". Prepare a satisfactory report to
justify this statement.
Q4.   A 'Processor' is the main component for doing processing. Prepare a report with
satisfactory detail the journey of 'Micro Processor'.
Q5.   Data is the most valuable as well as term these days. Prepare a project report related to
data, its importance, storage and vulnerability.
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PHYSICAL EDUCATION
1. Revise unit 1 ,2 and 3
 2. Prepare notes of unit 1,2 and 3
3. Prepare practical file :- Practical File shall include: ➤
 Practical-1: Fitness tests administration. (SAI Khelo India Test) ➤
Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
 Practical-3: Anyone one IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also, mention it RULES ,TERMINOLOGIES AND SKILLS.

ENGLISH
1.Read the following carefully and make a question bank containing at least 100 questions to be used in '**Interclass Quiz Competition**'.
Hornbill: Lesson 1- The The portrait of a Lady
Lesson 2- We're Not Afraid to Die....
Poem 1- A Photograph
Snapshot: Lesson 1- The Summer of Beautiful White Horse
2. Read lesson 'The Ailing Planet…'
and frame notes covering the whole detail given in the lesson.
3. On the basis of your reading (Mentioned in question 2), prepare yourselves for an Inter-class Debate Competition on the topic **'Are people to blame for global warming?'** to be held on July 6, 2024(tentative).
3. Make a catchy detailed project on the life & success story of the Founders of the following: (At Least 18-20 pages)
Raymond (1-5)
Godrej   (1-10)
Jaguar   (6-15)
Infosys   (11-20)
Peter England   (11-25)
Oyo Rooms/Hotels   (21-30)
Lakme   (26-35)
Royal Enfield   (31-40)
Airtel   (36-40)

Note: Every student has to take two topics r/according to their roll numbers.

4. Prepare a Presentation/lesson plan on '**Clauses**' including definition, parts, usages with examples to be presented in class as speaking activity.

5. Draft an advertisement (Video) for the promotion of your school. You may work in a group of maximum 5.
The best one will be awarded.

Note: Questions 1-2 are to be done
in fair notebook.
Questions 3-4 are to be done
on A4 assignment sheets.(Use good quality of Assignment sheets and file.

MUSIC

Prepare practical File

1 Tanpura
2 Taal Teen Taal
3. Taal Ektaal
4. Taal Chaartaal
5.Raag bhairavi
6. Raag Bihag
7. Raag Bhimplasi
8. Tansen
9. Pandit Vishnu Narayan Bhatkhande
10. Pandit Vishnu Digamber Pulusker