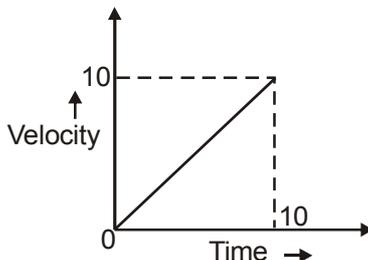


DPP NO. 01
TOPIC : MOTION

- Rest and motion both are :
(A) Relative terms (B) Absolute terms (C) Can't say (D) None of these
- Displacement could be :
(A) More than distance (B) equal to distance
(C) less than or equal to distance (D) None of these
- Which of the following does not need direction to be defined completely :
(A) Speed (B) Velocity (C) Force (D) Displacement
- ABC is the shortest path length between the two points and ADC is the actual path length. Then which of the two corresponds to displacement :
(A) ADC (B) ABC (C) Can't say (D) None of these
- Odometer is a device, which is used to measure :
(A) Distance (B) Displacement (C) Speed (D) None of these
- If both observer and moving body are moving with the same velocity of 5 m/s in the same direction then distance between them would
(A) Increase (B) Decrease
(C) Won't change (D) May or may not change
- Vector quantities are those which can be defined completely only if :
(A) Both magnitude and direction are given (B) Only direction is given
(C) Only magnitude is given (D) None of these
- A ball is thrown vertically upward and after ascending a height of 15m it comes back to the same point. The total displacement of the ball is :
(A) zero (B) 15 m (C) 30 m (D) 98 m
- The numerical ratio of displacement to distance is :
(A) always less than one (B) always equal to one
(C) always more than one (D) equal to or less than one
- What would be the value of average velocity for the duration 0-10s in the graph shown below ?



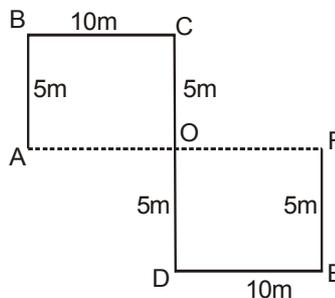
- (A) 4m/s (B) 5m/s (C) 3m/s (D) 6m/s
- Distance and displacement are equal in some cases. Give reasons.
 - Give two examples each of vector and scalar quantities.
 - A car travels $\left(\frac{1}{4}\right)^{\text{th}}$ of a circle having radius r. What is the ratio of the distance to its displacement ?
 - Give two examples to explain that motion is relative.
 - Define scalar quantity and give two examples.

DPP NO. 02

TOPIC : MOTION

- At a particular instant the speedometer of a vehicle shows 30km/hr. It is the :
(A) Average speed (B) Instantaneous speed
(C) Uniform speed (D) Non-uniform speed
- A body covered 30km in 10hr. The average speed for the whole journey would be :
(A) 3km/hr (B) 6km/hr (C) 2km/hr (D) None of these
- A body travels equal distances in equal time intervals. Then motion is of following type :
(A) Uniform speed (B) Non-uniform speed
(C) Uniform velocity (D) Instantaneous speed
- A car travelling on a busy road is an example of :
(A) Uniform motion (B) Non-uniform motion (C) Constant speed (D) Constant velocity

Answer the questions from 5 to 7 on the basis of information given below :



A body moves from A to F along the path shown below in 10s.

- What is the total displacement ?
(A) 50m (B) 30m (C) 10m (D) 20m
- What is the average speed for the whole path ?
(A) 2m/s (B) 5m/s (C) 10m/s (D) 4m/s
- What is the average velocity for the whole path ?
(A) 2m/s (B) 5m/s (C) 10m/s (D) 4m/s
- A boy travels 50km with 5km/hr and then for next 4hr travels with a uniform speed of 20km/hr. What is the average speed for the whole journey ?
(A) 62/7km/hr (B) 65/7km/hr (C) 60/7km/hr (D) 9km/hr
- The unit(s) of speed and velocity is/are :
(A) m/s (B) km/hr (C) m/s² (D) Both (A) and (B)
- A body is moving in a circle with constant speed 10m/s. Circumference of the circle is 40m. Then the average speed and average velocity 4s is :
(A) 10m/s and 10m/s (B) 10m/s and 0m/s (C) 10m/s and 5m/s (D) 0m/s and 0m/s
- Define uniform velocity. How is it different from uniform speed ?
- Classify the following in scalar and vector quantities .
(a) Distance (b) Displacement (c) Uniform speed (d) Average velocity
(e) Instantaneous speed (f) Average speed
- A boy leaves his house at 9:30 a.m. for his school. The school is 2 km away and classes start at 10:00 a.m. If he walks at a speed of 3 km/h for the first kilometre, at what speed should he walk the second kilometre to reach just in time ?
- If a car decelerates from 40m/s to 10m/s in 3s. What is the deceleration of the body?
- If a body travels 20m in 10s starting from rest then what is the acceleration of the particle?

DPP NO. 03

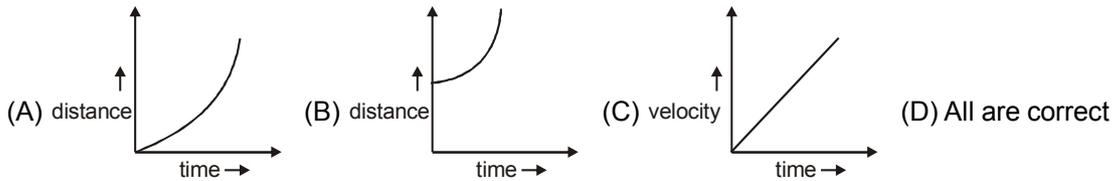
TOPIC : MOTION

1. A boy goes from one point to another with 40m/s and returns to the same point with a speed of 80m/s. Then what would be the average velocity during the whole journey.
(A) 60m/s (B) Zero (C) 40m/s (D) 80m/s
2. What is the change in velocity when a body accelerates with 2m/s^2 starting with an initial velocity of 5m/s for a time of 10s.
(A) 20m/s (B) 25m/s (C) 15m/s (D) 30m/s
3. For the equation $s = ut - \frac{1}{2}at^2$ acceleration is in the :
(A) Opposite direction of velocity (B) Opposite direction of displacement
(C) Same direction of velocity (D) Both (A) and (B)
4. If a body covers a distance d with velocity v_1 and another distance d with same velocity v_2 , then average velocity for the whole journey would be equal to :
(A) $\frac{2v_1v_2}{v_1+v_2}$ (B) $\frac{v_1v_2}{v_1+v_2}$ (C) $\frac{v_1+v_2}{2v_1v_2}$ (D) $\frac{2(v_1+v_2)}{v_1v_2}$
5. If a body covers some distance with speed v_1 for time t_1 and some another distance with speed v_2 for some time t_2 . Then what would be the average velocity for the whole duration.
(A) $\frac{v_1+v_2}{2}$ (B) $\frac{v_1t_1+v_2t_2}{t_1+t_2}$ (C) $\frac{v_1v_2}{v_1+v_2}$ (D) $\frac{2v_1v_2}{v_1+v_2}$
6. A body is covering equal distances in equal time intervals along a circle. Which quantities would remain constant for his motion ?
(A) Speed (B) Velocity (C) Acceleration (D) Displacement
7. Deceleration and retardation have units which are :
(A) Same (B) Different (C) May be different (D) None of these
8. Slope of a displacement - time graph is negative. That means the velocity is :
(A) Positive (B) Negative (C) Constant (D) Zero
9. Acceleration and velocity could be :
(A) Positive (B) Negative (C) Zero (D) All of these
10. What is the name given to change in velocity per unit time ?
(A) Average velocity (B) Acceleration
(C) Relative velocity (D) None of these
11. A car decelerates from 100m/s to 60m/s in time t and the distance covered is 200m. Find the time t.
12. A boy travels first 30s starting from rest with a uniform acceleration of 2m/s^2 and then attains a uniform velocity with which it travels for 30s more. Calculate the total displacement covered.
13. Can a body be at rest and motion at the same time ? Explain.
14. What is the acceleration required to change the velocity of an object from 20m/s to 40m/s across displacement of 40m.
15. A boy starts from rest and starts moving with a uniform acceleration of 2m/s^2 . What is the displacement in the first, second and third second of its motion ?

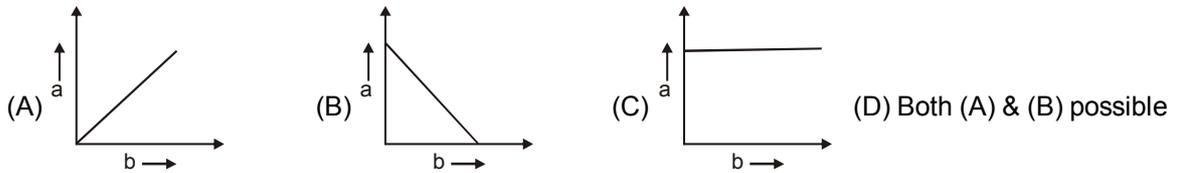
DPP NO. 04

TOPIC : MOTION

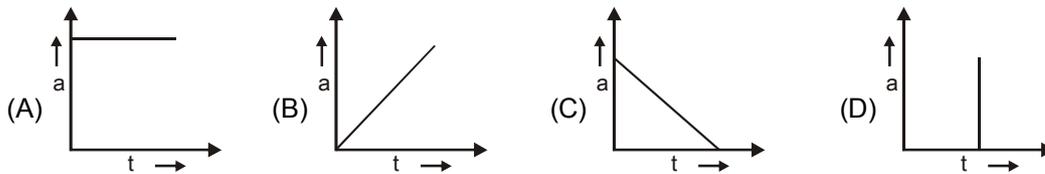
1. What would be the graph for a body moving with a velocity which is gradually (uniformly) increasing with time?



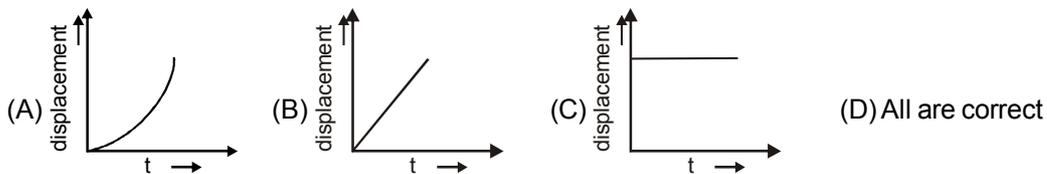
2. When two quantities are directly proportional then graph would be similar to :



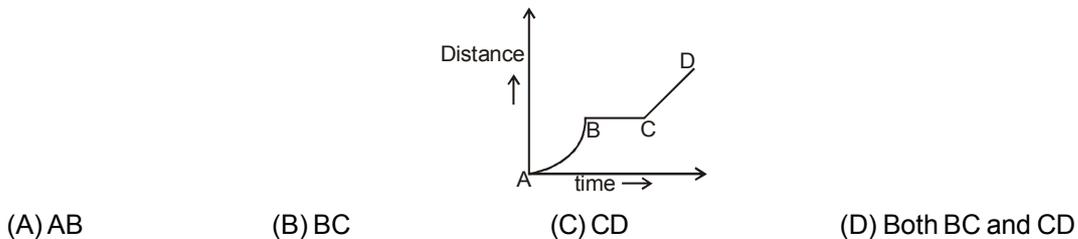
3. Which of the acceleration - time graph is not possible ?



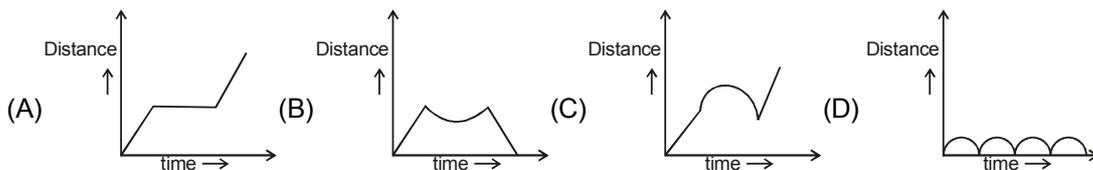
4. Which of the following is correct for uniformly accelerated motion ?



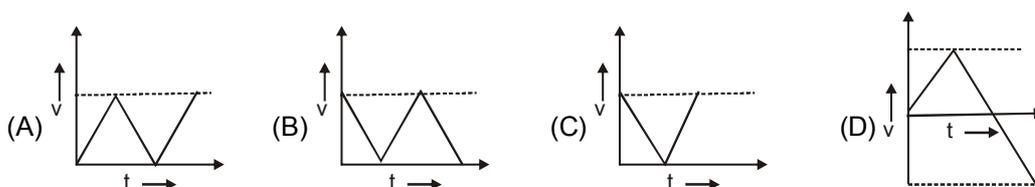
5. The distance time graph shown below indicates motion with uniform speed for which part of the graph :



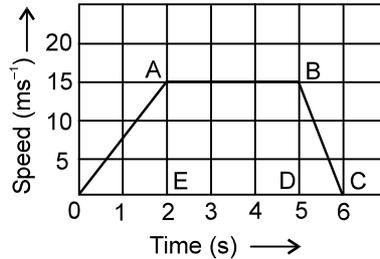
6. Which of the following graph is possible ?



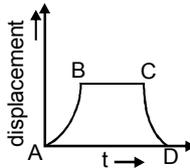
7. A body accelerates to a certain maximum velocity and then moves with negative acceleration for some time such that the final velocity is opposite to initial velocity. Then graph for the above case would be :



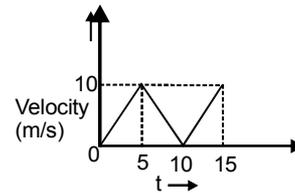
8. If a body is travelling in a zig-zag path. Then which of the following quantities may be constant :
 (A) Speed (B) Velocity (C) Acceleration (D) Both (A) and (C)
9. If a particle covers unequal distances in equal time intervals. Then motion is :
 (A) Uniform (B) Non-uniform (C) Both (A) and (B) (D) None of these
10. The motion of a point on the rim of a wheel rotating about an axis fixed in a wall is :
 (A) Circular (B) Linear (C) Linear and circular (D) Vibratory
11. The speed-time graph of a car is given below. The car weighs 1000 kg.
 (a) What is the distance travelled by the car in the first two seconds ?
 (b) What is the braking force applied at the end of 5 seconds to bring the car to stop within 1 second ?



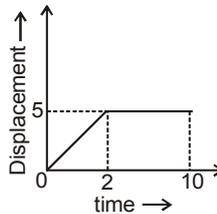
12. What does this displacement time graph indicate ?



13. For the graph given below. Calculate.
 (a) Displacement for the whole duration
 (b) Average velocity for the whole time
 (c) Average acceleration for the whole time



14. The displacement of a body increases with time gradually and then remains constant as shown below :



- (a) What is the acceleration for the whole motion ?
 (b) What is the value of average velocity for 0-10s ?
15. (i) How can you get the speed of an object from its distance- time graph ?
 (ii) When do we say that a body is at rest and when do we say that it is moving ? Explain.

DPP NO. 05

TOPIC : FORCE AND LAWS OF MOTION

1. When an object undergoes acceleration
(A) Its speed always increases (B) Its velocity always increases
(C) It always falls towards the earth (D) A force always acts on it
2. Balanced forces may _____ a body :
(A) Move (B) Accelerate (C) Retard (D) Deform
3. An unbalanced force acts on a body. The body :
(A) Must remain in same state (B) Must move with uniform velocity
(C) Must be accelerated (D) Must move along a circle.
4. A number of forces acting on a body do not cause any change in its state of rest or of uniform motion, the forces are
(A) Parallel (B) Unbalanced (C) Balanced (D) Inclined
5. Example of force is :
(A) Friction (B) Contact force (C) Weight (D) All of them
6. If no force acts on a body, it will
(A) gets deformed
(B) Move with increasing speed
(C) Either remain at rest or move with same speed along a straight line
(D) Break
7. If a body is not accelerated :
(A) Unbalanced force acts on it (B) Forces acting are not balanced
(C) The resultant force is zero (D) A single force acts on it
8. For moving a body from rest or stopping a moving body, we need
(A) Force (B) Mass (C) Direction (D) Time
9. Friction is a/an :
(A) self adjusting force (B) necessary evil
(C) important force in daily life (D) all of these
10. Which of the following is responsible for the flow of water in rivers ?
(A) Magnetic force (B) Electrostatic force
(C) Force of friction (D) Gravitational force
11. Give any two examples of contact and noncontact forces.
12. How much force is required to keep a body moving with constant speed on a frictionless surface ?
13. Does the force always produce an acceleration ?
14. Name the property of the bodies due to which they resist change in their velocity.
15. With which law of motion, the name of Galileo is associated ?

DPP NO. 06

TOPIC : FORCE AND LAWS OF MOTION

1. Mass measures amount of _____ in a body :
(A) inertia (B) motion (C) velocity (D) acceleration
2. Momentum measures amount of _____ in a body :
(A) Inertia (B) Motion (C) Velocity (D) Acceleration
3. When a net force acts on an object, the object will be accelerated in the direction of the force with an acceleration proportional to :
(A) the force on the object (B) the velocity of the object
(C) the mass of the object (D) the inertia of the object
4. A body of mass 20 kg moves with an acceleration of 2ms^{-2} . The rate of change of momentum in SI unit is:
(A) 40 (B) 10 (C) 4 (D) 1
5. Definition of force can be deduced from :
(A) newton's first law (B) newton's second law
(C) newton's third law (D) any one of the above
6. A body of mass m strikes against wall with a speed v and rebounds with the same speed along opposite direction. The change in magnitude of momentum is :
(A) Zero (B) mv (C) $-mv$ (D) $2mv$
7. Force measures the rate of change of _____ of a body :
(A) Mass (B) Inertia (C) Velocity (D) Momentum
8. When a bus suddenly starts, the standing passengers lean backwards in the bus. This is an example of:
(A) Newton's first law (B) Newton's second law
(C) Newton's third law (D) None of these
9. A man sitting in a train in motion is facing the engine. He tosses a coin up, the coin falls behind him. The train is moving :
(A) forward with uniform speed (B) backward with uniform speed
(C) forward with acceleration (D) forward with retardation
10. Inertia depends upon :
(A) Acceleration of the body (B) Velocity of the body
(C) Shape of the body (D) Mass of the body
11. Name two quantities on which the momentum of a body depends.
12. What is the name given to the product of mass and velocity ?
13. What is the SI unit of momentum ?
14. Is momentum a vector or scalar quantity ?
15. What is the acceleration produced by a force of 12 N exerted on an object of mass 3 kg ?

DPP NO. 07

TOPIC : FORCE AND LAWS OF MOTION

1. The momentum of a body of given mass is proportional to its :
(A) volume (B) shape (C) velocity (D) colour
2. If the momentum of a body is halved then the velocity will be :
(A) Doubled (B) Four times (C) Three times (D) Will become half
3. If the momentum of a body is doubled, then the kinetic energy will be :
(A) halved (B) unchanged (C) doubled (D) 4 times
4. When a bullet is fired from a gun. The gun recoils to :
(A) Conserve mass (B) Conserve momentum
(C) Conserve kinetic energy (D) All of these
5. A bullet in motion hits and gets embedded in a solid resting on a frictionless table. What is conserved :
(A) Momentum and K.E. (B) Momentum alone
(C) K.E. alone (D) None of these
6. Kg m/s is the unit of :
(A) Force (B) Momentum (C) Kinetic energy (D) None of these
7. For a jet plane flying with a very high speed, the forward motion of the plane could be accounted on the law of conservation of :
(A) Force (B) Velocity (C) Acceleration (D) Momentum
8. Unit of impulse is :
(A) kg m/s² (B) kg m/s (C) m/s (D) m/s²
9. A body of mass 20 kg is moving with a velocity of 4 m/s, what is the momentum with it?
(A) 100 kg m/s (B) 80 kg m/s (C) 40 kg m/s (D) 20 kg m/s
10. The change is momentum of a body is 50 kg m/s in time 4 s. What is the force acting on it ?
(A) 25 N (B) 50 N (C) 22.5 N (D) 12.5 N
11. What is momentum? What is its unit in S.I. and CGS system of units?
12. How is impulse related to momentum?
13. A body of mass 40 kg is accelerating at a rate of 9 m/s². What is the rate of change of linear momentum?
14. The speed of a car (mass 2000 kg) increases from 54 km/hr to 72 km/hr. What is the change in momentum?
15. For how much time should a force of 500 N act on a body of mass 10 kg so that it acquires a velocity of 50 m/s.

DPP NO. 08

TOPIC : FORCE AND LAWS OF MOTION

- Choose wrong relation :
(A) $I = F \times t$ (B) $F \times t = p_2 - p_1$
(C) $I = p_2 - p_1$ (D) $I = \frac{F}{t}$
- China and glass wares are packed with soft material when transported. This is done to:
(A) Increase impulse (B) Reduce Impulsive force
(C) For cost cutting (D) None of these
- A cannon after firing recoils due to :
(A) Conservation of energy (B) Newton's third law of motion
(C) Newton's first law of motion (D) None of these
- Spring in vehicles are introduced to :
(A) Reduce (B) Reduce impulse
(C) Reduce force (D) Reduce velocity
- A man could swim in river because of :
(A) Newton's first law (B) Newton's second law of motion
(C) Newton's third law of motion (D) None of the above
- A man walks on a rough surface in left direction. What is the direction of friction force acting on him?
(A) In left direction (B) In right direction
(C) In arbitrary direction (D) None of these
- The vector sum of action and reaction :
(A) Is equal to zero (B) Is not equal to zero
(C) May or may not be equal to zero (D) None of these
- State whether the following pair of force could be on action-reaction pair or not ?

(A) Not an action-reaction pair (B) Is an action-reaction pair
(C) Depends on situation (D) None of these
- A book of weight 10 N is placed on a table. The force exerted by the surface of the table on the book will be :
(A) Zero (B) 10 N (C) 20 N (D) None of these
- If A and B are two objects with masses 10 kg and 30 kg respectively then :
(A) A has more inertia than B (B) B has more inertia than A
(C) A and B have the same inertia (D) None of the two have inertia
- Action and reaction are equal and opposite and act on different bodies. Explain.
- When we jump on a heap of sand we didn't get hurt but we get hurt when the floor is of concrete. Explain.
- Wicket-keeper in a cricket match lowers his hand while catching a ball. Explain.
- Give three practical examples of action and reaction. Explain each one of them.
- Force of gravity attracts a body of mass m with a force $W = mg$. What is the force with which this object attracts earth towards it. What is the direction of this force?

DPP NO. 09

TOPIC : GRAVITATION

1. The earth attracts the sun with a gravitational force of 10^{22} N. Then the sun attracts the earth with a gravitational force of :
(A) 10^{-20} N (B) 10^2 N (C) 10^{22} N (D) 10^{10} N
2. When the extra object is placed between two bodies, forces of gravitation between them :
(A) will increase (B) will decrease
(C) will change according to the environment (D) will not change
3. Force of attraction between two bodies depends upon :
(A) the gravitational constant (B) the distance between their centres
(C) the magnitude of their masses (D) all of these
4. Law of gravitation is applicable for :
(A) heavy bodies only (B) medium sized bodies only
(C) small sized bodies only (D) bodies of any size
5. Gravitational force is a :
(A) weak force (B) short range force
(C) medium range force (D) Does not depend on distance between the two bodies
6. Value of G on the surface of earth is $6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$, then value of G on surface of Jupiter is :
(A) $12 \times 6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$ (B) $\frac{6.673}{12} \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$
(C) $6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$ (D) $\frac{6.673}{6} \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$
7. The ratio of SI unit to the CGS unit of G is :
(A) 10^{-3} (B) 10^3 (C) 10^{-11} (D) 10^{-2}
8. If initially the distance between two bodies is r and their masses be M_1 and M_2 then the force of gravitation be F. If this distance is increased to two times then the force would become :
(A) $\frac{F}{2}$ (B) $\frac{F}{4}$ (C) 2 F (D) 4 F
9. If two bodies of mass M_1 and M_2 are placed at a distance r apart they have a force of gravitation F between them. If both of the masses are reduced to half then force of gravitation would be :
(A) $\frac{F}{2}$ (B) 2 F (C) $\frac{F}{4}$ (D) F
10. In vacuum all the freely falling objects have same :
(A) Speed (B) Velocity (C) Acceleration (D) Force
11. What are S.I. and CGS units of universal gravitational constant?
12. What is the force of gravitation between two masses of 100 kg Each separated by a distance of 100 m?
($G = 6.67 \times 10^{-11} \frac{\text{Nm}^2}{\text{kg}^2}$)
13. What happens to the gravitational force between two objects, if :
(a) The mass of one object is doubled?
(b) The distance between objects is doubled?
(c) The masses of both objects are doubled?
14. Give five important characteristics of gravitational force.
15. Differentiate mass and weight.

DPP NO. 10

TOPIC : GRAVITATION

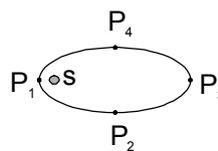
1. When a body is thrown vertically upwards then :
(A) Time of ascent = $\frac{1}{4}$ (time of descent) (B) Time of ascent = $\frac{1}{2}$ (time of descent)
(C) Time of ascent = time of descent (D) Time of ascent = 2 (time of descent)
2. The acceleration due to gravity 'g' experienced by a ball when it is thrown upward is :
(A) Positive (B) Negative (C) Zero (D) None of these
3. Force of gravitation between two bodies of mass 1 kg each kept at a distance of 1m is :
(A) 6.67 N (B) 6.67×10^{-9} N (C) 6.67×10^{-11} N (D) 6.67×10^{-7} N
4. The value of acceleration due to gravity g is :
(A) 6.67×10^{-11} Nm² kg⁻² (B) 8.9 m/s²
(C) 9.8 m/sec² (D) None of these
5. A stone is dropped from the top of a tower. Its velocity after it has fallen 20 m is [Take g = 10 ms⁻²].
(A) 5 ms⁻¹ (B) 10 m s⁻¹ (C) 40 ms⁻¹ (D) 20 m s⁻¹
6. The ratio of the value of g on the surface of moon to that on the earth's surface is:
(A) 6 (B) $\sqrt{6}$ (C) $\frac{1}{6}$ (D) $\frac{1}{\sqrt{6}}$
7. The force acting on a ball due to earth has a magnitude F_b and that acting on the Earth due to the ball has a magnitude F_e , then :
(A) $F_b = F_e$ (B) $F_b > F_e$ (C) $F_b < F_e$ (D) $F_e = 0$
8. A stone is thrown vertically upwards with an initial velocity of 45 ms⁻¹ then the time taken by the stone to rise to its maximum height is :
(A) 2.5 s (B) 3.5 s (C) 4.5 s (D) 5.5 s
9. A ball is thrown vertically upwards and reaches to a maximum height of 20 m then the velocity with which the ball was thrown upwards is :
(A) 20 m/s (B) 30 m/s (C) 40 m/s (D) 50 m/s
10. Which Kepler's law led Newton to inverse square rule for gravitational force :
(A) Law of orbits (B) Law of areas
(C) Law of periods (D) None of these
11. What do you mean by acceleration due to gravity ?
12. The weight of a person on the earth is 80 N. What will be his weight on the moon ?
13. What will be the value of 'g' on the surface of the moon if its radius were $\frac{1}{4}$ th the radius of earth and its mass is $\frac{1}{80}$ th the mass of earth?
14. State Kepler's law.
15. Differentiate 'g' and 'G' with two points.

DPP NO. 11

TOPIC : GRAVITATION

- Where will it be profitable to purchase one kilogram sugar ?
(A) At poles (B) At equator (C) At 45° latitude (D) At 40° latitude
- A particle is taken to a height R above the earth surface, where R is the radius of the earth. The acceleration due to gravity there is :
(A) 2.45 m/s² (B) 4.9 m/s² (C) 4.8 m/s² (D) 19.6 m/s²
- When a body is thrown vertically upwards then :
(A) The velocity of object at the highest point of the journey is non-zero
(B) The acceleration of object at the highest point of the journey is non-zero
(C) The velocity of object at the highest point of the journey is same as initial velocity
(D) None of these

- The figure shows a planet in elliptical orbit around the sun. The kinetic energy of the planet will be maximum when the planet is at :



- Which of the following statements is true ?
(A) g is same at all places on the surface of earth
(B) g has its maximum value at the equator
(C) g is less at the earth's surface than at a height above it or a depth below it
(D) g is greater at the poles than at the equator

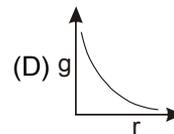
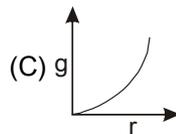
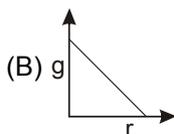
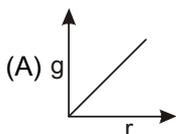
- The value of g at a place increases with :
(A) Decrease in the latitude of the place (B) Increase in the latitude of the place
(C) Increase in the altitude of the place (D) None of these

- The acceleration due to gravity is 9.8 m/s² :
(A) Much above the earth's surface (B) Near the earth's surface
(C) Deep inside the earth (D) At the centre of the earth

- Which of the following statement is correct regarding weight of a body :
(A) It decreases with height from the surface of the earth
(B) It decreases with depth from the surface of the earth
(C) It increases as one moves from equator to poles
(D) All of these

- A spring balance is graduated on sea-level. If a body is weighed with this balance at consecutively increasing heights from earth's surface, the weight indicated by the balance :
(A) Will go on decreasing continuously (B) Will go on increasing continuously
(C) Will remain same (D) Will first increase and then decrease

- Which of the following graph represent the variation of g as we move from centre of earth to its surface?



- What are the two reasons for variation of 'g' with latitude ?
- Explain the term weight lessness.
- Explain, why a person can jump higher on the surface of moon than on the earth.
- Moon has no atmosphere. Explain why ?
- If weight of a body is W on the earth's surface, then what will be the weight of the same body on the moon's surface ?

DPP NO. 12

TOPIC : FLUID

1. Which among the following is a unit of pressure?
(A) Atmosphere (B) Torr (C) cm of Hg (D) All of these
2. The S.I. unit of pressure is :
(A) $N\text{-m}^{-2}$ (B) Pascal (C) dyne-cm^2 (D) Both (A) and (B)
3. Pressure exerted by a liquid column :
(A) Is independent of its density (B) Is independent of the acceleration due to gravity
(C) Decreases with depth (D) None of these
4. Thrust is a :
(A) Scalar quantity (B) Vector quantity (C) Tangential force (D) None of these
5. Pressure is a :
(A) Scalar quantity (B) Vector quantity (C) Normal force (D) None of these
6. The S.I. unit of thrust is :
(A) N (B) dyne (C) Pa (D) kg-wt
7. Pressure can be calculated as :
(A) $\frac{\text{Force}}{\text{Area}}$ (B) $\frac{\text{Tangential Force}}{\text{Area}}$ (C) $\frac{\text{Normal Force}}{\text{Area}}$ (D) All of these
8. The ratio of S.I. unit of pressure to C.G.S. unit of pressure is :
(A) 1 (B) 10 (C) 100 (D) 1000
9. The upward force acting on an object immersed in a liquid is called :
(A) Buoyancy (B) Buoyant force (C) Upthrust (D) Both B & C are correct
10. The Buoyant force depends on :
(A) Depth of a liquid (B) Colour of a liquid (C) Density of liquid (D) All of these
11. What is the difference between thrust and pressure ?
12. Explain the term atmospheric pressure.
13. You are provided with a hollow iron ball of volume 20 cc and mass 15g and a solid iron ball of same volume and mass of 30g. Both are placed on the surface of water contained in a large tub. Which will float ?
14. Explain why does a block of plastic released under water come up to the surface of water.
15. A ship made of iron and steel does not sink in sea, but the same amount of iron and steel in form of a solid sphere would sink. Why?

DPP NO. 13
TOPIC : FLUID

1. A body floats in a liquid if the buoyant force is :
(A) Zero (B) Greater than its weight
(C) Less than its weight (D) Equal to its weight
2. When a body is weighed in a liquid the loss in its weight is equal to?
(A) Weights of liquid displaced by the body (B) The difference in weights of body in air and liquid
(C) The upthrust of liquid on the body (D) All of these
3. The balloon stops rising up beyond a particular height when the density of gas inside the balloon :
(A) Exceeds the density of air outside (B) Equals the density of air
(C) becomes less than the density of air (D) None of these
4. A block metal weight 5 N in air and 2 N when immersed in a liquid. The buoyant force is :
(A) 3 N (B) 5 N (C) 7 N (D) Zero
5. The apparent weight of wood floating on water if its weights 100 g in air is :
(A) 400 g (B) 300 g (C) 100 g (D) Zero
6. Two pieces of metal when completely immersed in a liquid have equal upthrust on them, then :
(A) Both pieces must have equal weights (B) Both pieces must have equal densities
(C) Both pieces must have equal volumes (D) Both are floating to the same depth
7. A solid iron sphere of radius 1 m and solid iron cube of edge length 1 m are immersed in a liquid. Which of them will experience greater upthrust :
(A) Cube (B) Sphere
(C) Both will experience equal upthrust (D) None of these
8. Buoyant force is inversely proportional to :
(A) Volume body immersed in a liquid (B) Density of fluid
(C) Acceleration due to gravity (D) Temperature of fluid
9. As we move upwards, the atmospheric pressure :
(A) Increases (B) Decreases (C) Remains same (D) Cannot be said
10. The ratio of S.I. units to C.G.S. unit of density is :
(A) 10^3 (B) 10^2 (C) 10^{-2} (D) 10^{-3}
11. Write a short note on Buoyancy and Buoyant force.
12. Discuss the various factors affecting Buoyant force.
13. Imagine a body that is completely submerged in water, but whose depth of submergence can be varied. In which case does it experience a larger upthrust, when it is submerged deep or shallow explain.
14. An object is immersed in different liquids. Does same buoyant force acts on the object due to all the liquids? Explain.
15. Write the Archimedes Principle and its uses.

DPP NO. 14
TOPIC : FLUID

1. If a sample of metal weights 210 g in air, 180 g in water and 120 g in a liquid :
(A) R.D. of metal is 3 (B) R.D. of metal is 7
(C) R.D. of liquid is 7 (D) R.D. of liquid (1/3)
2. Equal volumes of alcohol (R.D. = 0.74) and water are mixed. The volume of the mixture is 0.96 of its original volume. The R.D. of mixture is :
(A) 0.74 (B) 0.90 (C) 1.64 (D) 6.66
3. Which of the following is the incorrect statement ?
(A) It is easier to lift a heavy stone under water than in air.
(B) It is easier to swim in sea water than in river water.
(C) It is easier to float on water after taking a deep breath.
(D) A ship sails down into water when it sails from river into sea.
4. The density of wooden block that floats in water with 0.1 of its volume above water is :
(A) 0.1 g/cm³ (B) 0.9 g/cm³ (C) 1 g/cm³ (D) 9 g/cm³
5. A beaker containing water weighs 100 gwt. It is placed on the pan of a balance and a piece of metal weighing 70 gwt and having a volume of 10 cm³ is placed inside the water in the beaker. The weight of the beaker containing water and the metal would be :
(A) 170 gwt (B) 160 gwt (C) 100 gwt (D) 30 gwt
6. A cylinder of wood floats vertically in water with one-fourth of its length out of water. The density of wood is :
(A) 0.25 g/cm³ (B) 0.5 g/cm³ (C) 0.75 g/cm³ (D) 1 g/cm³
7. Two solids X and Y float in water. X floats with half of its volume submerged while Y floats with one-third of its volume out of water. The densities of X and Y are in the ratio of :
(A) 4 : 3 (B) 3 : 4 (C) 2 : 3 (D) 1 : 3
8. The buoyant force acting on a body due to different fluids is :
(A) same (B) different (C) zero (D) none of these
9. A piece of wood is held under water, the upthrust on it is :
(A) Equal to the weight of the wooden piece (B) More than the weight of the wooden piece
(C) Less than the weight of the wooden piece (D) zero
10. A piece of iron has dimensions 3cm × 1.5 cm × 6cm. If its mass is 205.2 gms, its density is -
(A) 5.6 gm cm⁻³ (B) 8.4 gm cm⁻³ (C) 7.6 gm cm⁻³ (D) 76 gm cm⁻³
11. The pressure of 2.5 Pa is applied on a surface of area 10 cm². Find the force on the surface.
12. An empty chamber of petrol of volume 50 litre has a mass 8 kg. It is filled with petrol of relative density 0.7. What is the mass of the petrol filled chamber ?
13. If a toy boat in a tank sinks, what will happen to the level of water ?
14. A solid of density 'D' is floating in a liquid of density 'd'. If 'v' is the volume of solid submerged in the liquid and V is the total volume of the solid, What is the value of $\frac{v}{V}$?
15. Define atmospheric pressure. How does it vary with altitude.

DPP NO. 15

TOPIC : WORK, POWER & ENERGY

1. A stone is tied to a string and then whirled in a circle. The work done on it by the string is :
(A) Positive (B) Negative (C) Zero (D) Undefined
2. The work done by a force on a body will be positive if the :
(A) Body does not move
(B) Body moves perpendicular to the direction of motion
(C) Body moves along the direction of the applied force
(D) Body moves opposite to the direction of the applied force
3. A coolie with a suitcase on his head is climbing up on a ladder with uniform speed. The work done by the coolie on the suitcase is :
(A) Positive (B) Negative (C) Zero (D) Undefined
4. Work done upon a body is :
(A) A vector quantity (B) Always positive (C) A scalar quantity (D) Always negative
5. Which among the following can be unit of work :
(A) dyne-cm (B) N – m (C) N – cm (D) All of these
6. When a force retards the motion of a body, the work done is :
(A) Positive (B) Negative (C) Zero (D) Undefined
7. The ratio of S.I. unit to c.g.s unit of energy is :
(A) 10^3 (B) 10^{-3} (C) 10^7 (D) 10^{-7}
8. When a player hits a football, it moves along the curved path and then falls to the ground. What is the work done by the force of gravity on the football?
(A) Positive (B) Negative (C) Zero (D) Undefined
9. A moving body need not have :
(A) Potential energy (B) Kinetic energy (C) Momentum (D) Velocity
10. Potential energy of your body is minimum when :
(A) You are standing (B) You lie down on floor
(C) You are sitting on chair (D) Sitting on the ground
11. Define work and give its S.I. and c.g.s unit.
12. Define energy. Name various forms of energy.
13. A battery lights a bulb. Describe the energy changes involved in the process.
14. Define mechanical energy.
15. If the mass of the body is changed to 'n' times, then what should be the change in velocity such that its K.E. remains same?

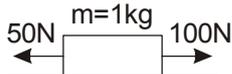
DPP NO. 16

TOPIC : WORK, POWER & ENERGY

1. A spring is compressed. The potential energy of spring will :
(A) Remain unchanged (B) Increase (C) Decrease (D) Become zero
2. A man is climbing a staircase. The energy he uses does not depends upon :
(A) The height of the staircase (B) The weight of his body
(C) The time taken to reach the top (D) The mass his body
3. When a ball is thrown upwards, its total energy :
(A) Increases (B) Decreases (C) Remains same (D) None of these
4. The gravitational potential energy is a :
(A) Vector quantity (B) Scalar quantity (C) Positive quantity (D) Negative quantity
5. The kinetic energy of a body is a :
(A) Vector quantity (B) Scalar quantity
(C) Positive quantity (D) Both (B) and (C) are true
6. The velocity of a body of mass 4 kg possessing K.E. of 0.02 J is :
(A) 0.01 m/s (B) 0.1 m/s (C) 1 m/s (D) None of these
7. A flying bird has :
(A) Only potential energy (B) Only kinetic energy (C) Mechanical energy (D) None of these
8. The balls of different masses have the same K.E. Then the :
(A) Heavier ball have greater momentum than the lighter ball
(B) Lighter ball has greater momentum than the heavier ball
(C) Both balls have equal momentum
(D) Both balls have zero momentum
9. Which of the following forces are conservative :
(A) Gravitational force (B) Friction force (C) Viscous force (D) All of these
10. Kinetic energy of an object which does positive work always :
(A) Increases (B) Decreases (C) Remains same (D) Can't say
11. The KE of a body is increased by 300%, find the percent increase in momentum.
12. Two bodies of masses 'm' and '2m' thrown with a velocity of 'v' and '3v' from the surface. What is the ratio of potential energies at the highest point?
13. When the mass of a body is increased by 100% and velocity of the body is decreased by 50%. What is the percentage change in its kinetic energy.
14. State law of conservation of energy.
15. Derive relation between KWh and Joule.

DPP NO. 17

TOPIC : WORK, POWER & ENERGY

1. Horse power is the unit of :
(A) Work (B) Power (C) Energy (D) Force
2. If Rahul has done the same amount of work in less time compared to Rohan then :
(A) Rahul has more power (B) Rohan has more power
(C) Both Rahul and Rohan have equal power (D) Rahul has more energy than Rohan
3. If positive work is done on an object, its kinetic energy :
(A) Increases (B) Decreases (C) Remains same (D) Can't say
4. If negative work is done on an object, its kinetic energy :
(A) Increases (B) Decreases (C) Remains same (D) Can't say
5. If the total work done on an object by a force is zero along a closed path then the force is :
(A) Conservative force (B) Non-conservative force
(C) Zero (D) Negative force
6. Work energy theorem is applicable for :
(A) Conservative forces (B) Non-conservative forces
(C) All forces (D) None of these
7. Work energy theorem states that change in K.E. of an object is equal to :
(A) Work done by all forces acting on it
(B) Work done by conservative forces acting on it
(C) Work done by non-conservative forces acting on it
(D) None of these
8. A body of mass 0.1 kg is dropped from a height of 10 m at a place where $g = 10 \text{ ms}^{-2}$. Its K.E. just before it strikes the ground is :
(A) 1 J (B) 1.04 J (C) 3.5 J (D) 10 J
9. A body of mass 10 kg is dropped from a point where it posses an energy of 100 J. Then the K.E. when it reaches ground would be :
(A) 1000 J (B) 100 J (C) 10 J (D) None of these
10. An object of mass 'm' is moving with a constant velocity v. How much work should be done on the object in order to bring the object to rest :
(A) mv (B) mgv (C) mv^2 (D) $\frac{1}{2} mv^2$
11. Calculate the work done to increase the velocity of a car from 30 km/h to 60 km/h, if the mass of the car is 1500 kg.
12. A lorry and a car moving with the same K.E. are brought to rest by application of brakes which provide equal retarding forces which one of them will come to rest in a shorter distance. Explain.
13. 

If initial velocity of a block is zero, prove work energy theorem in a time interval of 5 second.
14. Define power. Give its S.I. unit and commercial unit.
15. If a force F is applied on a body and it moves with a velocity V, the what will be power ?

DPP NO. 18

TOPIC : WORK, POWER & ENERGY

1. Kilowatt-hour is :
(A) Commercial unit of electric energy
(B) Board of trade unit
(C) Equivalent to kilovolt ampere-hour
(D) All of these
2. The purpose of micro-phone is to :
(A) Convert electrical energy into sound energy
(B) Convert sound energy into electrical energy
(C) Convert light energy into electrical energy
(D) Convert electrical energy into light energy
3. Which of the physical quantity is different from others :
(A) Work
(B) Energy
(C) Power
(D) Each belong to same category
4. 1 hp is equal to :
(A) 0.746 KW
(B) 7.46 KW
(C) 74.6 KW
(D) 746 KW
5. Which of the following relation is/are correct for electric power :
(A) $P = VI$
(B) $P = \frac{V^2}{R}$
(C) $P = I^2R$
(D) All of these
6. Which of the following case violate law of conservation of energy?
(A) Vibrations of a simple pendulum
(B) Motion of a ball on frictionless ground
(C) Motion of a ball on rough ground
(D) None of these
7. From physics point of view, 'Work' means :
(A) effort
(B) interview
(C) achievement
(D) none of these
8. A body at rest can have :
(A) speed
(B) velocity
(C) momentum
(D) energy
9. Work is product of time and :
(A) energy
(B) power
(C) force
(D) distance
10. Which of the following is not the unit of power ?
(A) J/s
(B) Watt
(C) kJ/h
(D) kWh
11. A pump store 200 kg water in a tank located at height 10 metre in 5 minutes. What is the work done by pump, in Joule ?
12. A car weighing 1000 kg and travelling at 30 m/s stops at a distance of 50 m decelerating uniformly. What is the force exerted by the brakes ? What is the work done by the brakes ?
13. A body is pushed along a road with a force of 500 N through a distance of 90m in 1 minute . Calculate the power used.
14. 20 Joules work is done in displacing a body by 4 metre in the direction of the force. What is the value of the force applied in newton ?
15. A work of 4900 J is done on a load of mass 50 kg to lift it to a certain height. Calculate the height through which the load is lifted ?

DPP NO. 19

TOPIC : SOUND

1. What is transferred in wave motion?
(A) Energy (B) Momentum (C) Mass (D) Both A and B
2. The density of medium through which longitudinal wave propagates is minimum in a region which is called a:
(A) Crest (B) Compression (C) Trough (D) Rarefaction
3. Mechanical waves can travel :
(A) In vacuum as well as in a medium (B) In vacuum but not in a medium
(C) In a medium but not in vacuum (D) Neither in a medium nor in vacuum
4. Non-mechanical waves can travel :
(A) In vacuum as well as in a medium (B) In vacuum but not in a medium
(C) In a medium but not in vacuum (D) Neither in a medium nor in vacuum
5. In a slinky :
(A) Both transverse pulse as well as longitudinal pulse can be generated :
(B) Both types of pulse cannot be generated
(C) Only a transverse pulse can be generated
(D) Only a longitudinal pulse can be generated
6. Transverse mechanical wave cannot travel in :
(A) Iron rod (B) Hydrogen gas (C) Water (D) Stretched string
7. Which is true for light waves?
(A) They are electromagnetic waves (B) They are transverse waves
(C) They have extremely short wavelength (D) All of these
8. The speed of electromagnetic waves in air is :
(A) 3×10^5 km/s (B) 3×10^7 km/s (C) 3×10^6 km/s (D) 3×10^8 km/s
9. The waves produced by a motor boat sailing in water are :
(A) Transverse (B) Longitudinal
(C) Longitudinal and transverse (D) Stationary
10. The frequency of sound waves in water is :
(A) Same as that of frequency of source (B) Less than frequency of source
(C) More than frequency of source (D) Can't say
11. With the help of well labelled diagram show longitudinal and transverse wave.
12. Explain why, transverse mechanical waves cannot be propagated in liquids and gases.
13. On what two basis waves can be classified? Name them.
14. Why flash of lighting from clouds is seen much earlier than the sound of thunder, although both occur simultaneously ?
15. What is the effect of temperature on speed of sound? Discuss.

DPP NO. 20

TOPIC : SOUND

1. Which of the following properties of wave, the one that is independent of the others is its :
(A) Velocity (B) Amplitude (C) Wavelength (D) Frequency
2. When a sound wave goes from air into water, the quantity that remains unchanged is its :
(A) Velocity (B) Amplitude (C) Frequency (D) Wavelength
3. Distance of crest from mean position is called :
(A) Amplitude (B) Frequency (C) Displacement (D) Wavelength
4. The speed of sound in a certain medium is 960 m/s. If 3600 waves pass over a certain point in 1 minute, the wavelength is :
(A) 2 m (B) 4 m (C) 8 m (D) 16 m
5. The speed of sound waves having a frequency of 256 Hz compared with the speed of sound waves having a frequency of 512 Hz in the same medium is :
(A) Half (B) Same (C) Twice (D) Four times
6. Sound takes sometime to travel from one place to another. It will be maximum :
(A) At night (B) During winter (C) During summer (D) Nothing can be said
7. Velocity sound is maximum in :
(A) Iron (B) Mercury (C) Water (D) Air
8. Which of the following statements is wrong?
(A) Change in air temperature have no effect on the speed of sound
(B) Change in air pressure have no effect on the speed of sound
(C) The speed of sound in water is higher than in air
(D) The speed of light in water is lesser than in air
9. The velocity of sound in any gas depends upon :
(A) Wavelength of sound only (B) Amplitude and frequency of sound
(C) Density and elasticity of gas (D) Intensity of sound waves only
10. Which characteristic of the sound helps you to identify your friend by his voice while sitting with others in a dark room?
(A) Pitch (B) Amplitude (C) Timbre (D) Wavelength
11. Define amplitude of a wave.
12. Define frequency of a wave.
13. Define wavelength of a wave.
14. Define time period of a wave.
15. Define timbre.

DPP NO. 21

TOPIC : SOUND

1. The waves which propagate in metals are :
(A) Longitudinal (B) Transverse (C) A and B both (D) Neither A nor B
2. Loudness of sound depends on its :
(A) Frequency (B) Time period (C) Amplitude (D) Wavelength
3. The frequency of a source of sound is 100 Hz. How many times does it vibrate in a minute :
(A) 100 (B) 1000 (C) 600 (D) 6000
4. Sonar is based on the principle of :
(A) Echo (B) Reverberation
(C) Resonance (D) Any one of the above
5. Echo is produced due to :
(A) Reflection of sound (B) Refraction of sound
(C) Resonance (D) None of these
6. The persistence of sound in a closed enclosure, due to continuous reflection at the walls, even after the source has stopped producing sound is known as :
(A) The persistence of hearing (B) An echo
(C) Reverberation (D) The water sounds
7. In the inner ear the fluid which converts pressure variations into electrical signals is inside :
(A) Hammer (B) Anvil (C) Stirrup (D) Cochlea
8. Which among the following is based on reflection of sound?
(A) Megaphone (B) Sound board (C) Stethoscope (D) All of these
9. The minimum distance between the source of sound and the obstacle for an echo to take place is :
(A) 17.2 m (B) 172 m (C) 17 cm (D) 34.4 m
10. If ultrasonic, infrasonic and audio waves travel through a medium with speed v_1 , v_2 and v_3 respectively then:
(A) $v_1 = v_2 = v_3$ (B) $v_1 > v_3 > v_2$ (C) $v_1 < v_3 < v_2$ (D) $v_3 \geq v_1$ and $v_1 \approx v_3$
11. Name the three bones present in the middle ear.
12. What is persistence of hearing?
13. Give two laws of reflection for sound.
14. Explain SONAR?
15. Velocity of sound at a particular place is 400 m/s, then calculate the minimum distance between the source of sound and the obstacle for an echo to take place.