

**Chapter: 1**

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

- 1) Value of G is .....
- $6.67 \times 10^{-11} \text{ Nm}^2\text{kg}^{-2}$
  - $6.67 \times 10^{-23} \text{ Nm}^2 \text{ kg}^{-2}$
  - $9.8 \times 10^{-11} \text{ Nm}^2\text{kg}^2$
  - $9.8 \text{ m/s}^2$

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

i) **Find co-related terms**

Initial velocity during free fall : 0 m/s : acceleration during free fall : .....

ii) **State true or false.**

The CGS unit of G is dyne.  $\frac{\text{cm}_2}{\text{g}_2}$

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

- The weight of an object changes from place to place though its mass is constant.
- If the value of 'g' suddenly becomes twice its value, it will become two times more difficult to pull a heavy object along the floor.

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

i) **Distinguish between**

Mass and Weight

ii) **Write Short Notes on**

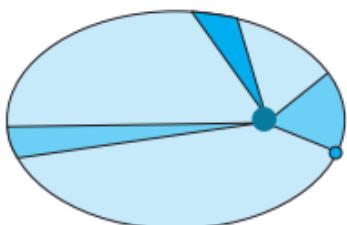
Earth's gravitational acceleration

3) Define the following:

- Acceleration due to gravity
- Free fall

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

- Observe the given figure showing the orbit of a planet moving around the Sun, label the figure, and write the three laws related to it.



2) Explain on which factor the value of acceleration due to gravity 'g' depends.

3) Complete the paragraph:

(Newton, directly, cube, inversely, attracts, universal, repulse, square.)

All the considerations including Kepler's laws led ..... to formulate a theory with respect to gravitation. It was the theory of ..... gravity. According to this theory, every object in the Universe ..... every other object with a definite force. This force is ..... proportional to the product of the masses of the two objects and is ..... proportional to the ..... of the distance between them.

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

**(5)**

- 1) The masses of the earth and moon are  $6 \times 10^{24}$  kg and  $7.4 \times 10^{22}$  kg, respectively. The distance between them is  $3.84 \times 10^5$  km. Calculate the gravitational force of attraction between the two. (Use  $G = 6.7 \times 10^{-11} \text{ Nm}^2 \text{ Kg}^{-2}$ )
- 2) The mass and weight of an object on earth are 5 kg and 49 N respectively. What will be their values on the moon ? Assume that the acceleration due to gravity on the moon is  $\frac{1}{6}$  th of that on the earth.

