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SUBJECT:- PHYSICS

CLASS:- IXTH

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SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION REVISION)(BASED ON NCERT PATTERN)

Q1. If the moon attracts the earth, why does the earth not move towards; the moon?

Ans. According to the universal, law of gravitation both moon and earth attract each other with a force that is directly proportional to the product of their masses and inversely proportional to the square of distance between them. The force of attraction of moon' on the earth is present, but the earth does not appear to move towards the moon as the mass of the earth is large and the distance between the moon and earth is so large, even if the earth is attracted/moves towards the ,moon it is negligible, cannot be seem.

Q2. What: happens to the force between two objects, if

- (i) the mass of one object is doubled?
- (ii) the distance between the objects is doubled and tripled?
- (iii) the masses of both objects are doubled?

Ans. (i) If the mass of one object is doubled, the force between two objects will be doubled (increases)

(ii) If the distance been the objects is doubled the force between two objects will be one-fourth and if the distance will be tripled, the force will be one-ninth (1/9).

(iii) If the masses of both objects are doubled the force will be 4 times.

$$As \quad F \propto \frac{Mm}{d^2}$$

Q7. What is the importance of universal law of gravitation?

Ans. The universal law of gravitation explains several phenomena:

- (i) it explains about the force that binds the earth,
- (ii) the motion of planets around the sun, and motion of moon around earth.
- (iii) the tides due to the moon and the sun.