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Class: IX
Subject: physics
Topic:  Gravitation
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

**Q.1**   SI unit of gravitational constant is _____.

1. N $m^2kg^2$
2. N $m^2kg^{-2}$
3. N $m^2s^{-2}$
4. N $mkg^{-2}$

**Answer:**   2

Exp: G = $Fr^2/m^2$

**Q.2**   What is the value of gravitational constant?

1. $6.6734 \times 10^{-11}$N $m^2/kg^2$
2. $6.6734 \times 10^{-10}$N $m^2/kg^2$
3. $6.6734 \times 10^{-11}$N $m/kg^2$
4. $6.6734 \times 10^{-11}$N $m^2/kg$

 **Answer:**   1

**Q.3**   If the distance between two bodies is doubled, the force of attraction F between them will be _____

1. 1/4 F
2. 2 F
3. 1/2 F
4. F

**Answer:** 1

Exp: Force is inversely proportional to the square od separation.

**Q.4** The force of gravitation between two bodies in the universe does not depend on
1. the distance between them
2. the product of their masses
3. the sum of their masses
4. the gravitational constant

**Answer:** 3

Exp: Use Newton's law of Gravitation.

**Q.5** Name the fundamental force which holds the planets in their orbits around the sun.

1. Gravitational force of attraction
2. Electrostatic static force of attraction
3. Nuclear force of attraction
4. Electro static force of attraction

**Answer:** 1

Exp: Gravitational force of attraction obeys obey inverse square law.

**Q.6** When an object is thrown up, the force of gravity _____.
1. is opposite to the direction of motion
2. is in the same direction as the direction of motion
3. becomes zero at the highest point
4. increases as it rises up

**Answer:** 1

Exp: Force of gravity acts vertically downward.

**Q.7** What is the final velocity of a body moving against gravity when it attains the maximum height?

1. Zero

2. $\dfrac{u^2}{2g}$

3. $\dfrac{h}{t}$

4. 2gh

 **Answer:** 1

Exp: At max height velocity becomes zero.

**Q.8** A stone is dropped from a cliff. Its speed after it has fallen 100 m is

1. 9.8 m/s
2. 44.2 m/s
3. 19.6 m/s
4. 98 m/s

**Answer:** 2

Exp: $m\, g\, H = \frac{1}{2}\, mv^2$

**Q.9** A ball is thrown up and attains a maximum height of 100 m. Its initial speed was

1. 9.8 m/s
2. 44.2 m/s
3. 19.6 m/s
4. 98 m/s

 **Answer:** 2

Exp: $m\, g\, H = \frac{1}{2}\, mv^2$

**Q.10**  A stone dropped from the roof of a building takes 4 seconds to reach the ground. What is the height of the building?

1. 19.6 m
2. 39.2 m
3. 156.8 m
4. 78.4 m

 **Answer:**   4

Exp:  H = ½ gt$^2$

**Q.11**  The acceleration due to gravity is zero at _____.

1. the equator
2. poles
3. sea level
4. the centre of the earth

 **Answer:**   4

Exp: as depth = 0, so g' = 0

**Q.12**  If acceleration due to gravity on earth is 10 m/s$^2$ then, the acceleration due to gravity on moon is _____.

1. 1.66 m/s$^2$
2. 16.6 m/s$^2$
3. 10 m/s$^2$
4. 0.166 m/s$^2$

 **Answer:**   1

Exp: g/6

**Q.13** The second equation of motion for a freely falling body starting from rest is _____.

1. $h = ut + \dfrac{1}{2}gt^2$

2. $h = ut - \dfrac{1}{2}gt^2$

3. $h = \dfrac{1}{2}gt^2$

4. $h = -\dfrac{1}{2}gt^2$

**Answer:** 3

**Q.14** The acceleration due to gravity of a body moving against gravity is
1. $9.8 \text{ m/s}^2$
2. $-9.8 \text{ m/s}^2$
3. $\pm 9.8 \text{ m/s}^2$
4. $9.6 \text{ m/s}$

**Answer:** 2

Exp: Acceleration due to gravity is considered to be negative vertically upward.

**Q.15** A feather and a coin released simultaneously from the same height do not reach the ground at the same time because of the _____.

1. resistance of the air
2. force of gravity
3. force of gravitation
4. difference in mass

**Answer:** 1

Exp: Air resistance would oppose the relative motion of feather.

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**Q.16**  The weight of an object of mass 10 kg on earth is_____.

1. 9.8 N
2. 9.8 kg
3. 98 N
4. 98 kg

 **Answer:**  3

Exp: W = m g

**Q.17**  The weight of an object of mass 15 kg at the centre of the earth is _____.
1. 147 N
2. 147 kg
3. zero
4. 150 N

 **Answer:**  3

Exp: At center acceleration due to gravity would be zero due to depth.

**Q.18**  Mass remains _____ throughout the universe.

1. varies
2. zero
3. constant
4. negative

 **Answer:**  3

**Q.19**  SI unit of weight is _____.

1. newton
2. kg
3. Wt
4. kg. wt

**Answer:**   1

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**Q.20**   100 kg. wt=_____.

1. 980 N
2. 9.800 N
3. 1000 N
4. 0.98 N

 **Answer:**   1

Exp: W = mg