



مدارس دارة السلام العالمية- الرياض
Daratassalam International,
Delhi Public School –Riyadh
SUMMER HOLIDAY HOMEWORK-2020
GRADE : XI SCIENCE



SUBJECT: PHYSICS

Q.I Solve the following:

1. A physical quantity P is related to four observables a, b and c as follows: $P = (a^3b^2/c^4)$

The percentage errors of measurements in a, b and c are 1%, 4% and 2% respectively. What is the percentage error in quantity P?

2. A ball is dropped from a height of 90m on a floor. At each collision with the floor the ball loses one tenth of its speed. Plot the speed time graph of its motion between $t=0$ to 12s.

3. A stone tied to the end of a string 80cm long is whirled in a horizontal circle with a constant speed. If the stone makes 14 revolutions in 25s, what is the magnitude and direction of acceleration of the stone?

4. Two masses 8kg and 12kg are connected to the ends of a light inextensible string that goes over a frictionless pulley. Find the acceleration of the masses, and the tension in the string when the masses are released.

5. A body of mass 0.40 kg moving initially with a constant speed of 10 m s⁻¹ to the north is subject to a constant force of 8.0 N directed towards the south for 30 s. Take the instant the force is applied to be $t = 0$, the position of the body at that time to be $x = 0$, and predict its position at $t = -5$ s, 25 s, 100 s.

6. A stone of mass 0.25 kg tied to the end of a string is whirled round in a circle of radius 1.5 m with a speed of 40 rev/min in a horizontal plane. What is the tension in the string? What is the maximum speed with which the stone can be whirled around if the string can withstand a maximum tension of 200 N?

7. Explain why

- (a) a horse cannot pull a cart and run in empty space,
- (b) passengers are thrown forward from their seats when a speeding bus stops suddenly,
- (c) it is easier to pull a lawn mower than to push it,
- (d) a cricketer moves his hands backwards while holding a catch.

8. Underline the correct alternative:

- (a) When a conservative force does positive work on a body, the potential energy of the body increases/decreases/remains unaltered.
- (b) Work done by a body against friction always results in a loss of its kinetic/potential energy.
- (c) The rate of change of total momentum of a many-particle system is proportional to the external force/sum of the internal forces on the system.
- (d) In an inelastic collision of two bodies, the quantities which do not change after the collision are the total kinetic energy/total linear momentum/total energy of the system of two bodies.

9. State if each of the following statements is true or false. Give reasons for your answer.

- (a) In an elastic collision of two bodies, the momentum and energy of each body is conserved.
- (b) Total energy of a system is always conserved, no matter what internal and external forces on the body are present.
- (c) Work done in the motion of a body over a closed loop is zero for every force in nature.
- (d) In an inelastic collision, the final kinetic energy is always less than the initial kinetic energy of the system.

10. A body of mass 0.5kg travels in a straight line with a velocity $v = ax^{3/2}$ where $a = 5\text{m}^{-1/2}\text{s}^{-1}$. What is the work done by the net force during its displacement from $x=0$ to $x=2\text{m}$?

Q.II Complete the Journal write-up.

Q.III Complete the Investigatory project.

SUBJECT: CHEMISTRY

1. Revise and Practice the Unsolved Questions which are given at the end of every Chapter. Chapters No. 1, 2, 3, 12 and 13.
2. Prepare Investigatory-Project of Chemistry.

- 3.** State Markovnikov's rule. Using this rule, write the reactions of propene with: (i) HBr (ii) H₂O
- 4.** Draw Newman and Sawhorse projections for the eclipsed and staggered conformations of ethane. Which of these conformations is more stable and why?
- 5.** A compound is of the percentage composition as follows: Deduce the empirical and molecular formulae.
Na =43.4%, C =11.3%, O =45.3%. Molecular mass is 106u.
[Given C=12, Na=23 and O=16
- 6.** Calculate the wavelength (λ) of an electron moving with a velocity of 2.05×10^7 m/s.
- 7.** 0.395g of an organic compound by Carius method for the estimation of sulphur gave 0.582 g of BaSO₄. Calculate the percentage of sulphur in the compound.
- 8.** State Heisenberg's uncertainty principle. An electron has a velocity of 50 m/s, accurate up to 99.99%. Calculate the uncertainty in locating its position. [Mass of electron= 9.1×10^{-31} kg, $h=6.6 \times 10^{-34}$ Js]

SUBJECT: MATHEMATICS

Complete following activities in your Mathematics record book
Refer following link address:

<http://www.ncert.nic.in/exemplar/labmanuals.html>

- 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 .
- 2.** To represent set theoretic operations using Venn diagrams.
- 3.** To distinguish between a Relation and a Function.
- 4.** To verify the relation between the degree measure and the radian measure of an angle.
- 5.** To plot the graphs of $\sin x$, $\sin 2x$, $2\sin x$ and $\sin \frac{x}{2}$, using same coordinate axes.
- 6.** To interpret geometrically the meaning of $i = \sqrt{-1}$ and its integral powers.

7. To find the number of ways in which three cards can be selected from given five cards.
8. To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.
9. To obtain formula for the sum of squares of first n-natural numbers.
10. To demonstrate that the Arithmetic Mean of two different positive numbers is always greater than the Geometric Mean.

SUBJECT: BIOLOGY

1. Prepare the project on topic given
2. Complete your practical record book

SUBJECT: COMPUTER SCIENCE

1. Revise the Chapters completed till now along with the Solved and Unsolved Question Answers given in the Text book.
2. Prepare the LAB MANUAL for the chapters completed till now.

SUBJECT: PHYSICAL EDUCATION

"Make a project on game which you selected".

SUBJECT: ENGLISH

S. No.	Subjects	Assignments
1	Creativity	Compose a poem in your own words.
2	Literature	Research on Stephen Spender's life.
3	Literature	The Voice of the Rain {Hornbill}
4	Advanced Writing Skills	Write an article on any of the topics.
5	Advanced Writing Skills	Draw poster on the following topics.

GENERAL INSTRUCTIONS

1. Compose a poem. It must consist of minimum three to four stanzas. Describe all the poetic devices used in it. {Word Limit 50—100}

2. Research thoroughly on the life and works of **William Saroyan** as an American Novelist, Playwright, and Short Story Writer. {Word Limit 200—250}
3. Read the poem, “The Voice of the Rain” {Hornbill} & make notes on it. {Word Limit 200—250}
4. Write an article on any **ONE** of the following topics. {Word Limit 200—250}

1	The Consequences of Hypocrisy
2	Importance of Communication Skills
3	Importance of Personality Development
4	Role of Students In National Development
5	Information Technology And Younger Generation

5. Draw poster on any **ONE** of your favourite topics. It must be decorated with photographs or hand-made portraits. {Word Limit 50—100}

Importance of Communal Harmony	The Ailing Planet: the Green Movement's Role.
Importance of conservation of Electricity	Wildlife Protection Week
Precautions against COVID 19	Evils of Dowry System
Importance of Health and Benefits of Exercises	Value of Books and Good Reading Habits.
Blood Donation Camp organised by your school	Adventure Sports And Eco Tourism

NOTE: All the assignments must be handwritten in neat and intelligible way in the English Note Book.

No print out shall be entertained. Prepare the poster on a chart paper.

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