Question 1.

Two objects of different masses falling freely near the surface of the moon would

(a) have same velocities at any instant

(b) have different acceleration

(c) experience forces of same magnitude

(d) undergo a change in their inertia

Answer: (a) have same velocities at any instant

Question 2.

The value of acceleration due to gravity

(a) is same on equator and poles

(b) is least on poles

(c) is least on equator

(d) increases from pole to equator

Answer: (c) is least on equator

Question 3.

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

(a) F/4

(b) F/2

(c) F

(d) 2F

Answer: (a) F/4

Question 4.

A boy is whirling a stone tied to a string in a horizontal circular path. If the string breaks, the stone

(a) will continue to move in the circular path

(b) will move along a straight line towards the centreof the circular path

(c) will move along a straight line tangential to the circular path

(d) will move along a straight line perpendicular to the circular path away from the boy

Answer: (c) will move along a straight line tangential to the circular path

Question 5.

An object is put one by one in three liquids having different densities. The object floats with 1/9,2/11 and 3/7 parts of their volumes outside the liquid surface in liquids of densities d1, d2 and d3 respectively. Which of the following statements is correct?

(a) d1 > d2 > d3

(b) d1 > d2 < d3

(c) d1 < d2 > d3

(d) d1 < d2 < d3

Answer: (d) d1 < d2 < d3

Question 6.

In the relation F = GM mld2, the quantity G

(a) depends on the value ofg at the place of observation

(b) is used only when the Earth is one of the two masses

(c) is greatest at the surface of the Earth

(d) is universal constant of nature

Answer: (d) is universal constant of nature

Question 7.

Law of gravitation gives the gravitational force between

(a) the Earth and a point mass only

(b) the Earth and Sun only

(c) any two bodies having some mass

(d) two charged bodies only

Answer: (c) any two bodies having some mass

Question 8.

The value of quantity G in the law of gravitation

(a) depends on mass of Earth only

(b) depends on radius of Earth only

(c) depends on both mass and radius of Earth

(d) is independent of mass and radius of the Earth

Answer: (d) is independent of mass and radius of the Earth

Question 9.

Two particles are placed at some distance. If the mass of each of the two particles is doubled, keeping the distance between them unchanged, the value of gravitational force between them will be

(a) ¼ times

(b) 4 times

(c) 1/2 times

(d) unchanged

Answer: (b) 4 times

Question 10.

The atmosphere is held to the Earth by

(a) gravity

(b) wind

(c) clouds

(d) Earth’s magnetic field

Answer: (a) gravity

Question 11.

The force of attraction between two unit point masses separated by a unit distance is called

(a) gravitational potential

(b) acceleration due to gravity

(c) gravitational field

(d) universal gravitational constant

Answer: (d) universal gravitational constant

Question 12.

The weight of an object at the centre of the Earth of radius R is (NCERT Exemplar)

(a) zero

(b) infinite

(c) R times the weight at the surface of the Earth

(d) 1/R2 times the weight at surface of the Earth

Answer: (a) zero

Question 13.

An object weighs 10 N in air. When immersed fully in water, it weighs only 8 N. The weight of the liquid displaced by the object will be

(a) 2 N

(b) 8 N

(c) 10 N

(d) 12 N

Answer: (a) 2 N

Question 14.

A girl stands on a box having 60 cm length, 40 cm breadth and 20 cm width in three ways. In which of the following cases, pressure exerted by the box will be

(a) maximum when length and breadth form the base

(b) maximum when breadth and width form the base

(c) maximum when width and length form the base

(d) the same in all the above three cases

Answer: (b) maximum when breadth and width form the base

Question 15.

An apple falls from a tree because of gravitational attraction between the Earth and the apple. If F1 is the magnitude of force exerted by the Earth on the apple and F2 is the magnitude of force exerted by the apple on the Earth, then

(a) F1 is very much greater than F2

(b) F2 is very much greater than F1

(c) F1 is only a little greater than F2

(d) F1 and F1 are equal

Answer: (d) F1 and F1 are equal

Question 16.

The acceleration due to gravity on the Earth depends upon the

(a) mass of the body

(b) mass of the Earth

(c) shape and size of the body

(d) volume of the body

Answer: (b) mass of the Earth

Question 17.

When a mango falls from a mango tree then

(a) only the Earth attracts the mango.

(b) only the mango attracts the Earth.

(c) both the mango and the Earth attract each other.

(d) both the mango and the Earth repel each other.

Answer: (c) both the mango and the Earth attract each other.

Question 18.

When a ship floats in sea water

(a) The weight of water displaced is greater than the weight of ship

(b) The weight of water displaced is less than the weight of the ship

(c) The weight of water displaced is equal to the weight of the ship

(d) It displaces no water.

Answer: (c) The weight of water displaced is equal to the weight of the ship

Question 19.

The SI unit of pressure is

(a) Nm2

(b) N/m

(c) N/m2

(d) N2/m2

Answer: (c) N/m2

Question 20.

If the gravitational attraction of the Earth suddenly disappears, which of the following statements will be true?

(a) The weight of body will become zero but the mass will remain same.

(b) The weight of a body will remain same but the mass will become zero.

(c) Both mass and weight become zero.

(d) Neither mass nor weight becomes zero.

Answer: (a) The weight of body will become zero but the mass will remain s