

FORCE

- Q.1** The correct relationship between force (F), mass (m) and acceleration (A) is–
 (A) $F = \frac{m}{a}$ (B) $F = ma$
 (C) $F = \frac{a}{m}$ (D) $F = ma^2$
- Q.2** A force of 10 N acts on a body of mass 5 kg. The acceleration produced is–
 (A) 2 m/s² (B) 0.5 m/s²
 (C) 50 m/s (D) 2 cm/s²
- Q.3** If a bus starts moving suddenly, the passengers inside the bus will tend to bend–
 (A) in the same direction as the direction of motion of the bus
 (B) in the direction opposite to the direction of motion of the bus
 (C) side ways
 (D) do not bend at all
- Q.4** Newton's second law of motion gives the measure of–
 (A) force (B) acceleration
 (C) momentum (D) impulse
- Q.5** A and B are two objects of masses 6 kg and 3 kg respectively, then–
 (A) A has more inertia than B
 (B) B has more inertia than A
 (C) A and B have equal inertia
 (D) mass has no relation to inertia
- Q.6** An athlete runs some distance before making a long jump to–
 (A) apply larger force
 (B) increase action and reaction forces
 (C) to gain larger inertia of motion
 (D) all of these
- Q.7** A driver accelerates his car first at the rate of 2.4 m/s² and then at rate of 1.6 m/s². The ratio of the two forces exerted by the engine in the two cases will be–
 (A) 1 : 2 (B) 2 : 1
 (C) 2 : 3 (D) 3 : 2
- Q.8** When a net force acts on an object, the object will be accelerated in the direction of 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) inertia of the object
- Q.9** An object will continue to accelerate until, the resultant force on it–
 (A) decreases (B) increases
 (C) becomes zero (D) none of these
- Q.10** When an object undergoes acceleration
 (A) its speed always increases
 (B) its velocity always increases
 (C) a force always acts on it
 (D) the force may be zero
- Q.11** Inertia is the property of a body by the virtue of which the body is unable to change by itself–
 (A) the state of rest
 (B) the state of motion
 (C) the state of rest or of motion in a straight line
 (D) the direction of motion
- Q.12** Two balls at the same temperature collide. Which of the following gets conserved ?
 (A) Velocity (B) Momentum
 (C) Kinetic energy (D) Temperature
- Q.13** A force acts on an object which is free to move. If we know the magnitude of force and mass of the object. Newton's second law of motion enables us to determine the object's–
 (A) weight (B) speed
 (C) position (D) acceleration
- Q.14** Two balls, one of iron and other of aluminium will experience the same buoyant force when immersed in water if both have equal–
 (A) weight in air (B) volume
 (C) surface area (D) density

- Q.15** A piece of wood is held underwater. The upthrust acting 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
- Q.16** A particle is moving with a constant speed along a straight line path. A force is required to–
(A) increase its speed
(B) decrease the momentum
(C) change the direction
(D) keep it moving with uniform velocity
- Q.17** Choose the correct statement about the friction b/w two bodies–
(A) static friction is always greater than the kinetic friction
(B) coefficient of static friction is always less than kinetic friction
(C) coefficient of rolling friction is greater than that of sliding friction
(D) coefficient of sliding friction is greater than the coefficient of rolling friction.
- Q.18** Newton's third law states that–
(A) to every action there is an equal and opposite reaction
(B) action and reaction always act on different bodies
(C) it provides us an idea to measure the force.
(D) it gives a qualitative idea of force.
- Q.19** Archimedes principle states that when a body is immersed in liquid partially or completely–
(A) it experiences an upthrust equal to the weight of the liquid displaced.
(B) it experiences an upthrust less than the weight of the liquid displaced.
(C) it experiences an upthrust greater than the weight of the liquid displaced.
(D) the volume of the liquid displaced is equal to the volume of the body submerged inside the liquid.
- Q.20** Which of the following statement is true about law of conservation of momentum–
(A) if there is no external force acting on a system, the momentum of the system is always conserved.
(B) Momentum of the system is conserved even in the presence of external force
(C) law of conservation of momentum is obeyed in all physical phenomenon
(D) Jet engines and rockets also work on the same principle.
- Q.21** Newton's second law of motion is not the measure of
(A) force (B) acceleration
(C) momentum (D) impulse
- Q.22** Which of the following is the action-at-a-distance force ?
(A) muscular force (B) frictional force
(C) magnetic force
(D) mechanical force
- Q.23** The force exerted by one object on another by virtue of their masses is
(A) magnetic force
(B) electrostatic force
(C) gravitational force
(D) frictional force
- Q.24** The standard unit of force is
(A) metre/second (B) newton
(C) metre/second² (D) gram-weight
- Q.25** A spring balance is used for measuring
(A) weight (B) speed
(C) acceleration (D) mass
- Q.26** A force applied on a moving body may
(A) bring it to rest
(B) increase its speed
(C) decrease the speed
(D) all of the above

- Q.27** Earth always pulls everything towards it due to
 (A) muscular force
 (B) mechanical force
 (C) gravitational force
 (D) electrostatic force
- Q.28** A cart being carried by a horse is an example of
 (A) muscular force
 (B) mechanical force
 (C) gravitational force
 (D) electrostatic force
- Q.29** If you press an inflated balloon, it deforms due to a type of
 (A) contact force
 (B) non-contact force
 (C) gravitational force
 (D) none of these
- Q.30** Force exerted by the muscless is known as
 (A) mechanical force
 (B) gravitational force
 (C) electrostatic force
 (D) muscular force
- Q.31** A hockey player uses his hockey stick
 (A) To push the ball
 (B) To pull the ball
 (C) To change its direction
 (D) All of these
- Q.32** A force when applied brings change in
 (A) Direction of motion of the body
 (B) Speed of moving body
 (C) Shape of the body
 (D) Any of these
- Q.33** The force responsible for the wearing out of the car tyres is –
 (A) Frictional force
 (B) Gravitational force
 (C) Magnetic force (D) Muscular force
- Q.34** The force you will use to collect the iron nails scattered on a sandy ground is –
 (A) Frictional force
 (B) Gravitational force
 (C) Magnetic force
 (D) None of these
- Q.35** The force you use to stretch a rubber band is –
 (A) Frictional force
 (B) Gravitational force
 (C) Magnetic force (D) Muscular force
- Q.36** The SI unit of force is
 (A) metre (B) newton
 (C) pascal (D) second
- Q.37** A contact force cannot act through
 (A) empty space (B) touching
 (C) touching with a metal rod
 (D) touching with a wooden rod
- Q.38** A force that opposes the motion of one surface sliding over another is called
 (A) friction (B) newton
 (C) lubrication (D) ball bearing
- Q.39** Bar is a unit of
 (A) Atmospheric pressure
 (B) Water pressure
 (C) Buoyant force
 (D) None of the above
- Q.40** A litre of air at ground level has weight of about –
 (A) 1.75 gm (B) 1.3 gm
 (C) 1.45 gm (D) 1.5 gm
- Q.41** Force acting on a unit area is called
 (A) Buoyant force
 (B) Immersion force
 (C) Pressure
 (D) None of the above
- Q.42** When the depth in a liquid increases, the pressure –
 (A) Decreases (B) Increases
 (C) Remains constant
 (D) First decreases then increases

- Q.43** Mountaineers suffer from nose bleeding due to–
 (A) High atmospheric pressure and low blood pressure of body
 (B) Low atmospheric pressure and high blood pressure of body
 (C) High atmospheric pressure and high blood pressure of body
 (D) Low atmospheric pressure and low blood pressure of body
- Q.44** Atmospheric pressure exerted on all objects at sea level is about –
 (A) 1.8 kg / sq. cm.
 (B) 1.7 kg / sq. cm.
 (C) 1 kg / sq. cm. (D) 2 kg / sq. cm.
- Q.45** At sea level the height of the mercury column in barometer will be –
 (A) 76 cm. (B) 86 cm.
 (C) 92 cm. (D) 74 cm.
- Q.46** The buoyant force of an immersed object is equal to –
 (A) The volume of the object
 (B) Mass of the object
 (C) The weight of the liquid displaced by the object
 (D) All the above
- Q.47** An iron slab is partially immersed in a liquid with the help of a thread. The buoyant force exerted by the liquid on this object brings a decrease in its weight which is equal to the–
 (A) Mass of the liquid displaced by the object
 (B) Weight of the liquid displaced by the object
 (C) Weight of the object immersed in the liquid
 (D) Mass of the object immersed in the liquid
- Q.48** Where is the pressure of sea - water is greater ?
 (A) 10 m. below surface
 (B) 20 m. below surface
 (C) 30 m. below surface
 (D) 40 m. below surface
- Q.49.** Which of the following action describes pushing by a body ?
 (A) kicking (B) lifting
 (C) picking (D) opening
- Q.50** Which of the following is NOT a type of force ?
 (A) muscular (B) magnetic
 (C) chemical
 (D) pulling a bucket of water from a well

ANSWER KEY

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|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1. B | 2. D | 3. B | 4. B | 5. D | 6. B | 7. A |
| 8. C | 9. B | 10. B | 11. B | 12. C | 13. C | 14. B |
| 15. C | 16. B | 17. B | 18. A | 19. D | 20. B | 21. D |
| 22. C | 23. C | 24. B | 25. D | 26. D | 27. C | 28. B |
| 29. A | 30. D | 31. D | 32. D | 33. A | 34. C | 35. B |
| 36. B | 37. A | 38. A | 39. A | 40. B | 41. C | 42. B |
| 43. B | 44. C | 45. A | 46. C | 47. B | 48. D | 49. A |
| 50. C | | | | | | |

FRICTION

1. Which of the statement is correct about rolling and sliding friction ?
 (A) Rolling friction is greater than sliding friction
 (B) Rolling friction is lesser than sliding friction
 (C) Rolling and sliding frictions acting on a body are equal
 (D) None of these
2. A body will experience the minimum friction in –
 (A) Vacuum (B) Air
 (C) Fresh water (D) Sea water
3. Ball bearings are used to
 (A) increase surface area
 (B) decrease surface area
 (C) increase friction
 (D) decrease friction
4. Lubricants are used to
 (A) reduce friction (B) increase friction
 (C) make a surface shiny
 (D) make a surface oily
5. SI unit of force of friction is
 (A) N (B) kg wt
 (C) kg ms^{-2} (D) Joule
6. Ball bearings are used to
 (A) increase friction (B) decrease friction
 (C) optimize friction (D) remain same
7. The use of lubricants makes the surface
 (A) smooth (B) rough
 (C) very rough (D) no effect
8. The frictional force with the in roughness of the surfaces
 (A) increases, increase
 (B) decrease, decrease
 (C) decrease, increase
 (D) increases, decrease
9. The maximum force of friction when the body is just beginning to move is known as the
 (A) limiting friction (B) rolling friction
 (C) static friction (D) none of these
10. The friction that exists between a surface sliding on another surface is called the
 (A) dynamic friction (B) rolling friction
 (C) static friction (D) none of these
11. Force of friction is directly proportional to
 (A) size (B) area
 (C) weight
 (D) all these factors of the moving body
12. Which of the following is the least ?
 (A) static friction (B) sliding friction
 (C) rolling friction (D) limiting friction
13. Friction between two flat surface can be reduced by,
 (A) greasing (B) painting
 (C) using ball bearing
 (D) decreasing the area
14. The flying machine offering the least frictional force should be
 (A) irregular (B) tree-like
 (C) symmetrical with many arms
 (D) streamlined
15. Frictional force increases with the increase in
 (A) roughness of the surface
 (B) smoothness of the surface
 (C) distance between two bodies
 (D) none of these
16. Lubrication of moving surfaces
 (A) removes friction
 (B) reduces friction
 (C) increases friction
 (D) has no effect on friction
17. Frictional force is due to between two moving surfaces
 (A) softness (B) roughness
 (C) distance (D) none of these

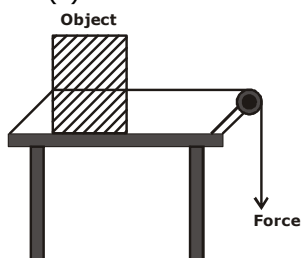
18. The maximum value of force required to make the body just to slide is known as
 (A) dynamic friction
 (B) static friction
 (C) limiting friction
 (D) rolling friction

19. Rolling friction is always more than the
 (A) dynamic friction (B) static friction
 (C) limiting friction (D) none of these

20. What can you use to reduce the force of friction on an object ?
 (A) Lubricate the surface
 (B) Streamline the body shape
 (C) Reduce the surface area in contact of two bodies
 (D) All of these

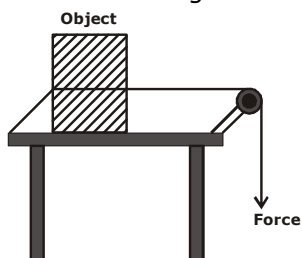
21. Friction is a type of :
 (A) contact force
 (B) non contact force
 (C) resistance force
 (D) motion

22. A force of 5 N is required to move an object from rest. The value of static friction (f) is :



- (A) 5 N (B) $f > 5$ N
 (C) $f < 5$ N (D) 10 N

23. The value of sliding friction for the object shown in figure 2 is :



- (A) $f = 5$ N (B) $f > 5$ N
 (C) $f < 5$ N (D) 10 N

24. The surface of a table is smoother as compared to that of a road. This is due to :
 (A) irregularities in the surface of road
 (B) polishing of the table
 (C) a road surface may have more dust as compared to a table
 (D) all of the above

25. Which of the following material is likely to have least friction ?
 (A) wood (B) plastic
 (C) glass (D) paper

26. Which of the following is used to reduce friction in a rotating machine ?
 (A) wheels (B) rollers
 (C) ball bearing (D) polishing

27. In which of the following cases more friction is desirable ?
 (A) movement of piston in a cylinder
 (B) braking of a vehicle
 (C) running on a track
 (D) all of the above

28. Powder is used in carrom board for
 (A) increasing friction
 (B) decreasing friction
 (C) decoration
 (D) fragrance

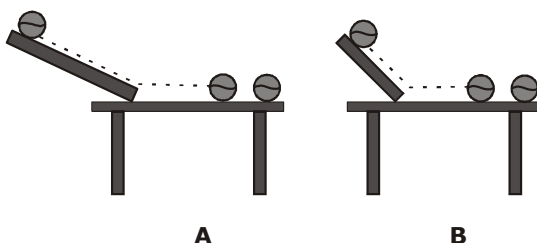
29. Which of the following statement is CORRECT ?
 (A) rolling a body is easier than sliding
 (B) sliding body is easier than rolling
 (C) dragging body is easier than sliding
 (D) dragging body is easier than rolling

30. The frictional force exerted by fluids is called.
 (A) lift
 (B) drag
 (C) rolling friction
 (D) dynamic friction

31. A streamlined body
 (A) increases friction
 (B) reduces friction
 (C) decreases weight
 (D) increases weight

32. In decreasing order of magnitude which of the following is CORRECT ?
 (A) rolling, static, slidding friction
 (B) static, slidding, rolling
 (C) static, rolling, sliding
 (D) slidding, static, rolling

33. In which of the following cases, the speed of the ball will be more ?



- (A) $A > B$
 (B) $B > A$
 (C) In both cases speed will be same
 (D) None of the above
34. Which of the following activities is easier to perform ?
 (A) dragging a box
 (B) lifting a box
 (C) rolling a drum of same weight
 (D) all of the above need same effort
35. A meteor burns up on entering earth's atmosphere due to :
 (A) atmospheric pressure
 (B) heat of the earth
 (C) solar radiation
 (D) excessive friction

36. The surface of the head of a match stick and sides of a match box are deliberately made rough to :
 (A) increase friction
 (B) decrease friction
 (C) increase amount
 (D) decrease amount of heat

37. Spikes are provided in the shoes of athlete.
 (A) for decoration
 (B) to increase friction
 (C) to decrease friction
 (D) none of the above

38. Which of the following statement is NOT true ?

- (A) Friction can be reduced by converting sliding friction into rolling friction.
 (B) Friction in air and water can be reduced by streamlining the shape of the object
 (C) A polished surface will have less friction
 (D) Friction can be reduced to zero

39. Friction reduced efficiency of machines due to.
 (A) production of heat
 (B) wearing out of moving parts
 (C) increase in energy consumption
 (D) all of the above

40. The force which prevents us from slipping while walking on the road is :
 (A) muscular force of our body
 (B) gravitational pull by earth
 (C) friction force
 (D) balanced forces of nature

ANSWER KEY

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|-------|-------|-------|-------|-------|
| 1. A | 2. B | 3. A | 4. A | 5. B |
| 7. A | 8. A | 9. A | 10. A | 11. D |
| 13. D | 14. A | 15. B | 16. B | 17. C |
| 19. D | 20. B | 21. A | 22. A | 23. C |
| 25. C | 26. C | 27. B | 28. B | 29. A |
| 31. B | 32. B | 33. B | 34. C | 35. D |
| 37. B | 38. D | 39. D | 40. C | 36. A |

ELECTRICITY

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| <p>Q.1 The smallest particle of matter is
(A) an electron (B) a proton
(C) a neutron (D) a atom</p> <p>Q.2 The neutron carries a charged of
(A) 1.66×10^{-19} Coulomb
(B) -1.66×10^{-19} Coulomb
(C) no charge
(D) none of these</p> <p>Q.3 Static electricity
(A) does not flow
(B) flows in the circuit
(C) sometimes flows
(D) none of these</p> <p>Q.4 The lightning occurs due to
(A) static electricity
(B) dynamic electricity
(C) thunder
(D) none of these</p> <p>Q.5 Plastic and rubber are
(A) charged bodies (B) conductors
(C) insulators (D) none of these</p> <p>Q.6 Which of the following is a good conductor of electricity ?
(A) wood (B) steel spoon
(C) dry air (D) chalk</p> <p>Q.7 Which of the following is a bad conductor of electricity ?
(A) gold (B) mercury
(C) silver (D) plastics</p> | <p>Q.8 Electric charge can flow only through
(A) insulators
(B) conductors
(C) both (A) and (B)
(D) None of these</p> <p>Q.9 Two objects rubbed against each other
(A) will lose electrons
(B) will repel each other
(C) will attract each other
(D) may attract or repel each other</p> <p>Q.10 The gold leaf electroscope can be used to
(A) detect charge only
(B) detect or measure charge only
(C) detect, measure and find the nature of charge
(D) none of these</p> <p>Q.11 Which of the following can be charged with static electricity ?
(A) metal (B) alloy
(C) insulator (D) semiconductor</p> <p>Q.12 When two bodies are rubbed against each other, they acquire
(A) equal and like charges
(B) equal and unlike charges
(C) unequal and like charges
(D) unequal and unlike charges</p> <p>Q.13 The two objects rubbed against each other
(A) will lose electrons
(B) will gain electrons
(C) one will lose and the other will gain electron
(D) none of these</p> |
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ANSWER KEY

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|----|---|---|---|---|---|----|---|----|---|----|---|
| 1 | D | 2 | C | 3 | A | 4 | A | 5 | C | 6 | B |
| 7 | D | 8 | B | 9 | C | 10 | C | 11 | C | 12 | B |
| 13 | C | | | | | | | | | | |

SOUND


1. When we say 'sound travels in a medium' we mean _____.
 (A) the particles of the medium travel
 (B) the source travels
 (C) the disturbance travels
 (D) the medium travels
2. The speed of sound in solid, liquid and gas can be correctly compared as :
 (A) solid > liquid > gas
 (B) liquid > gas > solid
 (C) liquid > solid > gas
 (D) gas > liquid > gas
3. A person, pressing his ear on the railway tracks can hear an approaching train. This is possible due to :
 (A) vibration of railway tracks
 (B) vibration of air
 (C) more speed of sound in solid medium
 (D) hearing ability of the man
4. A person can be identified by the quality of sound produced by him. The characteristic of a sound can be determined by :
 (A) amplitude (B) frequency
 (C) loudness (D) all of the above
5. In humans, the sound is produced by :
 (A) larynx (B) wind pipe
 (C) vocal cords (D) lungs
6. the voices of men, women and children are different due to difference in :
 (A) larynx (B) lungs
 (C) vocal coards (D) wind pipe
7. An object moving at a speed greater than that of sound is said to be moving at :
 (A) ultrasonic speed (B) sonic speed
 (C) infrasonic speed
 (D) supersonic speed
8. In which of three media; air, water and steel, does sound travel the fastest ?
 (A) Air (B) Water
 (C) Steel (D) none of these
9. The velocity of sound in vacuum is :
 (A) 332 ms⁻¹ (B) 330 ms⁻¹
 (C) 288 ms⁻¹ (D) 0
10. Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen. This is because :
 (A) speed of sound is greater than speed of light
 (B) speed of sound is equal to the speed of light
 (C) speed of light is much greater than the speed of sound
 (D) none of these
11. A to and fro motion by an object is also called _____.
 (A) periodic motion
 (B) oscillatory motion
 (C) cyclic motion (D) none of these
12. An object oscillates 50 times in one second. What would be its frequency ?
 (A) 0.2 hz (B) 0.02 hz
 (C) 0.002 hz (D) 50 Hz
13. The time period of a simple pendulum is 0.2 sec. What is its frequency of oscillation
 (A) 0.5 hz (B) 5 Hz
 (C) 50 Hz (D) 1 Hz
14. Hertz stands for :
 (A) second (B) second⁻¹
 (C) meter (D) meter⁻¹
15. An aeroplane travelling at the speed of sound will have a velocity of :
 (A) 1000 km/hr (B) 1100 km/hr
 (C) 1540 k/hr (D) 1620 k/hr
16. Sound is produced in a bamboo flute because :
 (A) air starts vibrating
 (B) bamboo starts vibrating
 (C) air hits the bamboo
 (D) direction of air is changed
17. Loudness or intensity of sound depends upon :
 (A) amplitude of sound wave
 (B) area of vibrating body
 (C) distance from the source of sound
 (D) all of above
18. Pitch of sound depends upon :
 (A) frequency (B) amplitude
 (C) loudness (D) distance of source

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| <p>19. Vibration of air column produces sound in which of the following instruments ?
 (A) Jaltaranga (B) Flute
 (C) Siren (D) All of the above</p> <p>20. Which of the following statement is NOT correct ?
 (A) loudness of sound is determined by the amount of energy received by the ear per unit time
 (B) pitch doesn't depend upon the amount of energy
 (C) loudness changes with change of frequency
 (D) pitch changes with change in frequency</p> <p>21. Birds produce sound by using :
 (A) vocal chord (B) larynx
 (C) glottis (D) syrix</p> <p>22. A source is producing 15 oscillations (waves) in 3 seconds. Find its frequency
 (A) 15 Hz (B) 5 Hz
 (C) 0.2 Hz (D) 0.66 Hz</p> <p>23. Which of the following in NOT correct ?
 (A) more oscillation per second, higher time period
 (B) greater amplitude greater loudness
 (C) higher pitch, higher frequency of vibration
 (D) more the value of decibel, higher is the noise</p> | <p>24. The difference between a musical sound and noise is :
 (A) amplitude (B) loudness
 (C) vibration (D) all of the above</p> <p>25. Which of the following sound is NOT a cause of noise pollution ?
 (A) loud speaker (B) horn of vehicle
 (C) explosion (D) television</p> <p>26. Noise pollution can cause :
 (A) insomnia
 (B) hypertension
 (C) hearing impairment
 (D) any or all of the above</p> <p>27. The buzzing sound produced by a mosquito is produced by :
 (A) its mouth
 (B) vibration of surrounding air
 (C) vibration of wings
 (D) none of these</p> <p>28. Which of the following statement is TRUE
 (A) human ear drum senses the vibration of sound
 (B) larger the amplitude of vibration, louder is the sound
 (C) higher is the frequency of vibration, lower is the pitch
 (D) plantations can reduce noise pollution</p> |
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ANSWER KEY

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|-------|-------|-------|-------|
| 1. C | 2. A | 3. C | 4. D |
| 5. A | 6. C | 7. D | 8. C |
| 9. D | 10. C | 11. B | 12. D |
| 13. B | 14. B | 15. B | 16. A |
| 17. D | 18. A | 19. D | 20. C |
| 21. D | 22. B | 23. A | 24. C |
| 25. D | 26. D | 27. C | 28. C |

REFRACTION OF LIGHT

- Q.1 Light travels through a glass plate of thickness 't' and refractive index 'n'. If c is the velocity of light in vacuum, then the time taken by light to travel the thickness of the plate will be
(A) nt/c (B) t/nc (C) tc/n (D) c/nt
- Q.2 How will the image formed by a convex lens be affected, if the central portion of the lens is wrapped in black paper, as shown in the fig.
- 
- (A) No image will be formed
(B) Full image will be formed but it is less bright
(C) Full image will be formed but without the central portion
(D) Two images will be formed, one due to each exposed half.
- Q.3 An endoscope is employed by a physician to view the internal parts of a body organ. It is based on the principle of:
(A) refraction
(B) reflection
(C) total internal reflection
(D) dispersion
- Q.4 An object is immersed in a fluid. In order that the object becomes invisible, it should
(A) behave as a perfect reflector
(B) absorb all light falling on it
(C) have refractive index one
(D) have refractive index exactly matching with that of the surrounding fluid.
- Q.5 A lens forms a virtual, diminished image of an object placed at 2 m from it. The size of image is half of the object. Which one of the following statements is correct regarding the nature and focal length of the lens?
(A) Concave, $|f| = 1$ m
(B) Convex, $|f| = 1$
(C) Concave, $|f| = 2$ m
(D) Convex, $|f| = 2$ m
- Q.6 A lens will be invisible in vacuum when the refractive index of the lens is.
(A) negative (B) one
(C) more than one (D) less than one
- Q.7 The sun is visible to us a little before the actual sunrise and a little after the actual sunset. This is because of atmospheric.
(A) reflection (B) refraction
(C) scattering (D) diffraction
- Q.8 The refractive index of a certain glass is 1.5 for light whose wavelength in vacuum is 6000\AA . The wavelength of this light when it passes through glass is –
(A) 4000\AA (B) 6000\AA
(C) 9000\AA (D) 15000\AA
- Q.9 When light travels from one medium to the other of which the refractive index is different, then which of the following will change –
(A) Frequency, wavelength and velocity
(B) Frequency and wavelength
(C) Frequency and velocity
(D) Wavelength and velocity
- Q.10 How much water should be filled in a container 21 cm in height, so that it appears half filled when viewed from the top of the container (given that ${}_a\mu_w = 4/3$)
(A) 8.0 cm
(B) 10.5 cm
(C) 12.0 cm
(D) None of the above
- Q.11 Light of different colours propagates through air–
(A) With the velocity of air
(B) With different velocities
(C) With the velocity of sound

	(D) Having the equal velocities	(C) Less (D) Either of (A), (B) or (C)
Q.12	A monochromatic beam of light passes from a denser medium into a rarer medium. As a result– (A) Its velocity increases (B) Its velocity decreases (C) Its frequency decreases (D) Its wavelength decreases	Q.19 The time taken by light to cover a distance of 9 mm in water is – (A) 0.04 ns (B) 0.4 ns (C) 4 ns (D) 400 ns
Q.13	Refractive index for a material for infrared light is (A) Equal to that of ultraviolet light (B) Less than for ultraviolet light (C) Equal to that for red colour of light (D) Greater than that for ultraviolet light	Q.20 The bending of light ray when passing from two optically different mediums is called (A) Reflection (B) Refraction (C) Polarization (D) Effervescence
Q.14	A rectangular tank of depth 8 meter is full of water ($\mu = 4/3$), the bottom is seen at the depth (A) 6 m (B) 8/3 m (C) 8 cm (D) 10 cm	Q.21 The image of an object placed at the focus of a convex lens is formed at (A) F (B) 2F (C) Between F and 2F (D) Infinity
Q.15	When light passes from water to olive oil. The ray – (A) Bends away from the normal (B) Bends towards the normal (C) Emerges undeviated (D) Bends either away or toward the normal depending on whether, the surface separating the two media is plane or spherical.	Q.22 The twinkling of stars at night is caused by (A) Reflection of light (B) Refraction of light (C) Dispersion of light (D) Polarization of light
Q.16	When light passes from glass (ordinary) to benzene, the ray – (A) Bends away from the normal (B) Bends towards the normal (C) Emerges undeviated (D) Bends either away or toward the normal depending on whether, the surface separating the two media is plane or spherical.	Q.23 The rainbow that appears in sky after the rains is caused by the of light by water droplets present in upper atmosphere. (A) Reflection of light (B) Refraction of light (C) Dispersion of light (D) Polarization of light
Q.17	The speed of light in methyl alcohol, as compared to that in water is – (A) same (B) more (C) less (D) either of (A), (B) or (C), depending on the wavelength	Q.24 A convex lens acts as a magnifying lens when the object is placed at (A) Focus (B) Centre of curvature (C) Beyond centre of curvature (D) Between focus and optical centre
Q.18	The wavelength of yellow line of sodium (D) in diamond, as compared to that in sugar is (A) Same (B) More	Q.25 When an object is at infinity, the image by convex lens is formed at (A) Focus (B) Centre of curvature (C) Beyond the centre of curvature (D) Optical centre
		Q.26 In visible spectrum, the ray of light

- with maximum wavelength is
 (A) Violet rays (B) Green ray
 (C) Blue ray (D) Red ray
- Q.27 When a ray of light passes from a rare into a denser medium, its velocity
 (A) Increases
 (B) Decreases
 (C) Remains the same
 (D) None of these
- Q.28 If a convex lens is cut horizontally into two equal halves, its focal length will
 (A) Remain the same
 (B) Reduced to half
 (C) Be doubled
 (D) Be quadrupled
- Q.29 If a convex lens is cut vertically into two equal halves, its focal length will –
 (A) Remain the same
 (B) Reduced to half
 (C) Be doubled
 (D) Be quadrupled
- Q.30 If the apparent depth and real depth of a stone lying at the bottom of a pond is 26 cm and 13 cm, respectively, the refractive index of pond water is.
 (A) 2.6 (B) 1.3 (C) 2 (D) 2.3
- Q.31 Dispersion is
 (A) splitting of light into its constituent colours
 (B) formation of many images
 (C) formation of only two images
 (D) a rainbow
- Q.32 The difference in the colour of the eye is due to difference in
 (A) retina (B) pupil (C) iris (D) sclera
- Q.33 The image of the object is always formed at the
 (A) iris (B) retina (C) pupil (D) lens
- Q.34 Cataract is the condition that affects the
 (A) lens (B) pupil
 (C) retina (D) macula
- Q.35 A child walks towards a fixed plane mirror at a speed of 5 km h^{-1} . The velocity of the image with respect to mirror is –
 (A) 5 km h^{-1} (B) -5 km h^{-1}
 (C) 10 km h^{-1} (D) -10 km h^{-1}
- Q.36 The letter that does not show lateral inversion–
 (A) Z (B) M (C) O (D) W
- Q.37 In a plane mirror, an object is 0.5 m in front of the mirror. The distance between object and image is –
 (A) 0.5 m (B) 1 m
 (C) 0.25 m (D) 0.75 m
- Q.38 An object 0.5 m tall is in front of a plane mirror at a distance of 0.2 m. The size of the image formed is –
 (A) 0.2 m (B) 0.5 m
 (C) 0.1 m (D) 1 m
- Q.39 A plane mirror is approaching you at 10 cm s^{-1} . Your image shall approach you with a speed of –
 (A) $+ 10 \text{ cm s}^{-1}$ (B) $- 10 \text{ cm s}^{-1}$
 (C) $+ 20 \text{ cm s}^{-1}$ (D) $- 20 \text{ cm s}^{-1}$
- Q.40 A ray of light is incident on a plane mirror at an angle of incidence of 30° . The deviation produced by the mirror is –
 (A) 30° (B) 60° (C) 90° (D) 120°
- Q.41 A plane mirror reflects a pencil of light to form a real image. Then the pencil of light incident on the mirror is –
 (A) parallel (B) convergent
 (C) divergent (D) any of these
- Q.42 A person 6 feet in height can see his full size erect image in a mirror 2 feet in height. This mirror has to be –
 (A) plane or convex
 (B) plane or concave
 (C) necessarily convex
 (D) necessarily concave

- Q.43 Two plane mirrors are inclined to one another at an angle of 40° . A point object is placed in between them. The number of images formed due to reflection at both mirrors is-
(A) Infinite (B) 9 (C) 8 (D) 6
- Q.44 Which of the following cannot produce a virtual image?
(A) Plane mirror
(B) Concave mirror
(C) Convex lens
(D) All of the above can produce a virtual image.
- Q.45 If two mirrors are kept at 60° to each other, then the number of images formed by them is-
(A) 5 (B) 6 (C) 7 (D) 8
- Q.46 How many images of himself does an observer see if two adjacent walls of rectangular room are mirror surfaced ?
(A) 3 (B) 5 (C) 7 (D) 9
- Q.47 The minimum distance between the object and the image formed by a concave mirror can be : (f is the focal length of the mirror)
(A) zero (B) f (C) 2f (D) 4f
- Q.48 A plane mirror and an object approach each other with speeds of 5m/s and 10 m/s respectively. The speed of the image will be
(A) 5 m/s (B) 15 m/s
(C) 20 m/s (D) 25 m/s
- Q.49 During reflection, if the angle of incidence is 45° , the angle between incident and reflected rays is
(A) 45° (B) 60° (C) 90° (D) 180°
- Q.50 The incident ray, reflected ray, and the normal at the point of incidence lie on the same
(A) line (B) point
(C) circle (D) plane
- Q.51 Diffused reflection occurs if a ray of light is reflected by a
(A) concave mirror (B) plane mirror (C) convex mirror (D) rough surface
- Q.52 Sources of light are also called
(A) luminous objects
(B) non-luminous objects
(C) mirrors
(D) reflections
- Q.53 When two plane mirrors are kept at 90° , we get
(A) only one image
(B) two images
(C) three images
(D) infinite number of images
- Q.54 If two plane mirrors are placed parallel to each other and facing each other, then we get
(A) only one image
(B) two images
(C) three images
(D) infinite number of images
- Q.55 The beautiful patterns that we obtain in a kaleidoscope are because of
(A) dispersion
(B) spectrum
(C) multiple reflection
(D) diffused reflection
- Q.56 Which of the following types of mirror is used in the solar cooker ?
(A) plane mirror (B) convex mirror
(C) concave mirror (D) None of these
- Q.57 An incident ray makes an angle of 30° with a plane mirror. Then the angle of reflection is.
(A) 30° (B) 60°
(C) 45° (D) None of these
- Q.58 The device used for seeing over the heads of crowds is.
(A) periscope (B) kaleidoscope
(C) prism (D) None of these
- Q.59 The reflection taking place from the walls of a building is called.
(A) regular reflection
(B) diffused reflection
(C) multiple reflection

(D) None of these

Q.60 The reflection in which reflected rays travel as parallel beam is called.

- (A) regular reflection
- (B) scattering
- (C) multiple reflection
- (D) None of these

Q.61 A ray of light which bounces off the surface of mirror is called.

- (A) normal
- (B) incident ray
- (C) reflected ray
- (D) None of these

ANSWER KEY

1	A	2	B	3	C	4	D
5	C	6	B	7	B	8	A
9	D	10	C	11	D	12	A
13	B	14	C	15	B	16	C
17	A	18	C	19	A	20	B
21	D	22	B	23	B	24	D
25	A	26	D	27	B	28	A
29	C	30	C	31	A	32	C
33	B	34	A	35	B	36	A
37	B	38	B	39	B	40	C
41	D	42	B	43	C	44	C
45	D	46	A	47	A	48	C
49	C	50	A	51	C	52	A
53	C	54	D	55	C	56	A
57	A	58	A	59	B	60	A
61	C						