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SUBJECT:- PHYSICS CLASS:- IXTH DATE:27/06/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION)

Question 33:
State two applications of universal law of gravitation.
Solution :
(i) Universal law of gravitation is used to determine the masses of the sun, the earth and the moon accurately.
(ii) Universal law of gravitation helps in discovering new stars and planets.

Question 34:
Explain why, if a stone held in our hand is released, it falls towards the earth.
Solution :
This is because the earth exerts a force of attraction (called gravity) on the stone and pulls it down.

Question 35:
Calculate the force of gravitation between two objects of masses 50 kg and 120 kg respectively kept at a distance of 10 m from one another. (Gravitational constant, G = 6.7×10^{-11} $Nm^2 kg^{-2}$)
Solution :

$$F = G \times \frac{m \times M}{d^2}$$

m=50kg
M=120kg
Distance, d=10m
$G=6.7 \times 10^{-11}\ Nm^2/kg^2$

$$F = 6.67 \times 10^{-11} \times \frac{50 \times 120}{10^2}$$

$$F = 6.67 \times 60 \times 10^{-11}$$

$$F = 4.02 \times 10^{-9}\ N$$