

(PHYSICS : 2015)

51. Two objects are made to fall freely from heights h_1 and h_2 . The ratio of time taken by them to reach ground is (Neglect air friction)

- (a) 1 (b) h_1 / h_2
(c) $\sqrt{\frac{h_1}{h_2}}$ (d) h_2 / h_1

Ans. (c)

52. A bullet moving with velocity V penetrates a sand bag upto distance ' x '. Same bullet with velocity ' $2v$ ' can penetrate bag upto distance.

- (a) x (b) $2x$
(c) $3x$ (d) $4x$

Ans. (d)

53. A stone is tied with a string and a uniform circular motion is developed in the stone. If the string breaks down the stone moves in direction:

- (a) Radially in ward (b) Radially out ward
(c) Tangentially out war (d) Tangentially in ward

Ans. (c)

54. A ball of mass 20 g is travelling at 10 m/sec. towards a wall. It hits the wall and returns with a speed of 5 m/sec. The change in the momentum of the ball is:

- (a) 0.1 kg m/sec (b) 1kg m/sec
(c) -1kg m/sec (d) 0.1 kg m/sec

Ans. (d)

55. A ball rolls down from an inclined plane to a horizontal frictionless plane. It will:

- (a) Stop after 10 seconds
(b) Continue to move with uniform acceleration
(c) Continue to move forever with uniform velocity
(d) Will start moving in a circular path

Ans. (c)

56. Which one of the following is incorrect:
- (a) Rate of change of momentum of an object is equal to applied force
 - (b) In action - reaction law both the forces act on different objects
 - (c) The object always moves in the direction of force
 - (d) Momentum in object is the product of mass and is velocity
57. If the planet is revolving around the sun at r distance from the centre of sun with a time period of revolution 'T'. The following remains constant:
- (a) T/r
 - (b) $T^2 r^3$
 - (c) T^2 / r^3
 - (d) T^3 / r^2

Ans. (c)

58. The time period of seconds pendulum on moon will:
- (a) Increase
 - (b) Decrease
 - (c) Remains constant
 - (d) Cannot say

Ans. (a)

59. A piece of ice is floating in a vessel filled with water when ice melts, the level of water in vessel:
- (a) Decrease
 - (b) Increase
 - (c) Remains same
 - (d) 1st decreases then increases

Ans. (c)

60. The amplitude of sound wave is reduced to one third and frequency is doubled. The intensity of sound wave at same point will be:
- (a) Increase by a factor of $9/4$
 - (b) Decrease by a factor of $9/4$
 - (c) Increase by a factor of $4/9$
 - (d) Decrease by a factor of $4/9$

Ans. (d)

61. 'Ultra sonography' is based on:
- (a) Reflection of sound
 - (b) Transmission of sound
 - (c) Reflection and refraction of sound
 - (d) Reflection and refraction of sound
 - (e) Reflection and transmission of sound

Ans. (e)

62. Rare-fractions are the points where:
- (a) Pressure is low and extension is high
 - (b) Pressure is high and extension is low
 - (c) Pressure and extension both high
 - (d) Pressure and extension both low

Ans. (a)

63. Power of an engine is 19.6 kw. The capacity of water it can lift up per sec. from a well of 40 m depth is:

- (a) 48 kg (b) 50 kg
(c) 52 kg (d) 54 kg

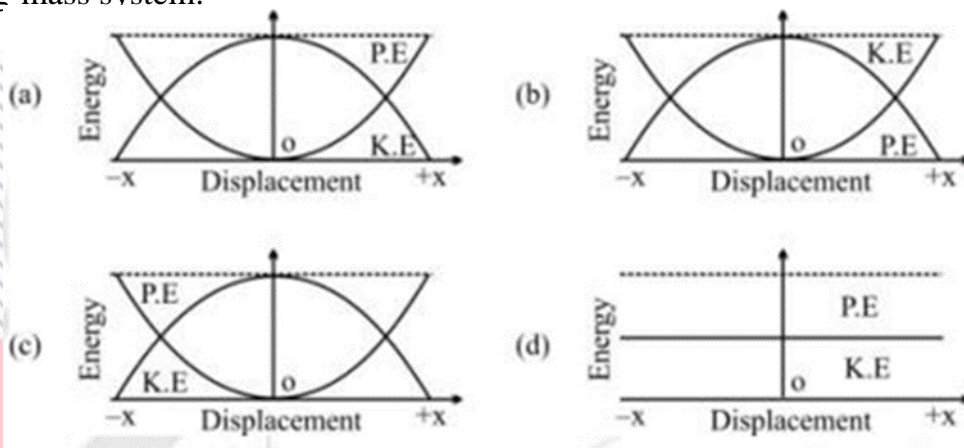
Ans. (b)

64. The correct relation between kwh and joule is:

- (a) $3.6 \times 10^{10} \text{J}$ (b) $3.6 \times 10^8 \text{J}$
(c) $3.6 \times 10^6 \text{J}$ (d) $3.6 \times 10^5 \text{J}$

Ans. (c)

65. Which of the following correctly represents the energy-displacement relationship for a spring-mass system:



Ans. (a)

66. The defect of human eye in which far off objects cannot be seen clearly can be corrected by using:

- (a) Concave mirror (b) Concave lens
(c) Convex lens (d) Convex mirror

Ans. (b)

67. The stars in the sky appear twinkling due to:

- (a) Reflection of light (b) Atmospheric diffraction
(c) Atmospheric refraction (d) None of the above

Ans. (c)

68. Light of $3.6 \times 10^8 \text{ m/sec}$ falls on a glass prism. The frequency of light is $2 \times 10^3 \text{ Hz}$. What will be its frequency after passing through glass prism:

- (a) $\frac{2}{3} \times 10^5 \text{ Hz}$ (b) $\frac{3}{2} \times 10^5 \text{ Hz}$
(c) $2 \times 10^3 \text{ Hz}$ (d) None of the above

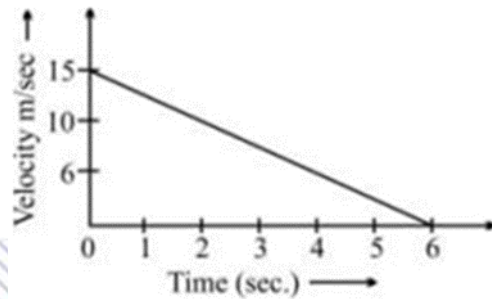
Ans. (c)

69. A car is running between two points P and Q. If it travels half of the distance between P and Q with velocity 40 km/hr. and other half with 60 km/hr. and return in the same manner. The average speed of the car is:

- (a) 50 km/hr (b) 52 km/hr
(c) 100 km/hr (d) 48 km/hr

Ans. (d)

70. In the given (v-t) graph:



The displacement of the body in 6 seconds is:

- (a) 45 m (b) 90 m
(c) 15 m (d) 6 m

Ans. (a)

71. Acceleration in a particle moving in uniform circular motion is due to:

- (a) Change in velocity (b) Change in speed
(c) Acceleration is zero (d) Change in speed as well as direction

Ans. (a)

72. SI unit of Impulse is:

- (a) kg m / sec² (b) kg m / sec
(c) Kg sec / m (d) Newton - meter (Nm)

Ans. (b)

73. A body of mass 20 kg is moving under force of 10 N. The value of inertia of the body is:

- (a) 5 kg (b) 0.2 kg
(c) 20 kg (d) 100 kg

Ans. (c)

74. A body immersed in a liquid shows loss in weight due to:

- (a) Frictional force between liquid and the body
(b) Gravitational force
(c) Columbian force
(d) Buoyant force

Ans. (d)

75. What will be the mass of the object on moon whose weight is 180 N on the earth:

- (a) 30 kg
- (b) 10 kg
- (c) 18 kg
- (d) 180 kg

76. Value of 'g' does not depend on:

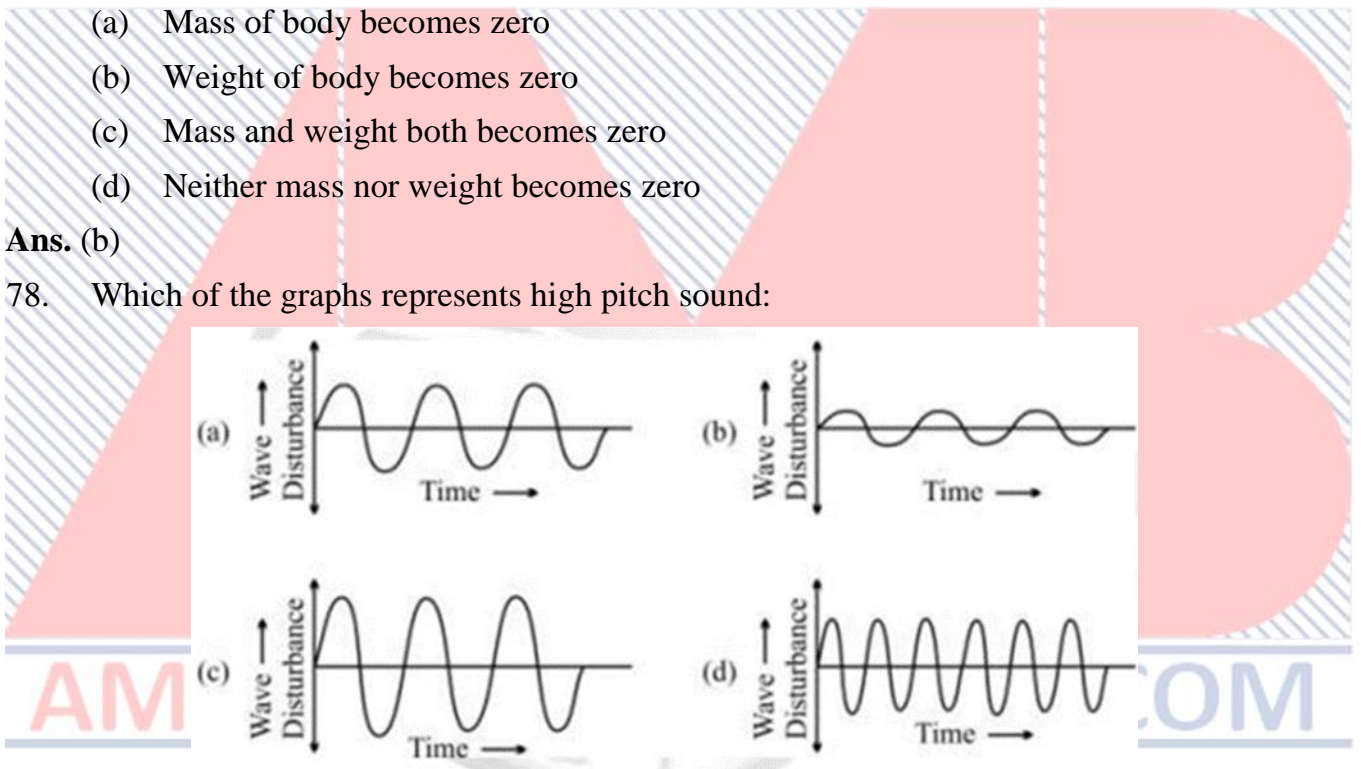
- (a) Rotation of earth about its axis
- (b) Height above the earth / distance below the earth
- (c) Radius of earth at poles and at equator
- (d) Revolution of earth around sun

77. Weightlessness is a condition in which:

- (a) Mass of body becomes zero
- (b) Weight of body becomes zero
- (c) Mass and weight both becomes zero
- (d) Neither mass nor weight becomes zero

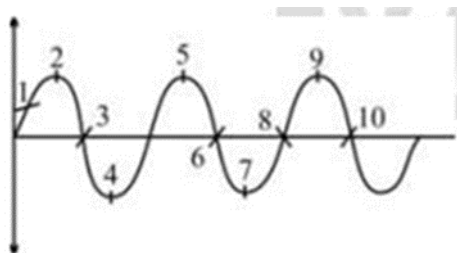
Ans. (b)

78. Which of the graphs represents high pitch sound:



Ans. (d)

79. The given figure shows the shape of a part of long string in which transverse waves are produced. Which pairs of particles are in phase:



- (a) 2 and 5
- (b) 5 and 7
- (c) 2 and 3
- (d) 4 and 5

Ans. (a)

80. Which of the following characteristics of sound changes by loudspeaker:

- (a) Amplitude (b) Frequency
(c) Velocity (d) Wavelength

Ans. (a)

81. When 10 N force is applied on a moving body, it travels 50 m before coming to rest. The work done is:

- (a) 500 N sec (b) 500 Joule
(c) –500 Joule (d) –250 Joule

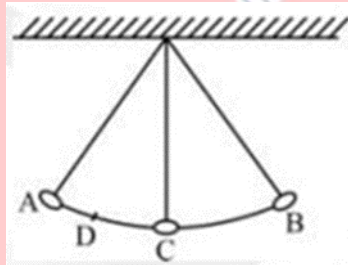
Ans. (c)

82. When a spring is compressed the work done during compression is stored in the spring in the form of:

- (a) Gravitational energy (b) Elastic potential energy
(c) Elastic kinetic energy (d) Frictional energy

Ans. (b)

83. In the following diagram the positions of Pendulum are indicated. In which position it has maximum potential energy:



- (a) A,D (b) D, C
(c) C, B (d) A, B

Ans. (d)

84. Match-2 means:

- (a) Mechanics of 2nd generation
(b) Velocity of twice of velocity of light
(c) Way of representation of technology of aero planes
(d) Velocity twice of velocity of sound

Ans. (d)

85. Quality of musical sound depends upon:

- (a) Frequency (b) Amplitude
(c) Overtones (d) None of these

Ans. (c)

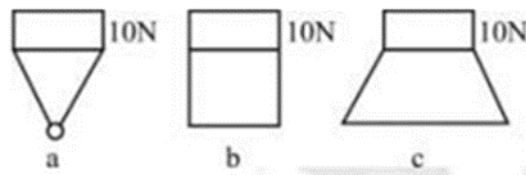
86. Work done by gravitational force depends upon:

- (a) Initial and final positions of object
- (b) Length of the path between two points
- (c) Density of the object
- (d) Size of the object

87. The distance between two consecutive crests is given by:

- (a) λ
- (b) 2λ
- (c) $\lambda/2$
- (d) 3λ

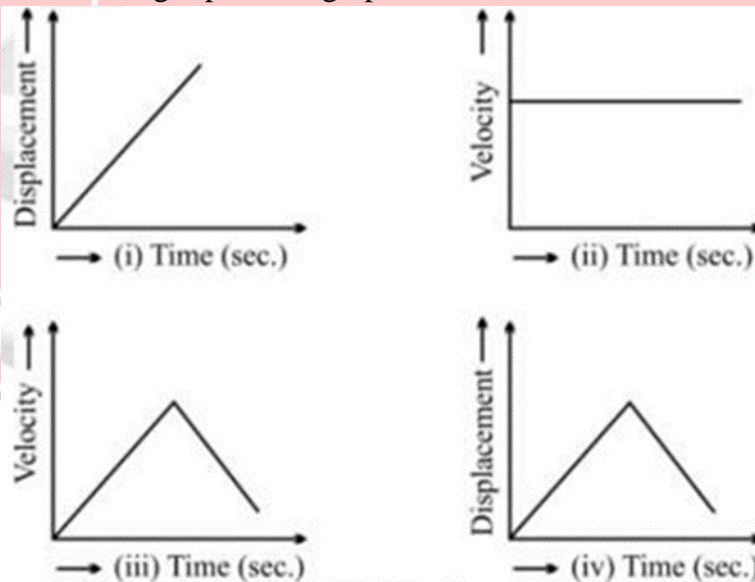
88. In which situation will maximum pressure is exerted on the floor by the given object:



- (a) A
- (b) B
- (c) C
- (d) All will exert same pressure

Ans. (a)

89. Which of the following represents graph for zero acceleration:



- (a) (iii) and (iv)
- (b) (i) and (iii)
- (c) (i) and (ii)
- (d) (ii) and (iv)

Ans. (c)

90. The density of the liquids is determined by:

- (a) Lactometer
- (b) Barometer
- (c) Hydrometer
- (d) None of these

Ans. (c)