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SAMPLE QUESTION PAPER

TERM-II SESSION ENDING EXAMINATION-2021-22

Class IX

SCIENCE (086)

Time: 90 Minutes

General Instructions:

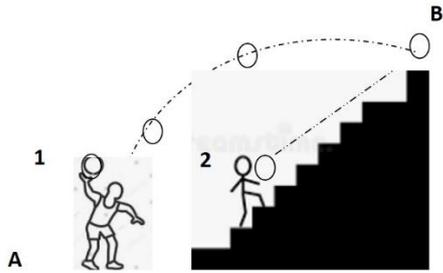
1. All questions are compulsory.
2. The Question Paper contains three sections and 15 questions.
3. Section A has 7 questions of 2 marks each; Section B has 6 questions of 3 marks each; Section C has 2 case-based questions of 4 marks each.
4. Internal choices have been provided in some questions. Student has to attempt only one of the alternatives in such questions.

SECTION-A

1. Justify the statement 'Ammonium ion is a polyatomic ion'.
2. Prove that the given chemical reaction follows law of conservation of mass
$$2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$$
3. An element X has 3 shells and the valence shell has 2 electrons. Identify the element X and calculate its valency.
4. Write the chemical formula of Ammonium sulphate and also calculate its molecular mass. (Atomic mass of S = 32u)
5. Why it is important to categorize infectious agents? Give any one reason.

OR

- How infectious diseases are different from contagious diseases? Give any one difference.
6. In the given diagram two boys namely 1 and 2 took the ball from position A to position B. Boy 1 thrown the ball directly from the ground while boy 2 choose to take the ball by stairs. Which boy is doing more work to take the ball to from position A to position B. Justify your answer.



OR

A man lifts up a 25 kg bag up to a height of 1 meter and holds it on his head for 30 minutes while waiting for a bus.

A. Calculate the work done by the man in lifting the box?

B. Calculate the work done by the man in holding the box for 30 minutes?

7. State the relation between joule and kWh.

OR

If the velocity of an object is doubled how does its kinetic energy changes?

SECTION-B

8. What conclusions were drawn by Rutherford on the basis of following observation

- a) Most of the alpha particles passed through gold foil without any deviation.
- b) Few alpha particles were deflected through small angles.
- c) very few alpha particles bounced back.

OR

In response to a question a student stated that in an atom the number of protons is greater than the number of electrons. Do you agree with the statement? Justify your answer.

9. Explain the term isotopes with suitable example. Also mention any one application of it.

10. List three factors that help in maintaining community health

11. Explain the basic principle behind immunization.

12. The weight of any person on the moon is about $\frac{1}{6}$ times that on the earth. He can lift a mass of 15 kg on the earth. What will be the maximum mass which can be lifted by the same force applied by the person on the moon.

OR

How will the weight of a body of mass 100g change if it is taken from equator to the poles?

Give reason for your answer.

13. Derive an expression for the kinetic energy of an object.

SECTION-C

14. Case Study

A mole is a unit of measurement used to measure the amount of any fundamental entity (atoms, molecules, ions) present in the substance. A mole is very much similar to the concept of weight, as both help in understanding the amount of a substance present.

A German Chemist named Wilhelm Ostwald was the first scientist to coin the term 'mole' in the year 1896. The word 'mole' is derived from a Latin word that stands for 'a pile'. Previously, a mole was defined in comparison with that of the element carbon. It was defined as *the amount of substance comprising the same number of fundamental entities as the number of atoms present in a pure sample of carbon weighing exactly 12g*. However, this definition has been modified, and now one mole is considered to be equal to the value of Avogadro's constant. Basically, one mole contains 6.022×10^{23} entities. This number is Avogadro's number; it is a numerical constant, and entities, in this case, can be atoms, ions or molecules. It is also important to note that one mole of all substances will have the same number of entities equal to the Avogadro's number; however, the molar mass between the substances will differ. This is because the atoms present in elements can vary in size and mass; thus, even though the number of entities is the same, their impact is different.

A. Who coined the term 'mole'? 1

B. Calculate the molecular mass of $C_6H_{12}O_6$ 1

C. Calculate the number of molecules and number of ions present in the 5.85g of sodium chloride. 2

OR

C. How the number of moles is related to Avogadro's number and molar mass?

15. Case Study

Many people worry about the forces on the Earth from the other planets of the Solar system. They especially worry when they see three or more planets lining up with Earth and start to contemplate the end of the world. So is there any reason to be worried? Will the Earth be torn apart as all the planets align? Well, we worked out the maximum and minimum forces on the

Earth caused by the Sun, each of the Planets and the Moon at their closest and furthest points. However, how many of us actually understand forces like 3×10^{22} Newtons and what they mean? So we have also shown how far the Earth would move if pulled by each Planet / Moon or the Sun for one day from a standing start.

- A. How the gravitational force between two planets is calculated? **1**
- B. If Sun, which is quite bigger than earth, is attracting the earth why not earth move and collapse with sun? **2**
- C. Explain second law of planetary motion given by Kepler? **2**

OR

C. In the given text it is mentioned that force by the sun on earth is maximum and minimum. What are these two conditions which change the sun's attraction to earth?

END OF PAPER