Sample paper ---IX

Section A – Physics   [25]
1. Identify the energy transformation during photosynthesis.   [1]
2. Why are army tanks made to run over broad steel tracks?   [1]
3. What is the weight of an object of mass 10kg(g=9.8m/s^2)   [2]
4.Clssify the following quantities as scalars and vectors:
   temperature, momentum, pressure , power.   [2]

5. What causes the friction? State two ways of reducing friction.   [2]

6.(i) What in the relationship between the unit of S.I and commercial   [3]
     electricity.
  (ii)Calculate the power of the pump which can lift 100 kg of water to store
   it in a water tank at a height of 19m in 25 sec(g=10m/s^2).
  7.The earth attracts an apple.Does the apple also attract the earth? If it does why [3]
   does the earth not move towards the apple?

8. i)Derive the formula for kinetic energy of a moving body.   [3]
   ii)what happens to kinetic energy when velocity of a body is tripled?

                                                                                                                 [3]
9. When a cricket ball is thrown vertically upwards ,it reaches a maximum   height of 20m . what was its
initial velocity of the ball ? How much time is taken by the ball to reach the highest point?What is the
acceleration of the ball after 1 second?
10. State the universal law of Gravitation. Express it mathematically.   [5]
 Consider a planet whose mass and radius were half that of the earth, what
 Would be the acceleration due to gravity at its surface?
 (Radius of the earth is 6400km)

Section B-   Chemistry   **[25]**
  1. 'CH' represents the ratio of elements of each element in a compound.   [1]
       What does the formula 'CH' represent[1]?
  2. The radioactive element 'Y' has a half life of 30 minutes. If we start with   [1]
       48 gms of it how much of this element will remain after 2 hours?
 3.Calculate the no: of atoms of carbon an d hydrogen in 1.8 gms of $C_2H_{12}O_6$.   [1] (C=12 ,H=1, O=16).

4. i) Arrange the three metals X,Y,Z in the decreasing order of reactivity on   [2]
    the basis of the following reactions:
      $XSO_4+2Y \rightarrow Y_2SO_4+X$.
       $X+ 2ZNO_3 \rightarrow X(NO_3)_2 +2Z$.
ii) Can Y2SO$_4$ be stored in bottle made of 'Z'   [2]

5. i) What name is given to the ability of an atom to attract the shared   [2]
      electrons of a bond towards it? Name the element having highest affinity.
  ii) A student observed the following properties of an unknown compound:
    a) soluble in water.
     b) solution does not conduct electricity.
     c)Low melting and boiling points.
He reported the compound as ionic. Do you agree? Comment.

6.i) Explain why NaCl gives a white precipitate with $AgNO_3$ solution   [3]

where as CCl_4 does not?

ii) Compare the size of the following ions and why?

   a) Na^+ and Mg^{2+} b) Cl^- and S^{2-}

iii) Electronic configuration of three elements X,Y , Z are as follows   [3]

   X-   2,4

   Y-   2,8,7

   Z-   2,8,1

   a) Which two elements will combine to form an electrolyte?

   b) Which two elements will react to form an non electrolyte?

7. i) In group II of the periodic table, three elements X,Y,Z have ionic radii   [3] 133pm ,95pm , 60pm respectively. Giving a reason arrange them in the order of   increasing ionization energy in the group.

ii) Out of group(I) and group '17' in which case the chemical reactivity decreases on going down in the group and why?

iii) An element 'X' has mass number 40 and contains 21 neutrons in its atom. To which group of the periodic table does it belong .

8. Describe with the help of diagram, the formation of the following molecules: [3]

   a) NH_3 b) CO_2 c) CaO

[N =7 , H=1 , C=6 , O=8   Ca=20]

9. What are X-rays? How are X-rays produced? State 2 uses .   [3]

10. A part of periodic table is given below:

1	2	13	14	15	16	17	18	[5]
Li	A	B	carbon	C	D	E	F	
					sulpuur			
I			G			L	Ar	
J			H			M		
K						N		

Answer the following questions:

1) Arrange L , M , N in the decreasing order of electron affinity.

2) Which is the most reactive metal and why?

3) How does the size of the atom varies from Li to F and why?

4) Select the most electronegative element from the periodic table and why is it highly electronegative?

5) What is the valency of 'J' and write the formula of its oxide?

Section C   - Biology   [25]

1. Name the parenchyma tissue which contains chlorophyll.   [1]

2. A farmer grows leguminous crop alternately with cereal crop. Which   [1] agricultural practice is he following?

3.What is mixed cropping? Write any two advantages of it?   [2]

4. Why is the biogas becoming an important fuel in our country?   [2]

5. List any 4 practices involved in the conservation of soil   [2]

6.What is the type of the body cavity in the case of: [3]

a) earthworm b) starfish c) cockroaches

7.   This type of muscle tissue is exclusively in the heart. Write the main features   [3]
     of it.

8. Write the outline of the plant classification system suggested by Eichler   [3]

9. Draw a labeled diagram of the prokaryotic cell? How does it differ from a   [3]
   eukaryotic cell.

10. What is food adulteration ? state any two disadvantages of it. Write on test to   [5]
    detect the presence of Vanaspathi in ghee