

PHYSICS
CH: 10 GRAVITATION

Name: _____

Date: _____

Class: IX Sec: ____

I MULTIPLE CHOICE QUESTIONS

1. If g is the acceleration due to gravity on the earth and g_m is the acceleration due to gravity on the Moon, then which of the following is true?

i) $g = g_m$ ii) $g_m = g/6$ iii) $g_m = 6g$ iv) $g = g_m/2$

2. The mass of a body on the earth is 36 Kg. The weight of the body on the moon is

i) 36 N ii) 360N iii) 600 N iv) 60 N

3. The gravitational force between two objects is F . If masses of both objects are halved without changing distance between them, then gravitational force would become

i) $F/4$ ii) $F/2$ iii) F iv) $2F$

4. If the weight of a body at pole of the earth is W , then its weight at the equator will be

i) $<W$ ii) $>W$ iii) $= W$ iv) zero

II SHORT ANSWER TYPE

1. When a book is dropped from the table, it falls towards the Earth. But when it is placed on the table, it does not fall towards the Earth while the gravity is still acting. Give reason.

2. Weight of a body at the Centre of the earth is zero. Does it mean that the mass of the body at the Centre of the earth is zero?

3. If gravitational force exists between every two objects in the universe, why don't you and your friend sitting together experience it?

4. Does velocity of a body during free fall remain constant? Why?

5. If you jump on the moon, you will rise much higher than if you jump on the earth .Give reason
6. a) A metallic bar has a mass 200 g at poles. Does it change when takes to equator?
b) Does its weight change when brought to equator? If yes, how?
c) Where on earth will the weight be zero?
d) What would happen if there was no acceleration due to gravity?
7. Give four phenomena which occur due to the gravitational force of attraction.

III NUMERICALS

1. If the distance between two masses be increased by a factor of 5, by what factor would the mass of one of them hence to be altered to maintain the same gravitational force?
2. A particle is thrown up vertically with a velocity of 50 m/s.
(a) What will be its velocity at the highest point of its journey?
(b) How high would the particle rise?
(c) What time would it take to reach the highest point?
3. A ball is dropped from the top of a tower 40 m high. What is its velocity when it has covered 20 m? What would be its velocity when it hits the ground? Take $g = 10 \text{ m/s}^2$.
4. What is the weight of a person whose mass is 50 kg.
5. The gravitational force between two objects is F. How will this force change when
(i) Distance between them increased 6 times that of the original one?
(ii) The mass of each object is quadrupled?
6. A ball thrown up with a speed of 15 m/s .How high will it go before it begins to fall? ($g = 9.8 \text{ m/s}^2$)