

CARMEL CONVENT HIGHER SEC. SCHOOL, KUNJWANI

ACADEMIC SESSION 2022-23
CLASS XI

PHYSICS
HOLIDAY WORKSHEET

(Use 9 th standard science NCERT and solve end chapter exercise on following chapters:-

- Describing the motion
- Laws of motion

Q1. If the velocity of light c , the constant of gravitation G and Planck's constant h be chosen as fundamental units, find the dimension of mass, length and time in terms of c, g and h .

Q2. Find the value of 60 W on a system having 100 g, 20 cm and 1 min. as the fundamental units.

Q3. Assuming that the mass M of the largest stone that can be moved by a flowing river depends upon ' v ' the velocity ' ρ ' the density of water and on ' g ' the acceleration due to gravity. Show that M varies with the sixth power of the velocity of flow.

Q4. The wavelength λ associated with a moving particle depends upon its mass m , its velocity v and Planck's constant h . Show dimensional relation between them.

Q5. The critical angular velocity ω of a cylinder inside another cylinder containing a liquid at which its turbulence occurs depends on viscosity η , density ρ and the distance d between the walls of the cylinder. Find an expression for ω .

Q6. Obtain an expression for the centripetal force F acting on a particle of mass m moving with velocity v in a circle of radius ' r '.

Q7. The period of vibration of a tuning fork depends on the length l of its prong, density d and Young's modulus Y of its material. Deduce an expression for the period of Vibration on the basis of dimensions.

Q8. If the units of force, energy and velocity are 20 N, 200 J and 5 m/s, find the units of length, mass and time.

Q9. If the value of atmospheric pressure is 106 Dyne cm^{-2} , find its value in S.I. units.

Q10. Calculate the depth x to which a bullet penetrates a human body depends upon

- (i) Coefficient of elasticity η
- (ii) Kinetic energy.

Prepare Practical files.

Write all the experiments in practical notebook.

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Class-11th

Chapters:- Periodic Classification

Summer-H/W

LAQ

Q1. Discuss the general trends in periodic properties :- I) Atomic Size II) ionization energy III) Electronegativity IV) Electron Gain Affinity V) Metallic Character and Non-metallic character . VI) valency .

Q2. Describe the main characteristics of S,P,d& f -block elements . Also write their general electronic configuration .

SAQ

Q1. Write short notes on :

Noble gases II) Dobereiner's Triads III) Newlands Octaves Law

IV) Mendeleev's periodic table V) Isoelectronic species VI) Vander Waal's Radius

Q2. What is successive ionization energy ? Why $IE_{iii} > IE_{ii} > IE_i$ illustrate with one suitable example.

Q3. What is Diagonal Relationship? Give an example In support of your example

Q4. What are transition elements? why are they called so? Name the different transition series .

Q5. What are inner transition elements? why are they called so ? Name the different series .

Q6. Zn, Cd & Hg are d-block elements but are not transition metals . Why?

Q7. Explain that the size of anion is larger than its parent atom while the cation of same atom has least size.

VSAQ

Q1. Define periodicity?

Q2. What do you mean by hydride gap?

Q3. What are representative elements?

Q4. Why the electron affinity of Be and Mg are positive ?

Q5. Why the ionization energy of Mg is more than that of Na and Al?

Q6. Why halogens have very high negative electron gain enthalpies?

Q7. Why electron affinity of F is lesser than Cl , while the electronegativity of F is more than Cl?

Q8. Give the four examples of species which are isoelectronic with Ca^{2+}

Q9. Discuss Slater rule for effective nuclear charge with atleast three examples.

Q10. Write the electronic configuration of elements - Atomic no's - 9, 12, 24, 29, 43, 57, 58, 60 , 89, 90.

HOLIDAY HOMEWORK

SUBJECT: BIOLOGY

CLASS: 11th

Q1. How do you prepare your own herbarium sheets? What are the different tools you carry with you while collecting plants for the preparation of a herbarium? What information should a preserved plant material on the herbarium sheet provide for taxonomical studies?

Q2. International Code of Botanical Nomenclature (ICBN) has provided a code for classification of plants. Give hierarchy of units of classification botanists follow while classifying plants and mention different "Suffixes" used for the units.

Q3: Learn and write 10 Botanical names and 10 Zoological names of plants and animals found in your surroundings along with their common name.

Q4: Draw well labelled diagram of

- a) Female thallus of liverworts.
- b) Male thallus of liverworts.

Q5: Give the summarized account of photosynthetic pigments, storage material and complexity of structure in different groups of algae.

Q6: Draw a neat and clean well labelled life cycle of an angiosperm, using innovative methods.

Q7: Justify that Lichens are the pioneer organisms?

Q8: Which alga is popularly called "devils apron" and why? Give a detailed account of the alga in support to your answer.

Q9: Give reason for the followings:

- a) Growth & Reproduction cannot be the defining property of the living organisms.
- b) Organisms belonging to same 'class' will have more features in common in comparison to organisms belonging to same order but two different classes.
- c) Museum cannot be the taxonomical aid to study the habitat of the organism.
- d) Two kingdom classification was replaced by the five kingdom classification.
- e) Arachae bacteria are able to survive in extreme environmental conditions like hot sulphur springs.

Q10: Differentiate between the followings:

- a) Photosynthetic autotrophs and chemosynthetic autotrophs.
 - b) Manuals & Monographs
 - c) Herbarium & Botanical garden
 - d) Spirilla&Cocci
- Do self study of the chapters "Mineral Nutrition" and "Morphology of flowering plants". Consult your text book for both these chapters.

- Study material for these chapters will also be provided through the Google classroom. Test will be conducted on these chapters after summer vacations.

HOLIDAY HOMEWORK

CLASS : XI

SUBJECT: ENGLISH

1. Read the newspaper everyday and collect one good article/feature each related to the Elderly, Adventure , problems faced due to construction activities in Delhi-NCR , Environmental hazards and paste them in your registers.
2. Collect information related to King Tut and the Egyptian Civilization . Present it through Power Point (about 10-12 slides)
3. Write an article on 'Tourism and its future in India' in about 200 words.
4. Watch Ted talks related to the Elderly, People with disabilities and Environment and express your opinion on the same in about 100 words each
5. Learn all the syllabus of UII exams.

SUMMER HOLIDAY HOMEWORK

CLASS XI SUBJECT: MATHEMATICS (2022-23)

TOPIC : SETS

VERY SHORT ANSWER

1. If $A \in B$ and $B \subset C$, is it true that $A \subset C$? Justify your answer
2. Find sets A , B & C such that $A \cap B$, $B \cap C$ & $A \cap C$ are non empty sets but $A \cap B \cap C = \emptyset$
3. Find the cardinal number of the following sets i) $\{ \}$ ii) $\{1\}$ iii) $\{a, b, c\}$
4. Write the following sets as intervals i) $\{x: x \in R, x > -2\}$ ii) $\{x: x \in R, x > -3\}$

5. If $A = \{1, 3, 5\}$, write all proper subsets of A
6. Describe the following sets in roster form a) $\{x \in \mathbb{N} : x^2 < 25\}$
b) $\{x \in \mathbb{N} : x^2 < 25\}$

SHORT ANSWER

7. If A, B and C are sets, prove that $A \subset B, B \subset C \Rightarrow A \subset C$
8. Two finite sets have m and k elements. If the total number of subsets of first set is 56 more than the total number of subsets of second set, find m & k
9. Two finite sets have m & k elements. If the total number of subsets of first set is 56 more than the number of subsets of the second set, find the values of m & k
10. In a school, there are 20 teachers who teach Maths or Physics. Of these, 12 teach Maths and 4 teach Physics and Maths. How many teach Physics?
11. Write down all possible subsets of each of the following sets: a) $\{0,1\}$ b) $\{\phi\}$

LONG ANSWER

12. In a survey of 100 students, it was found that 28 watch action movies, 30 watch comedy movies, 42 watch news channels, 8 watch action and comedy movies, 10 watch action movies and news channels, 5 watch comedy and news channels and 3 watch all 3 types of programs. Find out how many i) Watch News Channels only ii) Do not watch any of the three types of programs.
13. A & B are two sets such that $n(A - B) = 14 + x$, $n(B - A) = 3x$ & $n(A \cap B) = x$ If $n(A) = n(B)$, find
14. i) Value of x ii) $n(A \cup B)$
15. In a survey of 100 students regarding watching TV, it was found that 28 watch action movies, 30 watch comedy serials, 42 watch news channels, 8 watch action movies and comedy movies; 10 watch action movies and news channels; 5 watch comedy serials and news channels and 3 watch all three types of programs. Find out how many watch i) News channels only ii) How many do not watch any program According to you, which TV program is useful and why?
16. In a class of 35 student 15 study Economics, 22 study Business studies and 14 study Advance Accountancy. If 11 students both Economics and Business studies, 8 study Business

studies and Advanced Accountancy and 5 study Economics and Advanced Accountancy and if 3 if study all the three subjects, find how many students of the class are not taking any of these subjects.

TOPIC : RELATIONS AND FUNCTIONS

VERY SHORT ANSWER

1. In a relation $R = \{(0, 0), (2, 4), (-1, -2), (3, 6), (1, 2)\}$
i) Write domain of R ii) Write range of R iii) Write R in the set builder form iv) Represent R by arrow diagram
2. If $R = \{(x, y) : x, y \in W, x^2 + y^2 = 25\}$ i) Find R in roster form ii) Write domain of R iii) Write range of R
3. Write domain of the function $f(x) = x^2 - 8x + 12$
4. If R is the set of all real numbers, what do the Cartesian products $R \times R$ and $R \times R \times R$ represent
5. If $A \times B = \{(0, 2), (3, -1), (4, 2), (0, -1), (3, 2), (4, -1)\}$ find $B \times A$

SHORT ANSWER

6. Write domain and range of $f(x) = 1 - x^2$
7. Find domain and range of the relation given by $R = \{(x, y) : y = x + 6, x \in N, x < 6\}$
8. If $R = \{(x, y) : x, y \in W, x^2 + y^2 = 25\}$ i) Write R in roster form ii) Write domain and range of R
9. Is the given relation a function? Give reasons for your answer a) $h = \{(4, 6), (3, 9), (-11, 6), (3, 11)\}$ b) $f = \{(x, x) | x \text{ is a real number}\}$
10. Given $R = \{(x, y) : x, y \in W, x^2 + y^2 = 25\}$. Find the Domain and Range of R.

LONG ANSWER

11. Find domain and range for the following i) $f(x) = \sqrt{x - 4}$ ii) $f(x) = 1 - \sqrt{9 - x}$ iii) $f(x) = x - 3 - 2x + 1$ iv) $f(x) = 4 + x - 4 - x$ v) $f(x) = 1 - x^2 - 1$
12. Redefine the function which is given by $f(x) = |x - 1| + |1 + x|, -2 \leq x \leq 2$.

13. Find the domain of the function f given by $(x) = \frac{1}{\sqrt{[x]^2 - [x] - 6}}$.

14. Find the domain of the function f Defined by $(x) = \frac{1}{\sqrt{x - |x|}}$

15. Find the domain and range of the following functions : (i)
 $\{(x, 2x - 9) \in \mathbb{R} \times \mathbb{R} : x \in \mathbb{R}\}$.

HOLIDAY HOMEWORK

CLASS-

11TH
EVS

SUBJECT-

(1). Make a project file on the topic "Water pollution"/ "Air Pollution".

- Collect the data and record it in the given format:

- Index
- Acknowledgement
- Introduction
- Theory(Refer books and internet for this)
- Questionnaire/ Case studies
- Experience
- Conclusion
- Bibliography

(2). Prepare a herbarium of about 10 plants available in your locality. Each sheet should contain a printed label giving the following information on the lower right corner of each sheet.

- Scientific name of plant
- Common name of plant
- Family
- Locality from which it is collected
- Date of collection
- Name of collector

(3). Public all over the India is very much concerned about the deteriorating air quality in large parts of North India. Alarmed by this situation the Resident's Welfare Association of your

locality organized an awareness programme entitled "Bury not burn". They invited you, being an EVS student to participate.

(A) How would you justify your arguments that promote burying and discourage burning?

(B) With the help of flowcharts, one for each practice (burying and burning), depict the chain of events that follow.

Do self study of the chapter "Population Ecology". Consult your text book for this chapter. Study material of this chapter will also be provided through the "Google Classroom". There will be a test on this chapter after the summer vacations.

HOLIDAY HOMEWORK

COMPUTER

Imagine yourself as a teacher and you want to teach C++ to your students. Create a PowerPoint to teach "Getting started with C++" topic. Make them familiar with any online platform to practice c++ and keep ready below given sample programs for your students.

Practical:

1. Write a c++ program to calculate average of any 5 numbers.
2. Write a c++ program to solve $(a+b)^2$
3. Write a c++ program to calculate simple interest.
($S.I=P*R*T/100$)
4. Write a c++ program to swap two numbers using third variable
5. Write a c++ program to calculate perimeter, if the area of a square is 36 sq.cm.
6. Write a c++ program to calculate perimeter and area if the side of a square is 2.5 cm.
7. Write a c++ program to calculate area If the perimeter of a square is 24 cm.
8. Write a c++ program to calculate perimeter and area of the rectangle. if the length and breadth of a rectangle are 36 cm and 24 cm respectively.

9. Write a c++ program to calculate circumference and area if the radius of a circle is 3.5 cm.
10. Write a c++ program to calculate circumference if the area of a circle is 154 cm².

Holiday Homework class 11th

1. Read and write chapters no. 1 to 4 at home.
2. Practical, write down kabaddi and Kho-Kho games on your notebook with rules and regulations.
3. Project , write brief note on sports personality of your choice of India.
4. Play at home, atleast 30 minutes daily to stay healthy and fit.