Sample paper - IX

Section A – Physics [25]

1. State Newton's second law of motion. [1]
2. The normal human body temperature is 37°C. what is the temperature on the Kelvin scale? [1]

3 How much momentum will a dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 0.8m(g = 10m/s^2). [2]

4what kind of energy transformation takes place in the following? [2]
a) photoelectric cell b) electric motor
c)dry cell d) nuclear reactor.

5. How much heat must be added to raise the temperature of 100 gm water from to 95 °? (sp heat of water is 4.8 J/kg °C). [2] 5°

6. Derive the expression s=ut+ ½at^2 graphically

7a. What will be the value of 'g' and 'G' at the center of the earth and at the poles. [3]
b. A ball is thrown up with a speed of 0.5m/s. How high will it go before it begins to fall? Calculate the time taken to reach the topmost point (g = 10m/s^2).

8a.Define power? What is its S.I unit. [3]
b. A bag weighs 200kgs.to what height should it be raised so that its P.E may be 9800J (g = 9.8m/s^2).

9a. Derivethe expression K.E=½mv^2 [3]
b. A bullet is fired from a gun . which will have greater kinetic energy, the bullet or the gun? Give reason.

10a. How do differentiate between center of gravity and center of mass. [5]
b. The acceleration due to the gravity at the moon 's surface is 1.67m/s^2 . If thr radius of the moon is 1.74x10^6 m .calculate the mass of the moon.(G=6.67x$10^{-11}$$Nm^2/kg^2$).

Section B – Chemistry

1. An atom 'A' has the mass number 40 and atomic no: 18. An atom 'B' has the mass number 40 and atomic no: 20. Are the atom 'A' and 'B' isotope of same element. Which amongst 'A ' and 'B' is a metal [1]
2. $2Ag^+ + Cu \rightarrow Cu^{2+} + Ag$. In the above redox reaction name 1) the substance which is oxidized 2) the substance which is an oxidizing agent. [1]
3. Explain the formation of the following ionic compounds and represent them by dot diagram and also write ionic equation a) sodium oxide b) magnesium chloride. [Na= 11 , Mg= 12, O=8,Cl =17]. [2]

4 What type of bond is present in $CaCl_2$ and Cl_2 [2]

5. Explain combination reaction with one example. [2]

6.What is the difference between a polar and a non –polar covalent [3]

7 (i)What do you understand by the term electron affinity. [3]
(ii) Name the element having highest electron affinity.
(iii) Arrange Cl, F, I, Br in the increasing order of electron affinity and give reason for such arrangement.

8.Represent the formation of covalent bond in the molecules of (i) methane(ii) carbon dioxide
(ii) Name the particles which has [3]

(a) 12 protons, 12 neutrons, 10 electrons
(b) 9protons, 10 neutrons, 10 electrons
(iii) Both Cl^- and S2- ions have the same number of electrons but different sizes. Explain.[Cl -17 , S- 16]

9.Give three differences between ionic & covalent compounds. [3]

10 i) State the modern periodic law. [5]
(ii) The elements P,Q, R have the same no: of electrons in their valence shell

Element	P	Q	R
Atomic Radii	1.86	2.31	1.52

Arrange the elements in the increasing order of their metallic character.
(iii)Elements A,B,C,D have atomic radii 0.66pm,1.06pm,0.70pm,0.88pm respectively and belong to same period.
(a)Arrange the elements in the order of increasing atomic no:
(b)From this data state how the atomic size of the elements varies from left to the right and why?
(c) How does the nonmetallic character varies along the period.

Section C – Biology [25]

1. Metion any one difference between the fats obtained from animals and those of from plants [1]
2.write the most unique feature of water. [1]
3.How is cytoplasm different from protoplasm? [2]
4.To which phylum do the following animals belong? [3]
(i) Sessile, aquatic organism having characteristic canal system for water passage.
(ii) segmented animals with chitinous setae or parapodia for locomotion.
(iii) Body is dorsoventrally flat,leaf like and they are the first triploblastic animals.
(iv)Exclusively marine unsegmented animals which possess combination of invertebrate and vertebrate characters

5.Identify the following dieases and name the causative organism: [2]
(i) patient suffers from headache, nausea, muscular pain, high fever.
(ii)Breathlessness , chronic cough especially after waking up with blood stained sputum.

6. name the following plant tissue & write one function for each. [3]
(i) Tissues having dead cells devoid of protoplasm.
(ii)Living tissues having thin walled cells which are much thickened at the corners.
(iii)cells are isodiametric , living, have dense cytoplasm.
7. Draw a neat labeled diagram of the fish Labeo rohita. Write one difference between bony and cartilaginous fish. [3]
8.What do mean by soil fertility.List the difference practices involved in the conservation of soil. [3]
9. It is fatal diease in which immune system of the body is seriously affected. Name the disease and causative organism. How it is transmitted? Write any two symptoms. [3]
10What is meant by balanced diet? Name 5 major components of a balanced diet. Write any 3 functions of the body building component. [5]