Roll Number			

SET   C

INDIAN SCHOOL MUSCAT
SECOND TERM EXAMINATION
086 SCIENCE

CLASS: IX   TERM 2   Time Allotted: 2HRS.

13.02.2022   Max.Marks: 40

GENERAL INSTRUCTIONS
   i) All questions are compulsory.
   ii) The question paper has **three sections** and **15 questions**. All questions are compulsory.
   iii) **Section–A** has 7 questions of 2 marks each; **Section–B** has 6 questions of 3 marks each; and **Section–C** has 2 case based questions of 4 marks each.
   iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

SECTION - A

1.   Differentiate between g (acceleration due to gravity) and G (Universal gravitation constant).   2

2.   Calculate the gravitational force of attraction between two metal spheres each of mass 90kg, if the   2
      distance between them is 40cm. Given G= $6.67 \times 10^{-11} Nm^2 /kg^2$

OR
   a) Define free fall.
   b) Calculate the new gravitational force between two objects if the distance between them is tripled.

3.   (i) Define atomicity.   2
      (ii) Find atomicity in (a) H_2SO_4 (b) $NaHCO_3$

4.   Define law of Constant Proportion by taking formation of H_2O molecule.   2

5.   Find the molar mass of the following substances.   2
      (Given atomic mass H=1u, Cl=35.5u, Na=23u, C=12u, O=16u, N=14u K=39u S=32u)
      (a) HCl   (b)$NaHCO_3$ (b)NH_4CO_3 (d) K_2SO_4
OR
      Give the drawback of Rutherford model of an atom.

6.   Define Avogadro Number and what is it value?   2

7.   Covid -19 is considered to be a pandemic disease. Why it is considered as a pandemic disease.   2
      Name any two diseases other than covid -19 which are considered pandemic.

OR

Mention the mode of transmission of the following infectious diseases

    a) Cholera

    b) Syphilis

    c) Malaria

    d) Influenza

SECTION - B

8.   a) Can any object have mechanical energy even if its momentum is zero?   3

    b) An object of mass 120 kg is raised to a height of 6 m above the ground. What is its potential energy? If the object is allowed to fall, find its kinetic energy when it is half-way down (Take $g=10m/s^2$).

9.   a) Express 1kilowatt hour in terms of Joule.   3

    b) Calculate the electricity bill amount for the month of September if 4 bulbs of 40 W for 5 h, 4 tube lights of 60 W for 5 h and a washing machine of 1400 W for 3 h are used per day. The cost per unit is Rs 1.80

OR

    c) What is the work done by an object moving around a circular path? Justify your answer

    d) A car weighing 12 k N has a speed of 40 ms^{-1}. Find its kinetic energy.

10.   What do you mean by organ specific manifestation?   3

    Name any two symptoms shown by a person if the stomach gets infected.

11.   Government is releasing lots of advertisements through mass media about the various childhood   3
immunization under the Public Health Programme.

    a. What is immunization?

    b. List any two infectious diseases against which children are immunized before the age of ten in our country.

12.   (i) Define cation and anion and give one example for each.   3

    (ii) Define atomic mass unit.

OR

Differentiate between proton and electrons. Give three differences.

13.   Explain Neil's Bohr Model of an atom. Draw the Bohr model for Sodium atom.   3

SECTION – C

This section has 02 case-based questions (14 and 15). Each case is followed by 3 sub-questions (a, b and c). Parts a and b are compulsory. However, an internal choice has been provided in part c.

14.   A simple pendulum is a device that is attached to a light inextensible string and suspended from a   4
fixed support. The vertical line passing through the fixed support is the mean position of a simple pendulum as shown in the diagram.

B
Extreme position

C
Extreme position

A
Mean position
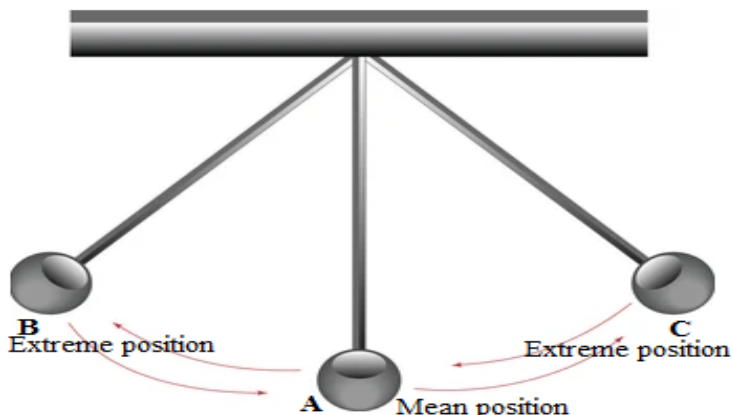
a) Name the maximum energy possessed by the ball at point C and A
b) State the law of conservation of energy
c) What is the energy transformation taking place in a microphone and electric motor?

OR

Mention the energy transformation taking place during photosynthesis and also in an electric bell.

15. Elements combine to form compounds in a fixed ration by mass. The valency of the element differ 4 from one element to another element based on their atomic number. Elements have different number of sub atomic particles, therefore forms different atomic number and mass number. Isotopes are formed by different in their number of neutrons and isobars are formed due to the different number of protons. The atomic mass of an element is determined from the average atomic mass of its isotopic forms. Consider the following questions and give your answer.

(a) Find the simplest whole number ratio by mass of Na_2CO_3(For atomic mass refer question number 5)
(b) Based on the valency write the chemical formula for the following compounds
    (i) Aluminium Sulphate   (ii) Ammonium Phosphate
(c) Two species X and Y has number of protons 8 and but have different number of neutrons such as 8 and 10 respectively with average atomic mass of 16.2u.
    (i) What is it?
    (ii)Find the percentage composition respectively.

OR

The average atomic mass of an element is 35.5u based on their two isotopic atoms. One of the isotopic atom has mass number 35 and another one has 37 respectively. Find its percentage abundance of each isotopic form.

End of the Question Paper