

## GRAVITATION (paper ii) (ix)

1. Gravitational force on the surface of the moon is only  $\frac{1}{6}$  as strong as gravitational force on the earth. What is the weight in Newton of 10 kg object on moon and on the earth?
2. A stone is allowed to fall from the top of a tower 100m high and at the same time another stone is projected vertically upward from the ground with a velocity of 25m/s. Calculate when and where the two stones will meet.
3. Certain force acting on a 20 kg mass changes its velocity from 5 m/s to 2m/s. Calculate the work done by the force.
4. An object of mass 40kg is raised to a height of 5m above the ground. What is its potential energy? If the object is allowed to fall, find its kinetic energy when it is half way down?
5. An electric heater is rated 1500w. How much energy does it use in 10 hr?
6. A stone is dropped from the top of a tower 500m high into a pond of water at the base of the tower. When is the splash heard at the top?  
 $G=10\text{m/s}^2$  speed of sound = 340m/s.
7. A sonare device on a submarine sends out a signal and receives an echo 5 sec later. Calculate the speed of sound in water if the distance of the object from the submarine is 3625m.
8. The volume of 50gm of a substance is  $20\text{cm}^3$ . If the density of water is  $1\text{gm/cm}^3$ . Will the substance float or sink.