Chapter-07
Gravitation

1. Mass of a body on measuring in lift at rest with a physical balance is found to be 'm'. If the Lift is accelerated upward with acceleration 'a'. Now what will be the mass of body?
(A) L (B) m (g + a)
(C) M (D) Zero

2.The apparent weight of man in a lift is less than the real weight then–
(A) When the lift is going down with acceleration.
(B) The lift is going up with uniform speed.
(C) The lift is going down with uniform speed.
(D) The lift is going up with acceleration.

3.Dimension of Universal Gravitational constant is –
(A) M–1L3T–2 (B) M–1L3T2
(C) ML2T–2 (D) M–2

4.A man standing on the top of tower has two spheres A and B. He drops the sphere A downward and throw sphere B horizontally at the same time. Which of the following is correct?
(A) Both sphere will reach the Ground simultaneoulsy
(B) A will reach the ground first.
(C) B will reach the ground first.
(D) Question is incomplete because the masses of the spheres are not given.

5.A man standing on a edge of a cliff throws a stone vertically upward with a certain speed. He then thrown another stone downward with a same speed. Find the ratio of speed of the two stones when they hit the ground?
(A) 1 : 1
(B) 1 : 2
(C) 1 : 4
(D) Cannot be found from the given information

6.Time period of Revolution for a Geo-stationary satellite is—
(A) 365 days (B) 30 days
(C) 24 hours (D) Continuously changes

7.What is the height of a Geo-Stationary satellite from the surface of earth?
(A) 36,000 Km (B) 42,000 Km
(C) 30,000 Km (D) None of these

8.Presence of atmospheric air on the earth is due to–
(A) Gravity (B) By wind
(C) Clouds (D) Rotation of Earth

9.What is the minimum escape velocity of rocket to be launched into space?
(A) 5 km/sec. (B) 6 km/sec.
(C) 11 km/sec. (D) 15 km/sec.

10.The shape of our milky way galaxy is
(A) Circular (B) Elliptical
(C) Spiral (D) None of the above

11.Who defined the law of gravitation?
(A) Newton (B) Archimedes
(C) Galileo (D) Faraday

12.The sensation of weightlessness in a spacecrft in an orbit is due to the
(A) Absence of gravity outside
(B) Acceleration in the orbit which is equal to the acceleration due to gravity outside.
(C) Presence of gravity outside but not inside the spacecraft
(D) Fact that spacecraft in the orbit has no energy

13.The spoon dropped by an astronaut in a satellite will
(A) Fall to the floor
(B) Remain stationary
(C) Continue to follow the motion of the satellite
(D) Move tangentially away

14.Intensity of gravitational field of earth is maximum at
(A) Poles (B) Equator
(C) Centre of earth (D) Surface

15.The time period of a pendulum when taken to the Moon would:
(A)Remain the same
(B) Decrease
(C) Become zero
(D) Increase

16.The atmospheric air is held to the Earth by:
(A) Gravity (B) Winds

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(C) Clouds (D) Rotation of the Earth

17.It is easier to carry two buckets of water in one hand each, than to carry only one in one hand because
(A) Weights of buckets are balanced
(B) Centre of gravity falls within the body
(C) Centre of gravity and centre of equilibrium fall within the feet
(D) Resultant weight of buckets is zero

18.The minimum number of geostationary satellites needed for uninterrupted global coverage is:
(A) 3 (B) 2
(C) 4 (D) 1

19.As we go from Equator to North pole the value of 'g', the acceleration due to gravity.
(A) Remains the same (B) Decreases
(C) Increases (D) None of the above

20.In the Earth, the weight of a body is maximum at the
(A) North Pole (B) South Pole
(C) Equator (D) Surface

21.A man inside an artificial satellite feels weightlessness because the force of attraction due to earth is
(A) Zero at that place
(B) Is balanced by the force of attraction due to moon
(C) Equal to the centripetal force
(D) Non-effective due to particular design of the satellite

22.The mass of a body measured by a physical balance in a lift at rest is found to be m. If the lift is going up with an acceleration a, its mass will be measured as
(A) A (B) N
(C) m (D) zero

23.The weight of a body acts through the centre of
(A) Gravity (B) Mass
(C) Both (1) and (2) (D) Buoyancy

24.Two bodies kept at a certains distance feel a gravitational force F to each other. If the distance between them is made double the former distance, the force will be
(A) 2 F (B) E
(C) 4 F (D) F

25.The apparent weight of a man in a lift is less than the real weight when:
(A) The lift is going up with an acceleration
(B) The lift is going down with uniform speed
(C) The lift is going up with uniform speed
(D) The lift is going down with an acceleration

26.Why the Earth is having its own atmosphere?
(A) Winds (B) Clouds
(C) Gravity (D) Rotation of the Earth

27.The point where total mass of a body is supposed to be concentrated is known as.
(A) Dead centre (B) Centre of mass
(C) Centre of gravity (D) Centre of motion

28.If there were no gravity, which of the following will not be there for a fluid?
(A) Viscosity (B) Surface Tension
(C) Pressure (D) Upward Thrust

29.The weight of an object is maximum.
(A) On the equator
(B) On the surface of the earth
(C) At the centre of the earth
(D) On the poles of the earth

30. The tides in the sea are primarily due to
(A) The atmospheric effect of the Earth
(B) The gravitational effect of Venus on the Earth
(C) The gravitational effect of the Sun on the Earth
(D) The gravitational effect of the Moon on the Earth.

31. Why is weightlessness experienced while orbiting the earth in space ships ?
(A) Inertia (B) Acceleration
(C) Zero gravity (D) Orbital motion

32.What will happen if an object is dropped from a height and there is no air resistance?
(A) It will fall with a constant speed and acceleration
(B) Its acceleration will increase
(C) Both speed and acceleration will increase
(D) Its speed will increase

33.The value of acceleration due to gravity (g) at a distance of 2R from the surface of earth, where R is the radius of earth is _____.

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(A) g/3 (B) g/4
(C) g/9 (D) g/2

34.If an object, on a free fall a certain height, reaches the ground in 1 second, what is its velocity on the impact with the ground?
(A) 4.9 m/s (B) 9.8 m/s
(C) 14.7 m/s (D) 19.6 m/s

35.The apparent weight of a person in a lift which is moving down with uniform acceleration is _____.
(A) Greater than the weight when the person is stationary
(B) Twice the weight when the person is stationary
(C) Less than the weight when the person is stationary
(D) Same as the weight when the person is stationary

36.As per Newton's Law of Gravitation, the force between two bodies is _____.
(A) Directly proportional to the product of their masses
(B) Directly proportional to the distance between them
(C) Directly proportional to the product of their radius
(D) Directly proportional to the product of forces

37. Acceleration due to gravity on a planet decreases with _____.
(A) Decrease in radius of the planet
(B) Increase in mass of the planet
(C) Decrease in mass of the body
(D) Increase in altitude from surface of the planet

38. If the radius of the earth decreases and its mass remains the same, then the value of "acceleration due to gravity" will ____ .
(A) Decrease (B) Increase
(C) Remain the same (D)Become zero

39.With reference to gravity, what is G called?
(A) Gravitational constant
(B) Gravitational attraction
(C) Gravitational force
(D) Acceleration due to gravity

40.What is the value of acceleration due to gravity at the centre of earth?
(A) 1 (B) 0
(C) –1 (D) Infinity

41.Who first determined the value of G (gravitational constant)?
(A) Lord Cavendish (B) R.R Heyl
(C) Boyle (D) Poynting

42.Law of gravitation applies to _____.
(A) Any pair of bodies
(B) The earth and the moon
(C) The planets around the Sun
(D) The earth and the objects of earth

43.What is the approximate height of any geostationary satellite from earth's surface (in km)?
(A) 36000 (B) 45000
(C) 48000 (D) 30000

44.Which of the following is CORRECT about Moon's gravitation?
(A) Moon's gravitation = 1/6th of Earth's gravitation
(B) Moon's gravitation = 1/6th of Mars gravitation
(C) Moon's gravitation = 1/8th of Earth's gravitation
(D) Moon's gravitation = 1/8th of Mars gravitation

45. At which of the following place, weight of an object is maximum?
(A) At poles (B) At equator
(C) At tropic of Capricorn (D) At tropic of Cancer

46.If the orbit of a planet is an ellipse then what is the point at which the Sun is located called?
(A) Centre (B) Circumcentre
(C) Incentre (D) Focus

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