NORTH-EX PUBLIC SCHOOL

(SENIOR SECONDARY, AFFILIATED TO CBSE)
SCHOOL BLOCK, JAIN NAGAR, SECTOR-38, ROHINI, DELHI-81
SUMMER HOLIDAY HOMEWORK
CLASS XI (SCIENCE)

ENGLISH

1. Design a poster highlighting the evils of the dowry system.
2. Design an attractive poster for a dog show that your 'Kennel Club' is going to organise.
3. Prepare a thought provoking poster on the topic of Child Abuse.
4. We cannot imagine our life without a mobile phone, TV sets and other modern gadgets. Write an article on 'Role of Modern Gadgets' in 150 to 200 words.
5. You are Rahul resident of Kirti Nagar. Nowadays you are facing a lot of problems due to the frequent breakdown of the electricity. Write a letter to the editor of a newspaper to publish your complain for the same.
6. Media has a strong hold on society. Write a speech in 150 to 200 words on 'How media influences public opinion' to be delivered in the school assembly.
7. Write the summary of the poem, 'A Photograph' in the test register.
8. Write the summary of all the chapters done till now in the test register.
9. Learn and revise syllabus of PT-1.
10. Prepare ASL topic. (You may choose your own topic)

PHYSICS

1. A thin wire has a length of 21.7 cm and radius 0.46 mm. Calculate the volume of the wire to correct significant figures.
2. The frequency (f) of a stretched string depends upon the tension F (dimensions of force), length l of the string and the mass per unit length λ of string. Derive the formula for frequency.
3. The energy E of an oscillating body in simple harmonic motion depends on its mass m, frequency n and amplitude a. Using the method of dimensional analysis find the relation between E, m, n and a.
4. A ball is thrown upwards from the top of a tower 40 m high with a velocity of 10 m/s. Find the time when it strikes the ground. Take g = 10 m/s^2.
5. A ball is thrown upwards from the ground with an initial speed of u. The ball is at a height of 80 m at two times, the time interval being 6 s. Find u. Take g = 10 m/s^2.
6. A particle is projected vertically upwards with velocity 40 m/s. Find the displacement and distance travelled by the particle in (a) 2 s (b) 4 s (c) 6 s. Take g = 10m/s^2.
7. A particle starts with an initial velocity 2.5 m/s along the positive x-direction and it accelerates uniformly at the rate 0.50 m/s^2.
   (a) Find the distance travelled by it in the first two seconds
   (b) How much time does it take to reach the velocity 7.5 m/s?
   (c) How much distance will it cover in reaching the velocity 7.5 m/s?
8. Displacement-time equation of a particle moving along x-axis is $x = 20 + t^3 - 12t$ (SI units)
   (a) Find, position and velocity of particle at time t = 0.
   (b) State whether the motion is uniformly accelerated or not.
   (c) Find position of particle when velocity of particle is zero.
9. The motion of a particle along a straight line is described by the function x = (2t - 3) 2, where x is in metres and t is in seconds. Find
   (a) The position, velocity and acceleration at t = 2 s.
   (b) The velocity of the particle at origin.
10. A ball is projected vertically upward with a speed of 50 m/s. Find (a) the maximum height, (b) the time to reach the maximum height, (c) the speed at half the maximum height. Take g = 10 ms^{-2}.

11. A clock has its second hand 2.0 cm long. Find the average speed and modulus of average velocity of the tip of the second hand in 15 s.
12. A particle is moving in a circle of radius 4 cm with constant speed of 1 cm/s. Find
    (a) Time period of the particle and (b) Average speed, average velocity and average acceleration in a time interval from t = 0 to t = T/4.Here, T is the time period of the particle. Give only their magnitudes.
13. Complete your practical and activity file.
14. Prepare a model on the following

S.No	Roll Numbers	Suggested Topics
1	1-5	HOOKE'S LAW
2	6-10	THE COMPARISON OF THERMAL CONDUCTIVITY FOR DIFFERENT METALS
3	11-15	BLACKBODY THERMAL EMISSION
4	16-20	SOLENOID ENGINE
5	21-25	TESLA COIL SLAYER EXCITER
6	26-30	WIRELESS ELECTRICITY
7	31-35	HYDRAULICS

15. Prepare an investigatory project
    (Suggested Investigatory Projects)

1. To Study and Determine the Density of the Solids
2. To Study of the Parallelogram Law of the Vectors
3. To Study of Pascal's Law and its Applications
4. To Study of the Zeroth Law of the Thermodynamic
5. To Study and Investigate the Motion of the Pendulum
6. Study of the Equilibrium of the Concurrent Forces
7. To Study and Construct a Circuit of the Clap Switch
8. To Study the Hooke's Law, Stress-Strain Relationship
9. To Study of the Transformation Energy from the Deep
10. To Study the Principle of Superposition of the Waves
11. To Study and Measure the Temperature by using the Sound

CHEMISTRY

1. How many significant figures are present in
(a) 4.01×10^2
(b) 8.256
(c) 100
2. Vitamin C is essential for the prevention of scurvy. Combustion of 0.2000g of vitamin C gives 0.2998g of CO_2 and 0.819g of H_2O. What is the empirical formula of vitamin C?
3. What designations are given to the orbitals having
(i) n = 2, l = 1 (ii) n = 2, l = 0 (iii) n = 4, l = 3
(iv) n = 4, l = 2 (v) n = 4, l = 1?
4. Write the electronic configuration of (i) Mn^{4+}, (ii) Fe^{3+} (iii) Cr^{2+} and Zn^{2+} Mention the number of unpaired electrons in each case.
5. What is the mass (m) of an electron?
6. Which experiment led to the discovery of electrons and how?
7. Give the main properties of canal ray experiment.
8. Find out atomic number, mass number, number of electron and neutron in an element $^{40}_{20}\times$?
9. Give the main features of Thomson's Model for an atom.

10. What did Rutherford conclude from the observations of $\alpha - ray$ scattering experiment?
11. Project Study of the methods of purification of water
12. Periodic table working model

MATHEMATICS

1. Draw the modulus function graph. Write its domain and range.
2.let f be the function defined by $f: x \to 5x^2 + 2, xER$
   i. Find f(3)+f(2)
   ii. Find x such that f(x)=22
   iii. Write the domain for the given function.
3.write the set $\left\{\frac{1}{3}, \frac{3}{5}, \frac{5}{7}, \frac{7}{9}, \frac{9}{11}, \frac{11}{13}\right\}$ in set builder form.
4.. In a class of 50 students, 30 students like Hindi, 25 like science, 16 like both. Find the no. of students who like
   i. Either Hindi or science
   ii. Neither Hindi nor science
5.. If U={1,2,3,4,5,6,7,8,9} A={2,4,6,8} B={2,3,5,7}, verify that i) (A ∪ B)'= A'∩ B'
   ii) (A ∩ $B)' = A' \cup B'$
6. Let A={1,2} , B={1,2,3,4} , C={5,6} , D={5,6,7,8} verify that A×(B∩ $C) = (A \times B) \cap (A \times C)$.
7.If A and B are two given sets , then represent the set using venn diagram
   i. (A-B)'
   ii. (A ∩ B)'
8.If acosɵ + bsin ɵ = m and asin ɵ -bcos ɵ= n , then show that $a^2+b^2 = m^2 + n^2$.
9.Find sin $\frac{x}{2}$, cos$\frac{x}{2}$ and tan $\frac{x}{2}$ in the tanx = -$\frac{4}{3}$, x lies in quadrant II
10.Prove that : 1 + cos2x + cos4x + cos6x = 4cosx cos2x cos3x.
11. Prove that $\frac{\sin A+sin3A+sin5A+sin7A}{(cosA+cos3A)+cos5A+cos7A}$ = tan4A
12.Prove that : $\cos 20^0 \cos 40^0 \cos 60^0 \cos 80^0 = 1/16$.
13 Prove that: tan3Atan2AtanA = tan3A –tan2A – tanA.
14.Show that :$\sqrt{2 + \sqrt{2 + \sqrt{2 + 2cos8\theta}}}$ = 2cosθ.
15. complete Lab Activities as given in the class.

BIOLOGY

Q. 1. Define and understand the following terms:
(i) Phylum (i) Class (iii) Family (iv) Order (v) Genus
Q. 2. Activity:-
Collect any 10 fruits and 10 plants near by you and written their scientific names.
Q. 3. Give a brief account of viruses with respect to their structure and nature of genetic material. Also name four common viral diseases.
Q. 4. State two economically important uses of:
(a) heterotrophic bacteria
(b) archaebacteria
Q. 5. Give a brief account of kingdoms of:
(a) monera (b) protista
(c) fungi (d) plant
(e) animal
Q. 6. Difference between gymnosperms and angiosperms with examples.
Q. 7. Difference between the following:-

(1) red algae & brown algae
(2) liverworts & moss
(3) homosporous & hetrosporous pteridophyte
Q. 8. Explain the following terms:
(1) protonema
(2) antheridium
(3) archegonium
(4) diplontic
(5) sporophyll
(6) isogamy
Q. 9. summary of:
(a) Porifera
(b) Ctenophora
(c) Echinodermata
(d) Chordata
(e) Platyhelminthes
(f) Aschelminthes
(g) Annelida
(h) Arthropoda
Q. 10. "All vertebrates are chordates but all chordates are not vertebrates". Justify the statement.
Q No 11 - Make a Chart on life cycle of Angiosperm , Classification of Animal Kingdom , layers in animals.
Q No 12 - Collect different type of leaves and Flowers (Minimum 20) Make herbarium file in herbarium sheet with details.

PHYSICAL EDUCATION

1. Elaborate Olympics flame.
2. Write about ancient Olympic games.
3. Describe about paraolympic.
4. Write a detailed note on modern Olympic games.
5. Explain special Olympics.
6. Elaborate Olympics symbols.
7. What is the role of international Olympic committee?
8. Explain the role of Indian Olympic association.
9. Explain meaning and definition of physical education.
10. What is career option in physical education?
11. Write about khelo India program.
12. Complete
    - **A.** Practical record books,
    - **B.** Practical 1,
    - **C.** Labelled diagram of 400 m track and field with computation.