DELHI PUBLIC SCHOOL FIROZABAD

(Under the aegis of Delhi Public School Society, East of Kailash, New Delhi)
(A senior secondary school)
Affiliated to C.B.S.E New DELHI

JANUARY WORKSHEET NO. 1

Class- IX **Date- 14/1/2022**

Name- **Subject- Science**

Roll No.- **(PHYSICS, CHEMISTRY & BIOLOGY)**

PHYSICS

1. Define the following terms
   a. Work was done
   b. Energy
   c. Mechanical energy
   d. Kinetic energy
   e. Potential energy
   f. Power
   g. Commercial unit of energy.
2. What will be the kinetic energy of a body when its mass is made four-time and the velocity is doubled?
3. If we lift a body of 7 kg vertically upwards to a height of 10 m, calculate the work done in lifting the body.
4. Establish a relationship between SI unit and commercial unit of energy.
5. Write down the energy transformation taking place a. In electric bulb b. In torch c. In the thermal power station d. In solar cell e. Electric heater.
6. A horse of mass 200 kg and a dog of mass 20 kg are running at the same speed. Which of the two possesses more kinetic energy? How?
7. Weight of a girl is 800 N. find her mass.
8. Suppose the gravity of the Earth suddenly becomes zero, then in which direction will the moon begin to move if no other celestial body affects it?
9. Calculate the average density of the earth in terms of g, G and R.
10. Why are sleeper laid down under the rails of train?
11. A man throws a mass of 2 kg vertically upwards with the velocity of 20 m/s. what is the potential energy of the mass after 1s ?

CHEMISTRY

1. a) Calculate the mass of 0.2 moles of oxygen gas.
   b) Calculate the number of molecules present in 4.5 g of water.
   c) Calculate the mass of 1.2×10^{21} molecules of calcium carbonate.
2. What do you understand by molecules of element and molecules of compound? Explain with the help of examples.
3. What is an ion? What are the ions present in Al_2O_3.
4. Calculate the mass of 6.022×10^{23} molecule of NH_4Cl ?
5. Compute the difference in masses of 103 moles each of magnesium atoms and magnesium ions.(Mass of an electron=9.1×10^{-31} kg)
6. Verify by calculating that
   (a) 5 moles of CO_2 and 5 moles of H_2O do not have the same mass.
   (b) 240 g of calcium and 240 g magnesium elements have a mole ratio of 3:5.
7. Write the chemical formulae of the following:
   (a) Magnesium chloride
   (b) Calcium oxide

(c) Copper nitrate
(d) Aluminium chloride
(e) Calcium carbonate.

8. Give the electronic configuration of:
   (i) Al atom and its ion
   (ii) O atom and its ion
9. State the law of conservation of mass and law of constant proportion. Also, explain them with one example of each.
10. State the postulates of Dalton's atomic theory.

BIOLOGY

1. Define health.
2. What is the immediate cause of infectious diseases?
3. Name any two sexually transmitted disease.
4. What is immunity?
5. What are congenital diseases ? write one example .
6. Name the disease
   a. In which the liver of the person is the target.
   b. In which saliva of the infected animal spreads infection.
   c. Against which BCG vaccine is given
   d. For which widal test is done.
   e. In which sexual contact spreads the disease but not the physical contact in the form of handshake or hugging.