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SUBJECT:- PHYSICS

CLASS:- IXTH

DATE:09/07/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION PART-2)(BASED ON NCERT SYLLABUS)

Question 1.

A coin and a piece of paper are dropped simultaneously from the same height. Which of the two will touch the ground first ? What will happen if the coin and the piece of paper are dropped in vacuum ? Give reasons for your answer.

Solution :

The coin reaches the ground first as compared to the piece of paper because it experiences lesser resistance from air than that felt by paper.

If the coin and the piece of paper are dropped in vacuum, both of them will touch the ground at the same time.

Question 2.

A stone and the earth attract each other with an equal and opposite force. Why then we see only the stone falling towards the earth but not the earth rising towards the stone ?

Solution :

The mass of a stone is very small, due to which the gravitational force produces a large acceleration in it. Due to large acceleration of stone, we see stone falling towards the earth. The mass of earth is, however, very, very large. Due to the very large mass of the earth, the same gravitational force produces very, very small acceleration in the earth, that it cannot be observed. And hence we do not see the earth rising up towards the stone.

Question 3.

What is the actual shape of the orbit of a planet around the sun ? What assumption was made by Newton regarding the shape of an orbit of a planet around the sun for deriving his inverse square rule from Kepler's third law of planetary motion ?

Solution :

The actual shape of the orbit of a planet around the sun is elliptical. The assumption made by the Newton regarding the shape of an orbit of a planet around the sun was that the orbit of a planet around the sun is 'circular'.