Std.: 10 (English) <u>**Science - I**</u> **Marks: 20**
Date: **Time: 1 hrs**

Chapter: 1 to 3

Q.1 A) **Choose the correct alternative and rewrite the sentence** **(1)**

1) At the time of Mendeleev number of elements known were:
a. 56   b. 65   c. 63   d. 118

B) **Answer the following questions.** **(2)**

i) **Find co-related terms**

Sodium : Metal : : Chlorine : ....

ii) **State true or false.**

The speed of release of an object does not depend on the mass of the object.

Q.2 A) **Give scientific reason. (Any one)** **(2)**

1) Weight of the person on the earth and on the moon is very different.

2) When the gas formed on heating limestone is passed through freshly prepared lime water, the lime water turns milky.

B) **Answe the following questions. (Any two)** **(4)**

i) **Distinguish between**

Mass and Weight

ii) **Write Short Notes on**

Structure of the modern periodic table.

3) Define escape velocity.

Q.3 **Answer the following questions. (Any two)** **(6)**

1) Observe the diagram and answer the question.

i. Name of the force and the scientist who discovered it ?
ii. Book written by this scientist.

iii. Define the famous law given by this scientist.

2) When potassium chromate (K_2CrO_4) is added to barium Sulphate ($BaSO_4$)
   i. Write the balanced equation.
   ii. Name the precipitate with its colour.
   iii. It is a displacement reaction or double displacement reaction.

3) Complete the paragraph:

(two, eighteen, very long, eight, 32, short, long, longest)

The first period has .... elements and is called shortest period. The second and there periods have .... elements and all called .... period. The fourth and fifth period has .... elements and are called long period. The sixth period has thirty two elements and is .... period seventh period has .... elements.

Q.4   Answer the following questions. (Any one)   **(5)**

1) Observe the figure and answer the questions:
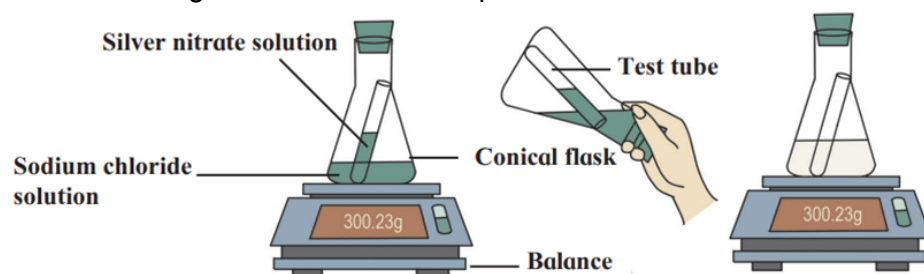
   i. Write a balanced chemical reaction happening when two chemicals reacts with each other.

   ii. Mass before chemical reaction and after chemical reaction remains same. Write reason for it.

2) What is centripetal force ? Complete the following expression for a planet revolving around sun in circular motion irrespective of its time of revolution?

For a planet revolving around sun; Let m be the mass of planet which takes time T for one revolution moving with velocity v and r be the radius of the circular path.

Centripetal force will be F = ⬚ ... (1)

Speed = ⬚

Thus, in one revolution,

Distance covered = ⬚ (Perimeter of the orbit)

Time required = T (⬚)

$\therefore$ ⬚ $= \frac{2\pi r}{T}$

Substituting v in equation ... (1)

$$F = \frac{m\left(\frac{2\pi r}{T}\right)^2}{r}$$

∴ F = ▭

Multiplying and dividing by r^2

$$F = \frac{4m\pi^2 r}{T^2} \times \frac{r^2}{r^2}$$

∴ F = ▭ ... (2)

From Kepler's third law; ▭ = k (constant)

From (2) & (3); $\boxed{F = \frac{4m\pi^2}{kr^2}}$ ... (3)

Thus, this is expression of centripetal force independent of time taken but depends on radius of the path.