CBSE Living Science Physics 9

Multiple-Choice Questions

(QUESTION BANK)

CHAPTER 1: MOTION

1. Which is a vector quantity?
   a. Weight b. Mass c. Density d. Volume

2. A shot-put thrown by an athlete is said to be in
   a. rectilinear motion. b. rotatory motion. c. curvilinear motion. d. oscillatory motion.

3. A car moving on a straight road is said to possess
   a. rectilinear motion. b. rotatory motion. c. rotatory motion. d. both a and b.

4. A body is moving along a circular path of radius r. The displacement of the body when it completes half a revolution is
   a. 0 b. $2r$ c. πr d. $2\pi r$

5. A free-falling stone under the action of gravity exhibits a
   a. uniform motion. b. non-uniform motion.
   c. zigzag motion. d. curvilinear motion.

6. The device fitted in an automobile to measure the distance travelled by it is
   a. odometer. b. speedometer. c. hygrometer. d. ticker tape timer.

7. The SI unit of retardation is
   a. $m\,s^{-1}$ b. $m\,s^{-2}$ c. $m\,s^{2}$ d. m

8. For uniform motion
   a. the distance–time graph is a straight line parallel to the time axis.
   b. the speed–time graph is a straight line inclined to time axis.
   c. the speed–time graph is a straight line parallel to time axis.
   d. the acceleration–time graph is a straight parallel to time axis.

9. For a uniformly retarded motion, the velocity–time graph is
   a. a curve. b. a straight line parallel to time axis.
   c. a straight line perpendicular to time axis. d. a straight line inclined to time axis.

10. The distance–time graph of a body having non-uniform motion is a
    a. straight line parallel to time axis. b. straight line perpendicular to time axis.
    c. curved line. d. zigzag line.

11. If a body covers equal distances in equal intervals of time in a particular direction, the body is said to have a
    a. uniform velocity. b. non-uniform speed.
    c. uniform speed. d. variable velocity.

12. When a body travels in a straight line and its velocity changes by equal amounts in equal intervals of time, it is said to have

a. uniform velocity.
b. non-uniform acceleration.
c. uniform acceleration.
d. uniform speed.

13. The average velocity of a body is equal to mean of its initial velocity and final velocity. The acceleration of the body is

a. variable.
b. zero.
c. negative.
d. uniform.

14. The slope of a speed–time graph gives

a. velocity.
b. acceleration.
c. displacement.
d. distance travelled.

15. The area under a speed–time graph represents a physical quantity which has the unit of

a. m
b. m^2
c. $m\,s^{-1}$
d. $m\,s^{-2}$

16. A body dropped from the top of a tower reaches the ground in 4 seconds. What is the height of the tower, if g = 10 $m\,s^{-2}$?

a. 78 m
b. 70 m
c. 80 m
d. 90 m

17. If a driver decreases the speed of a car from 25 m/s to 10 m/s in 5 seconds, the acceleration produced by the car is

a. $-3\ m\,s^{-2}$
b. $3\ m\,s^{-2}$
c. $5\ m\,s^{-2}$
d. $7\ m\,s^{-2}$

18. When a car driver travelling at a speed of 10 m/s applies brakes and brings the car to rest in 20 s, the retardation will be

a. $+2\ m\,s^{-2}$
b. $-2\ m\,s^{-2}$
c. $-0.5\ m\,s^{-2}$
d. $+0.5\ m\,s^{-2}$

19. The distance travelled by a body moving in a circular path is

a. πr^2
b. $2\pi r$
c. πr
d. $2\pi r^2$

20. For a body moving with a constant speed along a circular path, the direction of the velocity is

a. horizontal.
b. perpendicular to the radius.
c. along the tangent to the circle.
d. constant.

21. A stone tied to a thread and whirled in a circular path is an example of

a. circular motion.
b. rotatory motion.
c. rectilinear motion.
d. uniform circular motion.

22. If a body takes time t to complete one round of the circular path of radius r, then the speed of the body (v) is given by

a. $v = \pi r \times t$
b. $v = \frac{\pi r}{t}$
c. $\frac{2\pi r}{t}$
d. $2\pi r \times t$

23. At the maximum height, a body thrown vertically upwards has

a. velocity not zero but acceleration zero.
b. acceleration not zero but velocity zero.
c. both acceleration and velocity not zero.
d. both acceleration and velocity zero.

24. The magnitude of speed and velocity of a body is equal only if the body moves along a

a. straight line.
b. circular path.
c. zigzag path.
d. curved path.

25. A body falling freely under gravity shows a

a. uniform acceleration.
b. non-uniform acceleration.
c. uniform velocity.
d. variable velocity.

26. Which is not the correct equation of motion?

a. $s = ut + \frac{1}{2}at^2$ **b.** $v^2 - u^2 = 2as$ **c.** $v = u - at$ **d.** $v - u = at$

27. A sprinter is running along the circumference of the sports ground with constant speed. Which of the following is changing?

a. Magnitude of acceleration **b.** Distance covered

c. Force acting on the sprinter **d.** Direction of motion

28. A bus starting from rest moves with uniform acceleration of 0.1 m/s^2 for 2 minutes. The distance covered by the bus is

a. 720 m. **b.** 620 m. **c.** 320 m. **d.** 520 m.

29. If a bus decreases its speed from 80 km/h to 60km/h, then its retardation is

a. 11.1 $m\,s^{-2}$ **b.** 1.11 $m\,s^{-2}$ **c.** –1.11 $m\,s^{-2}$ **d.** 111 $m\,s^{-2}$

30. A ship is moving at a speed of 56 km/h. One second later it is moving at 58 km/h, then its acceleration is

a. 72 km h^{-2} **b.** 720 km h^{-2} **c.** 7200 km h^{-2} **d.** 7.2 km h^{-2}

CHAPTER 2: FORCE AND LAWS OF MOTION

1. Choose the wrong statement.
   a. Unit of force is newton.
   b. Force changes the shape of a body.
   c. Force is always conserved.
   d. Force is a vector quantity.

2. Balanced forces may ..... a body.
   a. move
   b. accelerate
   c. retard
   d. deform

3. If a number of forces acting on a body change velocity of the body. The forces are
   a. parallel.
   b. unbalanced.
   c. balanced.
   d. inclined.

4. External forces are
   a. always balanced.
   b. never balanced.
   c. may or may not be balanced.
   d. none of these.

5. The inertia of a body is measured by its
   a. mass.
   b. volume.
   c. density.
   d. force acting on it.

6. The inertia of an object tends to cause an object
   a. to increase its speed.
   b. to decrease its speed.
   c. to resist a change in its state of motion.
   d. to decelerate due to friction.

7. The inertia of a moving body depends on
   a. momentum of the object.
   b. speed of the object.
   c. mass of the object.
   d. shape of the object.

8. If the slope of distance–time graph increases with time, it indicates that the velocity of the body is
   a. increasing with time.
   b. decreasing with time.
   c. remains constant.
   d. uniform.

9. An unbalanced force acting on a body does not produce an effect of
   a. change in speed of the body.
   b. change in shape of the body.
   c. change in direction of motion of the body.
   d. change in state of rest of the body.

10. Inertia is defined by
    a. Newton's first law.
    b. Newton's second law.
    c. Newton's third law.
    d. none of these.

11. When a rubber ball is pressed by a person in his hands, its shape changes. This is because
    a. unbalanced forces act on the ball.
    b. balanced forces act on the ball.
    c. frictional forces act on the ball.
    d. gravitational forces act on the ball.

12. A body whose momentum is constant must have constant
    a. force.
    b. velocity.
    c. acceleration.
    d. all of these.

13. The SI unit of impulse is
    a. $kg\,ms^{-1}$
    b. $kg\,ms^{-2}$
    c. N
    d. N/s

14. If a constant force acts on a body initially at rest, the distance moved by the body in time t is proportional to
    a. t
    b. t^2
    c. t^3
    d. t^4

15. The force required to produce an acceleration of 2 m/s^2 in a body of mass 0.8 kg is
    a. 1.6 N b. 2.6 N c. 0.16 N d. 16 N

16. The acceleration produced in a body by a force of given magnitude depends on
    a. size of the body. b. shape of the body.
    c. mass of the body. d. none of these.

17. The linear momentum of a body of mass 5 kg moving with a velocity of 2 m/s is
    a. 0.1 kgm/s b. 10 kgms c. 10 m/s d. 10 kg m/s

18. The acceleration produced in a body of mass 2 kg, if the force applied on it is 15 N is
    a. 7.5 m/s b. 7.5 m/s^2 c. 0.75 m/s^2 d. 30 m/s^2

19. Action and reaction act on
    a. different bodies in opposite direction. b. same body in opposite directions.
    c. different bodies but in same direction. d. same body in same direction.

20. If a boy pushes a wall with a force of 10 N towards east, then the force exerted by the wall on the boy is
    a. 10 N towards east. b. 10 N towards west. c. 20 N towards west. d. 20 N towards east.

21. Newton's third law
    a. defines the force qualitatively. b. defines the force quantitatively.
    c. explains the way the force acts on it. d. gives the direction of force.

22. A force causes an acceleration of 10 m/s in a body of mass 500 kg. The acceleration caused by the same force in a body of mass 5 kg is
    a. 10 m/s^2 b. 1 m/s^2 c. 0.1 m/s^2 d. 100 m/s^2

23. The principle of conservation of linear momentum states that the linear momentum of a system
    a. cannot be changed. b. cannot remain constant.
    c. can be changed if only internal force acts. d. can be changed only if eternal force acts.

24. One newton is equal to
    a. 10^5 dyne b. 10 kg ms^{-2} c. 10^3 dyne d. 100 kg m^{-2}

25. The velocity of a body of mass 20 kg decreases from 20 m/s to 5 m/s in a distance of 100 m. Force on the body is
    a. – 27.5 N b. – 47.5 N c. – 37.5 N d. – 67.5 N

26. Which of the following is not is not an example of Newton's third law of motion?
    a. A cricket player lowering his hand while catching a ball
    b. Walking on a floor
    c. Rebounding of a rubber ball
    d. Flight of a jet

27. Which is not the type of inertia?
    a. Inertia of rest b. Inertia of motion
    c. inertia of direction d. Inertia of force

28. A person jumping out of a moving bus may fall forward because of
    a. Inertia of rest. b. Inertia of motion.
    c. inertia of direction. d. none of these.

29. Impulse of a force is measured by

a. $F \times t$ b. $\frac{F}{t}$ c. $F + t$ d. $F - t$

30. Which is a wrong statement?

a. Action and reaction forces occur in pairs only.

b. Action and reactions forces are always equal in magnitude.

c. Action and reaction forces act on different bodies.

d. Action and reaction forces act in the same direction.

CHAPTER 3: GRAVITATION

1. The value of universal gravitational constant was first determined experimentally by
   a. Newton. b. Galileo. c. Cavendish. d. Einstein.

2. The accepted value of G is
   a. 6.674×10^{-11} Nm^2/kg^2 b. 5.674×10^{-11} Nm^2/kg^2 c. 6.674×10^{-10} Nm^2/kg^2 d. 6.674×10^{-11} Nm^2/kg

3. The gravitational force of attraction between the earth and the moon is
   a. 2.22×10^{20} N b. 2.02×10^{20} N c. 2.02×10^{10} N d. 3.02×10^{20} N

4. When the distance between the two objects is reduced to half, the force of gravitation becomes _____ of the initial value.
   a. ½ b. thrice c. ¼ d. 4 times

5. When the distance between the two objects is doubled, the force of gravitation becomes _____ of the initial value.
   a. 4 times b. ¼ c. double d. ½

6. Which law is it – "A planet revolves around the sun in an elliptical orbit"?
   a. Newton's first law b. Newton's second law c. Kepler's first law d. Kepler's second law

7. Value of acceleration due to gravity at the centre of the earth is
   a. > 0 b. < 0 c. 9.8 m/s^2 d. 0

8. Acceleration due to gravity on the moon is _____ of that on the earth.
   a. 1/6th b. 1/3rd c. 1/4th d. 1/5th

9. Gravitational force is the
   a. strongest force. b. weakest force. c. short-range force. d. non-central force.

10. When you put an object on a spring balance, you measure
    a. mass. b. force. c. acceleration. d. weight.

11. Gravitational force is a
    a. repulsive force. b. attractive force. c. neither a nor b. d. both a and b.

12. The acceleration due to gravity
    a. has the same value everywhere in space.
    b. has the same value everywhere on the earth.
    c. varies with the latitude on the earth.
    d. is greater on the moon.

13. The weight of a body of mass 10 kg is
    a. 98 N b. 9.8 N c. 69 N d. 39 N

14. The value of acceleration due to gravity of earth
    a. is the same on equator and poles.
    b. is the least on poles.
    c. is the least on equator.
    d. increases from pole to equator.

15. According to one of the Kepler's laws of planetary motion
    a. $r^2 \propto T^3$ b. $r \propto T^2$ c. $r^3 \propto T^2$ d. $r^3 \propto \frac{1}{T^3}$

16. Which is not a vector quantity?
    a. mass b. weight c. force d. acceleration

17. The formation of tides in the sea is due to
    a. the gravitational pull of the earth on sea water.
    b. gravitational force exerted by the sun on the sea water.
    c. gravitational force exerted by the moon on sea water.
    d. gravitational force exerted by the moon and the sea on sea water.

18. Inverse square law is also called
    a. Kepler's first law. b. Newton's second law. c. Universal law. d. Gravitational law.

19. Where will it be profitable to purchase one kilogram of apples?
    a. At poles b. At equator c. At 45° latitudes d. at 60° latitude

20. If R is the radius of the earth, the height at which the weight of a body becomes ¼ its weight on the surface of the earth is
    a. $2R$ b. R c. $\frac{R}{2}$ d. $\frac{R}{4}$

21. The weight of a man on the moon if he weighs 54 N on the earth is
    a. 5.4 N b. 54 N c. 9 N d. 324 N

22. When the distance between two objects is tripled, the force of gravitation becomes _____ of its initial value.
    a. 1/4th b. 1/7th c. 1/8th d. 1/9th

23. When the masses of two objects are doubled, the force of gravitation between them becomes _____ the original value.
    a. 4 times b. double d. 5 times d. 8 times

24. Which is a wrong statement about universal gravitational constant?
    a. It has the same value at all places. b. It is never zero.
    c. It is vector quantity. d. It value is 6.67×10^{-11} Nm^2/kg^2

25. Which is wrong statement about acceleration due to gravity?
    a. Its value is 9.8 m/s^2 b. It is zero at the centre of the earth.
    c. Its value changes from place to place. d. It is a scalar quantity.

26. Acceleration due to gravity on the moon is
    a. 9.8 m/s^2 b. 1.63 m/s^2 c. 1.67 m/s^2 d. 1.66 m/s^2

27. When a body is dropped from a certain height, acceleration due to gravity is taken as
    a. + 9.8 m/s^2 b. –9.8 m/s^2 c. 0 d. + 9.8 m/s

28. The point where the pull of the earth exerting on a body is equal to the pull exerted by the moon is called
    a. zero gravity. b. null point. c. gravitational constant. d. escape point.

29. The statement "All bodies whether light or heavy, fall at the same speed towards the earth" was proposed by
    a. Newton. b. Cavendish. c. Kepler. d. Galileo.

30. A physical balance is used to measure the _____ of an object.
    a. weight b. acceleration c. mass d. density

CHAPTER 4: FLOATATION

1. Thrust acting perpendicular on the unit surface area is called
   a. pressure. b. moment of force. c. down thrust. d. none of these.

2. 1 k Pa is equal to
   a. 100 N/m b. 100 N/m^2 c. 1000 N/m^2 d. 1000 N/m

3. Thrust at the base of a cylindrical column of liquid is equal to
   a. $\frac{vd}{g}$ b. vdg c. $\frac{v}{dg}$ d. $\frac{vg}{d}$

4. If the density of a liquid increases, the buoyant force will
   a. increase. b. remain the same. c. decrease. d. none of these.

5. The device used to measure the density of a liquid is called
   a. barometer. b. lactometer. c. hydrometer. d. odometer.

6. Purity of milk is determined by using a
   a. hydrometer. b. lactometer. c. hygrometer. d. speedometer.

7. The buoyant force due to a liquid on a body immersed in it depends upon
   a. the volume of the liquid. b. the density of the liquid.
   c. acceleration due to gravity. d. all of these.

8. Buoyant force acting on an object is equal to the
   a. mass of the solid immersed. b. weight of the solid immersed.
   c. mass of the liquid displaced by the object. d. weight of the liquid displaced by the object.

9. Buoyant force exerted by different fluids on a given body is
   a. same. b. different. c. zero. d. negligible.

10. The SI unit of relative density is
    a. g cm^{-3} b. kg m^{-3} c. g cm^{-2} d. none of these

11. Pressure at a point inside the liquid does not depend upon
    a. the depth of the point below the surface of the liquid.
    b. the nature of the liquid.
    c. the acceleration due to gravity at that point.
    d. the shape of the vessel containing the liquid.

12. If a body is compressed to half its previous volume, its density
    a. becomes half. b. remains the same. c. becomes double. d. becomes four times.

13. An object weighs 25 N in air. When immersed fully in a liquid, it weighs 15 N only. The weight of the liquid displaced by the object is
    a. 10 N b. 40 N c. 25 N d. 15 N

14. An iceberg floats in sea water with ..... part of its volume below the water surface.
    a. 10/12th b. 11/12th c. 9/12th d. 1/12th

15. The relative density of wood 0.8 which conveys that
    a. it will sink in water. b. it will half-submerge.
    c. it will float in water. d. it will remain submerged in water.

16. What is the relative density of mercury?
    a. 0.80 b. 7.80 c. 2.70 d. 13.60

17. The apparent weight of wood floating on water if it weighs 100 g in air is
    a. 300 g b. 200 g c. 100 g d. zero

18. Which of the following is not matched correctly?
    a. Force – kg ms^{-1} b. Pressure – Nm^{-2} c. Buoyant – N d. Density – kg m^{-3}

19. A metal in which even iron can float is
    a. manganese. b. sodium. c. mercury. d. magnesium.

20. The truck with a heavy load will move swiftly if it is fitted with
    a. four wheels. b. six wheels. c. eight wheels. d. 5 wheels.

21. The density of a solid with its mass 500 g and 350 cm^3 is
    a. 1.40 g/cm^3 b. 1.42 g/cm^3 c. 142 g/cm d. 142 g /cm^2

22. If the density of a solid is 1.45 g/cm^3 and density of water is 1 g/cm^3 then the relative density of the solid is
    a. 1.45 g/cm^3 b. 1.40 c. 1.45 d. 0.145

23. If the pressure in water pipe at the ground floor of a building is 50,000 Pa and pressure on the third floor 30,000 Pa, the height of the building would be if g = 10 m/s^2 and density of water is 1000 kg m^{-3}
    a. 5 m b. 10 m c. 8 m d. 2 m

24. The pressure exerted by 5 m of vertical length of water column, if g 9.8 m/s^2 and density of water is 1000 kg/m^3 is
    a. 49000 Pa b. 4900 Pa c. 490 Pa d. 49 Pa

25. The chances of drowning in the dead sea are very less because
    a. the density of sea water is 1.16 g/cm^3 b. the density of human body is 1.07 g/cm^3
    c. water of sea offers a greater buoyant force d. all of these

26. The relationship between buoyant force and the temperature of the liquid in which it is immersed is
    a. BF $\propto T$ b. BF $\propto \frac{1}{T}$
    c. BF $\propto T^{-2}$ d. BF $\propto \frac{1}{T^{-2}}$

27. Archimedes' screw is used in
    a. land irrigation. b. water treatment.
    c. weighing the object. d. determining densities of liquids.

28. Archimedes' principle is used in
    a. designing ships and submarines. b. determining the relative density of a substance.
    c. determining densities of liquids. d. all of these.

29. A swim-bladder of a fish helps it
    a. in its floatation in water. b. in breathing.
    c. in finding its food. d. from water.

30. Densities of hydrogen and helium are
    a. equal to the density of air. b. less than the density of air.
    c. more than the density of air. d. none of these.

CHAPTER 5: WORK AND ENERGY

1. The work done on an object does not depend on the
   a. displacement.
   b. force applied.
   c. angle between force and displacement.
   d. initial velocity of the object.

2. Water stored in a dam possesses
   a. kinetic energy.
   b. potential energy.
   c. electrical energy.
   d. no energy.

3. When the angle between the direction of force and the direction of displacement is an acute angle, the nature of work done is
   a. positive.
   b. negative.
   c. either positive or negative.
   d. zero.

4. When the angle between the direction of force and the direction of displacement is 90^o, then the amount of work done is
   a. negative.
   b. positive.
   c. zero.
   d. cannot be determined.

5. A man carries a suitcase in his hand and climbs up the stairs. The work done by the man is
   a. negative.
   b. positive.
   c. zero.
   d. none of these.

6. If force and displacement in the direction of force are doubled, then the work done would be
   a. doubled.
   b. halved.
   c. 4 times.
   d. ¼ times.

7. In case of negative work, the angle between the force and displacement is
   a. 0°
   b. 45°
   c. 90°
   d. 180°

8. When a force of 1 newton moves a body through a distance of 1metre in the direction of force, the work done is
   a. 1 joule.
   b. 1 Nm.
   c. 1 Nm^2.
   d. both a and b.

9. If the velocity of a moving body is doubled, its kinetic energy becomes
   a. one-fourth.
   b. four times.
   c. halved.
   d. zero.

10. When an object falls freely towards the earth, then its total energy
    a. increases.
    b. decreases.
    c. remains constant.
    d. first increases then decreases.

11. The commercial unit of energy is
    a. watt.
    b. watt-hour.
    c. kilowatt.
    d. kilowatt-hour.

12. A stretched spring possesses
    a. kinetic energy.
    b. potential energy.
    c. electrical energy.
    d. magnetic energy.

13. An electric cell is a source of
    a. heat energy.
    b. light energy.
    c. electrical energy.
    d. sound energy.

14. The work done by a weight of 1 kg mass when it moves up through 1 m is
    a. 10 J
    b. –10 J
    c. 0.1 J
    d. –0.1 J

15. Amount of work done in compressing or stretching the spring against its elasticity is
    a. kinetic energy.
    b. potential energy.
    c. elastic potential energy.
    d. heat energy.

16. An electric motor converts electrical into
    a. chemical energy.
    b. heat energy.
    c. mechanical energy.
    d. light energy.

17. On reaching the extreme positions the bob of a pendulum possesses only
    a. potential energy. b. kinetic energy. c. chemical energy. d. heat energy.

18. Which is a vector quantity?
    a. Work b. Energy c. Power d. Force

19. 1 kWh is equivalent to
    a. 3.67×10^7 J b. 3.6×10^6 J c. 3.69×10^9 J d. 6.67×10^7 J

20. How much energy does a 100 W electric bulb transfer in 1 minute?
    a. 100 J b. 600 J c. 3600 J d. 6000 J

21. A body rolls down on an inclined plane, it has
    a. potential energy. b. kinetic energy.
    c. kinetic and potential energy both. d. neither kinetic energy nor potential energy.

22. When the momentum of a body is increased by 100 %, its kinetic energy increases by
    a. 50 % b. 100 % c. 200 % d. 300 %

23. The potential energy of a body of mass 1 kg kept at a height of 5 m, if acceleration due to gravity is 10 m/s^2.
    a. 25 J b. 30 J c. 50 J d. 100 J

24. The kinetic energy of a body of mass 2 kg moving with a velocity of 0.1 m/s is
    a. 0.1 J b. 0.01 J c. 0.001 J d. 0.02 J

25. One horse power is equivalent to
    a. 649 W b. 734 W c. 746 W d. 745 W

26. An electric bulb rated 100 W is said to consume energy in 10 hours is
    a. 1 kWh. b. 10 kWh. c. 100 Wh. d. 0.01 kWh.

27. The flowing water has kinetic energy which can be used to turn blades in dams to generate _____ .
    a. heat energy b. hydraulic energy c. electrical energy d. mechanical energy

28. A man has four options to move a body through a height. In which case is maximum work done?
    a. Push over an inclined plane. b. Lift vertically upwards
    c. Push over smooth rollers d. Push on a plane horizontal surface

29. A boy weighing 200 N climbs a vertical ladder. If the value of *g* be 10 m s^{-2}, the work done by the boy in climbing 2 m height will be
    a. 200 J. b. 20 J. c. 100 J. d. 400 J.

30. The momentum of a bullet of mass 20 g fired from a gun is 10 kg m/s. The kinetic energy of this bullet in kJ will be
    a. 1.5 b. 2 c. 2.5 d. 3

CHAPTER 6: SOUND

1. The speed of sound wave in air is
   a. 330 m/s b. 332 m/s c. 340 m/s d. 350 m/s

2. The sound waves travel fastest in
   a. solids. b. liquids. c. gases. d. vacuum.

3. A slinky can produce in laboratory
   a. transverse waves only. b. longitudinal waves only. c. both a and b. d. none of these

4. Which wave cannot be polarised?
   a. longitudinal waves. b. transverse waves. c. both a and b. d. none of these.

5. The distance between a crest and an adjacent trough is equal to
   a. the wavelength. b. half the wavelength.
   c. one-fourth the wavelength. d. twice the wavelength.

6. The voice of children and women is shrill because
   a. children and women have short vocal cords. b. vocal cords vibrate with high frequency.
   c. they produce a high-pitched voice. d. all of these.

7. A constant hearing of noise in the range of _____ may result in the loss of hearing or deafness.
   a. 100–110 dB b. 110–120 dB c. 130–140 dB d. 90–110 dB

8. The loudness of a whisper is
   a. 10 dB b. 20 dB c. 30 dB d. 40 dB

9. The speed of sound at 25 ^{o}C is
   a. 331 m/s b. 344 m/s c. 346 m/s d. 350 m/s

10. A medical instrument used to detect and study sounds produced within organs such as the heart and lungs prior to treatment is called
    a. stethoscope. b. ultrasound. c. sound boards. d. megaphone.

11. The minimum distance from a sound–reflecting surface to hear an echo is
    a. 17.5 m b. 17.4 m c. 17.2 m d. 17 m

12. Which is called a whispering gallery in India?
    a. Taj Mahal b. Gol Gumbaj c. Swarna Mandir d. Ajanta Caves

13. Which does not move with a supersonic sound?
    a. Bullet fired from a gun b. Jet aircraft c. Rocket d. Helicopter

14. We can recognise the voice of our family members without seeing them because the voice of each member has a particular
    a. pitch. b. loudness. c. quality. d. frequency.

15. The loudness of a sound is measured in
    a. hertz. b. meter. c. second. d. decibel.

16. Which one is not a fundamental characteristic of a sound?
    a. Pitch b. Frequency c. Loudness d. Quality

17. When the skin of a tabla or the strings of a guitar are tightened, they produce a sound of higher _____.
    a. quality b. loudness c. pitch d. wave length

18. A wave source produces 20 crests and 20 troughs in 0.2 second. The frequency of the wave is
    a. 200 Hz b. 500 Hz c. 300 Hz d. 100 Hz

19. An object moving at a speed greater than that of sound is said to be moving at
    a. supersonic speed. b. sonic speed. c. infrasonic speed. d. ultrasonic speed.

20. Which of the following is an elastic wave?
    a. Sound waves b. Light waves c. X-rays d. Radio waves

21. Which one of the following properties of sound is affected by change in the air temperature?
    a. Frequency b. Amplitude c. Intensity d. Wavelength

22. Which of the following device does not work on the multiple reflections of sound waves?
    a. Stethoscope b. Hydrophone c. Soundboard d. Megaphone

23. Sounds having frequency less than 20 Hz are known as
    a. audible sounds. b. ultrasound. c. notes. d. inaudible sounds.

24. Galton's whistle can produce sound more than
    a. 500 Hz b. 1000 Hz c. 2000 Hz d. 1500 Hz

25. The technique of obtaining images of the heart of the body by using ultrasonic waves is called
    a. ultrasonography. b. echocardiography. c. x-ray. d. cardiograph.

26. In SONAR we use
    a. ultrasonic waves. b. infrasonic waves. c. radio waves. d. audible sound waves.

27. At the end of the auditory canal, there is a thin membrane called
    a. hammer. b. pinna. c. anvil. d. eardrum.

28. Human heart beats about 72 times in a minute. So the frequency of the heartbeat is
    a. 1.5 Hz b. 1.4 Hz c. 1.2 Hz d. 2.25 Hz

29. The highest frequency produced by a man is 1700 Hz and that of a woman is 2780 Hz. The ratio of wavelengths of the sound of man and woman are (speed of sound is 340 m/s)
    a. 1: 0.60 b. 1: 0.61 c. 1: 062 d. 1: 0.59

30. A man stands between two cliffs and fires a gun. He hears two successive echoes after 3 s and 5 s. The distance between the two cliffs is
    a. 1320 m b. 1315 m c. 1312 m d. 1310 m

ANSWERS

CHAPTER 1: MOTION

1. a.	**2.** c.	**3.** d.	**4.** b.	**5.** b.	**6.** a.	**7.** b.
8. c.	**9.** d.	**10.** c.	**11.** a.	**12.** c.	**13.** d.	**14.** b.
15. b.	**16.** c.	**17.** a.	**18.** d.	**19.** b.	**20.** c.	**21.** d.
22. c.	**23.** d.	**24.** a.	**25.** a.	**26.** c.	**27.** d.	**28.** a.
29. b.	**30.** c.					

CHAPTER 2: FORCE AND LAWS OF MOTION

1. c.	**2.** d.	**3.** b.	**4.** c.	**5.** a.	**6.** c.	**7.** c.
8. a.	**9.** b.	**10.** a.	**11.** b.	**12.** b.	**13.** a.	**14.** b.
15. a.	**16.** c.	**17.** d.	**18.** b.	**19.** a.	**20.** b.	**21.** c.
22. b.	**23.** d.	**24.** a.	**25.** c.	**26.** a.	**27.** d.	**28.** b.
29. a.	**30.** d.					

CHAPTER 3: GRAVITATION

1. c.	**2.** a.	**3.** b.	**4.** d.	**5.** b.	**6.** c.	**7.** d.
8. a.	**9.** b.	**10.** d.	**11.** b.	**12.** c.	**13.** a.	**14.** c.
15. c.	**16.** a.	**17.** d.	**18.** c.	**19.** b.	**20.** b.	**21.** c.
22. d.	**23.** a.	**24.** c.	**25.** d.	**26.** b.	**27.** a.	**28.** b.
29. d.	**30.** c.					

CHAPTER 4: FLOATATION

1. a.	**2.** c.	**3.** b.	**4.** a.	**5.** c.	**6.** b.	**7.** d.
8. d.	**9.** b.	**10.** d.	**11.** d.	**12.** c.	**13.** a.	**14.** b.
15. c.	**16.** d.	**17.** d.	**18.** a.	**19.** c.	**20.** c.	**21.** b.
22. c.	**23.** d.	**24.** a.	**25.** d.	**26.** b.	**27.** a.	**28.** d.
29. a.	**30.** b.					

CHAPTER 5: WORK AND ENERGY

1. d.	**2.** b.	**3.** a.	**4.** c.	**5.** b.	**6.** c.	**7.** d.
8. d.	**9.** b.	**10.** c.	**11.** d.	**12.** b.	**13.** c.	**14.** b.
15. c.	**16.** c.	**17.** a.	**18.** d.	**19.** b.	**20.** c.	**21.** c.
22. d.	**23.** c.	**24.** b.	**25.** c.	**26.** a.	**27.** c.	**28.** b.
29. d.	**30.** c.					

CHAPTER 6: SOUND

1. b.	**2.** a.	**3.** c.	**4.** a.	**5.** b.	**6.** d.	**7.** c.
8. b.	**9.** c.	**10.** a.	**11.** c.	**12.** b.	**13.** d.	**14.** c.
15. d.	**16.** b.	**17.** c.	**18.** d.	**19.** a.	**20.** a.	**21.** d.
22. b.	**23.** d.	**24.** c.	**25.** b.	**26.** a.	**27.** d.	**28.** c.
29. b.	**30.** a.					