BCM SCHOOL BASANT AVENUE, DUGRI ROAD, LUDHIANA

CLASS – IX SCIENCE

CHEMISTRY – ATOMS & MOLECULES

PHYSICS – GRAVITATION AND WORK & ENERGY

(2/12/2024)

MCQs

1. **The atomicity of $K_2Cr_2O_7$ is**
   a) 9 b) 11 c) 10 d) 12

2. Which of the following factors does the acceleration due to gravity on the Earth depend upon?

a) **Mass of the Body**
b) **Mass of the Earth**
c) **The volume of the Body**
d) **Shape and Size of the Body**

Assertion(A)/Reason(R)

(a) **Both assertion and reason are true and reason is the correct explanation of assertion.**
(b) **Both assertion and reason are true but reason is not the correct explanation of assertion**
(c) **Assertion is true but reason is false.**
(d) **Assertion is false but reason is true**

3. **Assertion: On burning magnesium in oxygen, the mass of magnesium oxide formed is equal to the total mass of magnesium and oxygen.**
   Reason: In a chemical substance, the elements are always present in a definite proportion.
4. **Assertion : A spring has potential energy, both when it is compressed or stretched.**
   Reason : In compressing or stretching, work is done on the spring against the restoring force.

Q/A

5. **Calculate the formula mass of sodium carbonate ($Na_2CO_3.10H_2O$).**
6. **Write down the chemical formula for the following compounds:**
   (a) Aluminium carbonate
   (b) Calcium sulphide
   (c) Zinc carbonate
   (d) Copper phosphate
   (e) Magnesium bicarbonate
   (f) Aluminium hydroxide.
7. **Why does an object float or sink when placed on the surface of water?**
8. **What is the work done by the force of gravity in the following cases ?**
   (a) Satellite moving around the earth in a circular orbit of radius 35000 km.
   (b) A stone of mass 250 g is thrown up through a height of 2.5 m.

CASE STUDY

9. **A student was asked by his teacher to verify the law of conservation of mass in the laboratory. He prepared 5% aqueous solutions of NaCl and Na_2SO_4. He mixed 10 mL of both these solutions in a conical flask. He weighed the flask on a balance. He then stirred the flask with a rod and weighed it after sometime. There was no change in mass.**

   Read this narration and answer the questions given below:

1. **Was the student able to verify the law of conservation of mass?**
2. **If not, what was the mistake committed by him?**
3. **In your opinion, what he should have done?**
4. **What is the molar mass of Na_2SO_4?**

10. **Work done by force acting on an object is equal to the magnitude of the force multiplied by the distance moved in the direction of the force. Work has only magnitude and no direction. Work done is negative when the force acts opposite to the direction of displacement. Work done is positive when the force is in the direction of displacement.The unit of work is newton-metre (N m)or joule (J).**

1. Work done is
   (a) Scalar quantity
   (b) Vector quantity
   (c) Tensor quantity
   (d) None of these

2. When force acts against the direction of displacement then work done will be
   (a) positive
   (b) negative
   (c) both a and b can possible
   (d) None of these

3. SI unit of work is
   (a) Joule(J)
   (b) Newton meter(N-m)
   (c) both a and b
   (d) None of these