

LIVE  **SESSION**



Concept Through Questions

CTQ'S Series

RRB JE-2024 **CBT-1**

PHYSICS

Lecture - 1



Sajid Sir

MADE EASY Faculty

Q1. What is the density of water at 4°C?

- (a) 1 g/cm³**
- (b) 2 g/cm³**
- (c) 4 g/cm³**
- (d) 3 g/cm³**



Q2. What will be the energy possessed by a stationary object of mass 10 kg placed at a height of 20 m above the ground? (take $g = 10 \text{ m/s}^2$)-

- (a) 2 J**
- (b) 20 kJ**
- (c) 200 J**
- (d) 2 kJ**

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Q3. Pitch of sound is determined by its-

- (a) Frequency**
- (b) Amplitude**
- (c) Speed**
- (d) Loudness**



Q4. A 2.5 kg iron ball has the same diameter as a 1.25 kg aluminium ball. The balls are dropped at the same time from a cliff. Just before they reach the ground, they have same-

- (a) Acceleration**
- (b) Momentum**
- (c) Kinetic energy**
- (d) Potential energy**

Q5. Which is electrically neutral and weakly micro-atom-

- (a) neutrino**
- (b) positron**
- (c) electron**
- (d) proton**



Q6. Rain drops acquire spherical shape due to-

- (a) Viscosity**
- (b) Surface tension**
- (c) Friction**
- (d) Elasticity**



Surface tension is responsible for the **shape** of liquid droplets. Although easily deformed, droplets of water tend to be pulled into a **spherical shape** by the cohesive forces of the surface layer. In the absence of other forces, including gravity, **drops** of virtually all liquids would be approximately **spherical**.

Q7. Which of the following is the strongest force in nature?

- (a) Gravitational force**
- (b) Nuclear force**
- (c) Electrostatic force**
- (d) Magnetic force**

| | Force | Relative strength |
|-----|-----------------------|-------------------|
| (1) | Strong nuclear force | 1 |
| (2) | Electromagnetic force | 10^{-2} |
| (3) | Weak nuclear force | 10^{-13} |
| (4) | Gravitational force | 10^{-39} |

So, electromagnetic force is $\frac{1}{100}$ times the strong nuclear force.

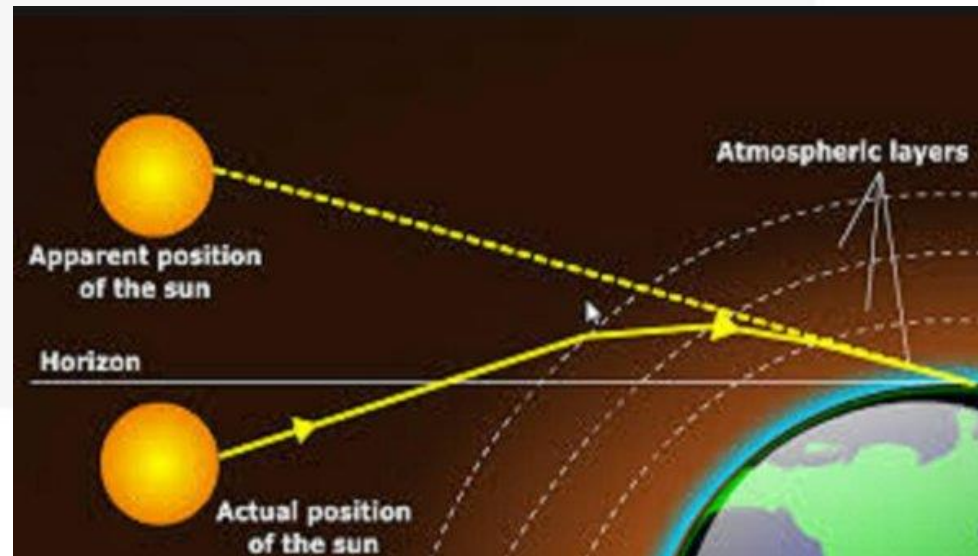
Q8. At 20C, the speed of sound in water is approximately –

- (a) 330 m/s**
- (b) 800 m/s**
- (c) 1500 m/s**
- (d) 5000 m/s**



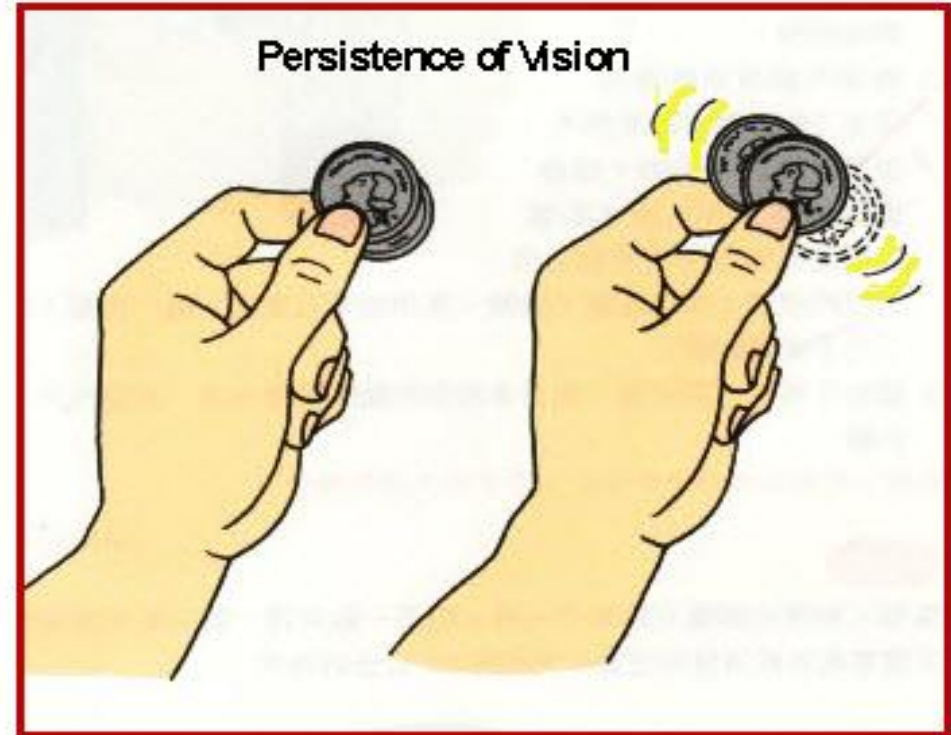
Q9. The Sun is seen little before it rises and for a short while after it sets. This is because of-

- (a) total internal reflection**
- (b) atmospheric refraction**
- (c) apparent shift in the direction of Sun**
- (d) Dispersion**



Q10. The persistence of vision for human eye is-

- (a) 1/6th of a second
- (b) 1/10th of a second
- (c) 1/16th of a second
- (d) 1/18th of a second



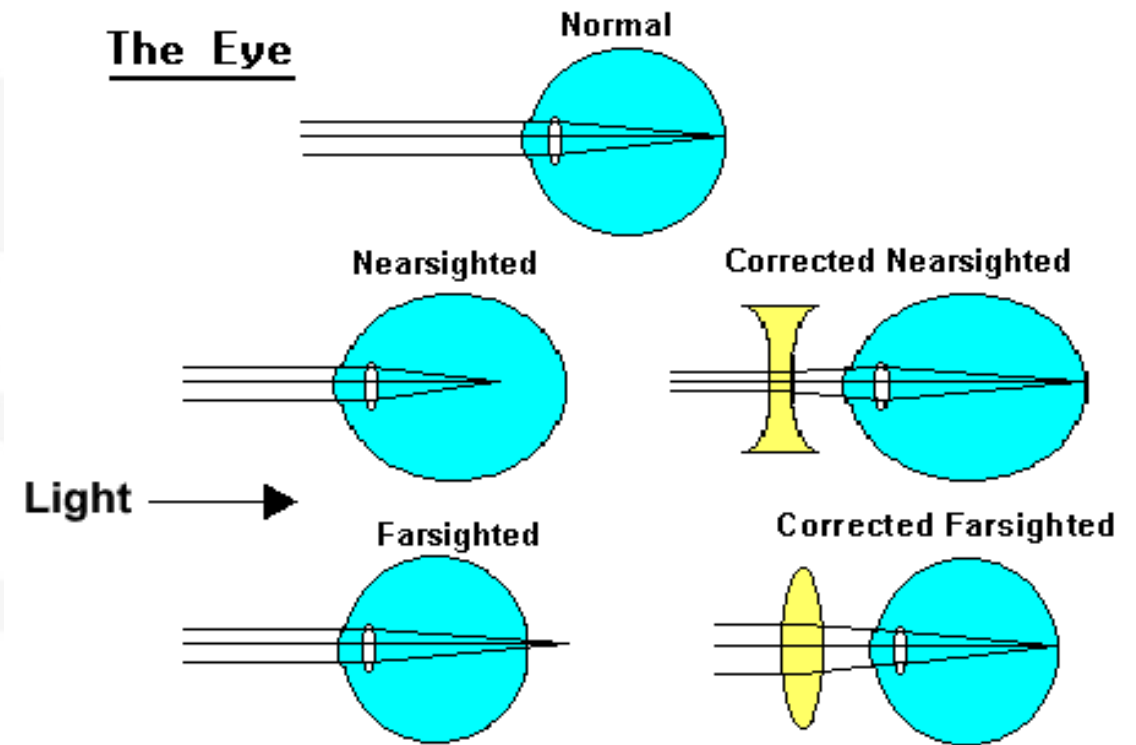
Q11. What is the temperature at which both the Fahrenheit and the centigrade scales have the same value-

- (a) -37**
- (b) -96.8**
- (c) -40**
- (d) -273**



Q12. What type of eyeglasses should a nearsighted person wear-

- (a) diverging lenses
- (b) bifocal lenses
- (c) converging lenses
- (d) plano-convex lenses



Q13. When milk is churned the cream separates from it due to-

- (a) Frictional force**
- (b) Centrifugal force**
- (c) Gravitational force**
- (d) Viscous forces**



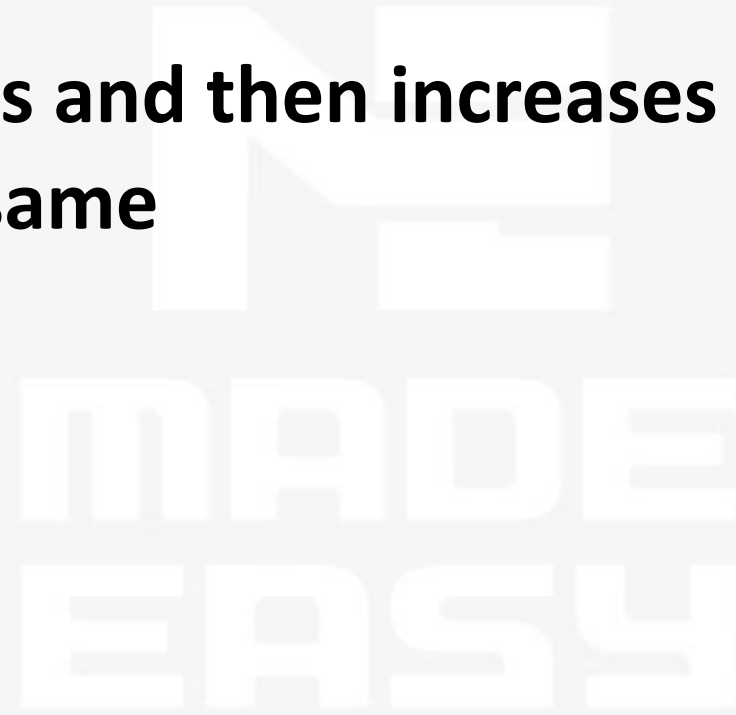


Q14. Certain substances lose their electrical resistance completely at super low temperature. Such substances are called-

- (a) super conductors**
- (b) semi conductors**
- (c) dielectrics**
- (d) perfect conductors**

Q15. When 1 litre of water is cooled from 4°C to 0°C , its volume-

- (a) first decreases and then increases**
- (b) remains the same**
- (c) increases**
- (d) Decreases**

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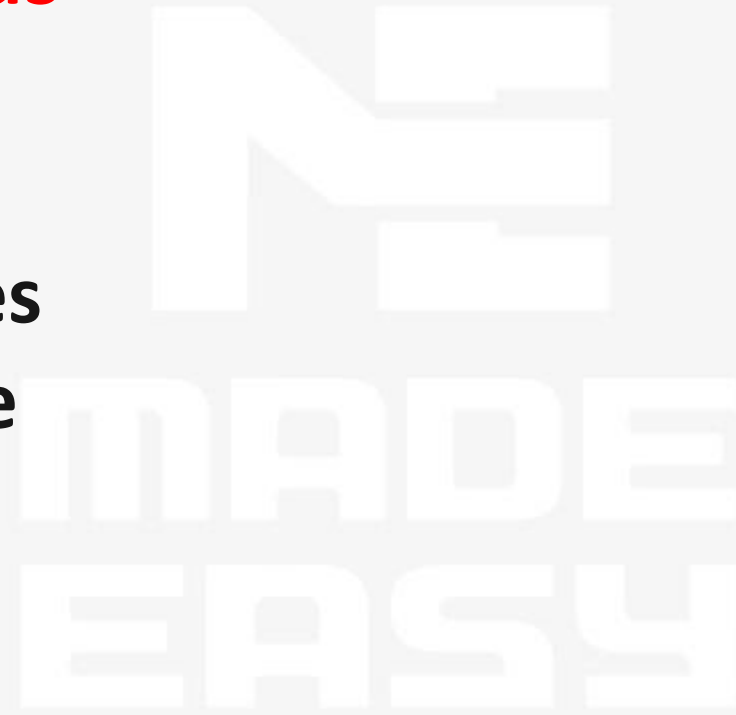
Q16. A body of 20 kg is lying at rest. Under the action of a constant force, it gains a speed of 7 m/s. The work done by the force will be-

- (a) 490J**
- (b) 500J**
- (c) 390J**
- (d) 430J**

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Q17. Which of the following waves used in, night vision Apparatus-

- (a) radio waves**
- (b) microwave**
- (c) infrared waves**
- (d) none of these**

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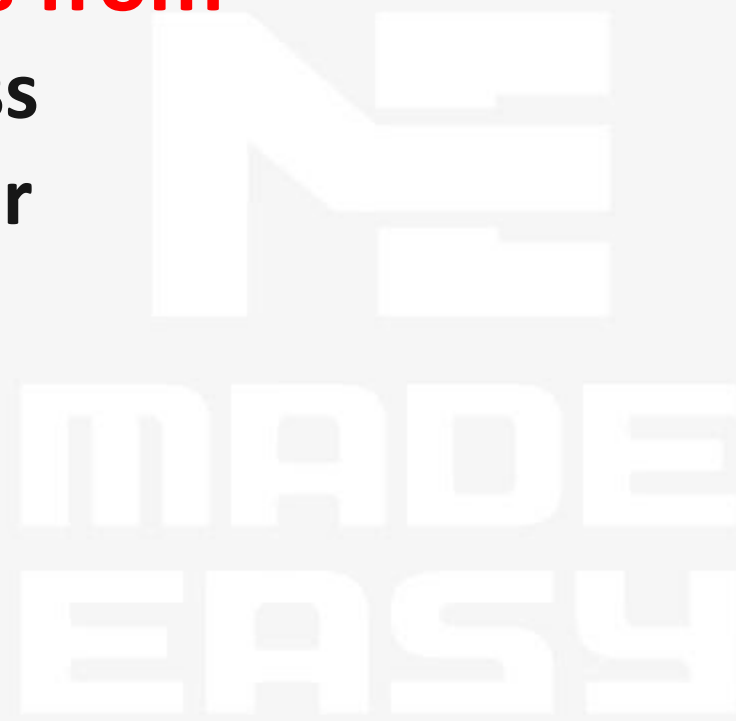
Q18. The sky appears blue due to-

- (a) Rayleigh scattering**
- (b) Mie scattering**
- (c) Newton scattering**
- (d) None of the above**

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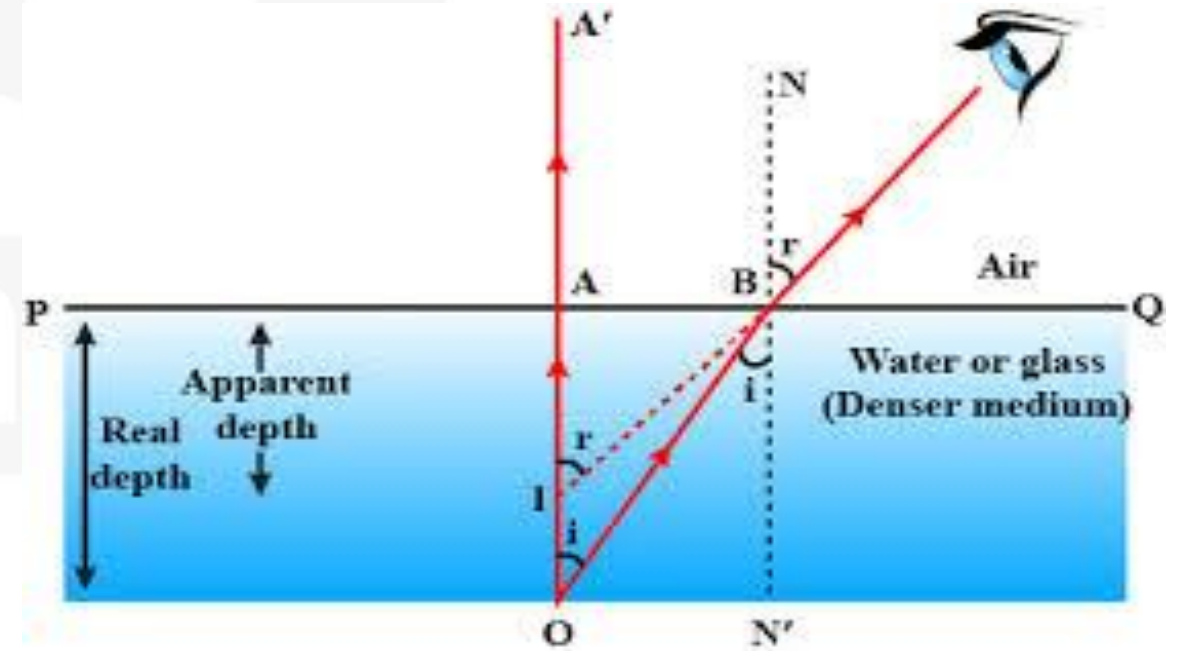
Q19. Total Internal Reflection can not take place when light goes from-

- (a) Water to Glass**
- (b) Glass to water**
- (c) Water to air**
- (d) Glass to air**

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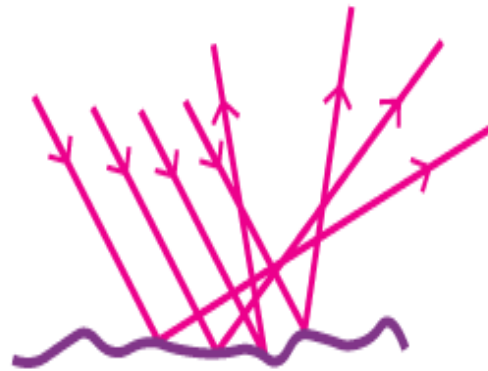
Q20. A water tank appears shallower when it is viewed from top due to-

- (a) Rectilinear propagation of light
- (b) Reflection
- (c) Total Internal Reflection
- (d) Refraction

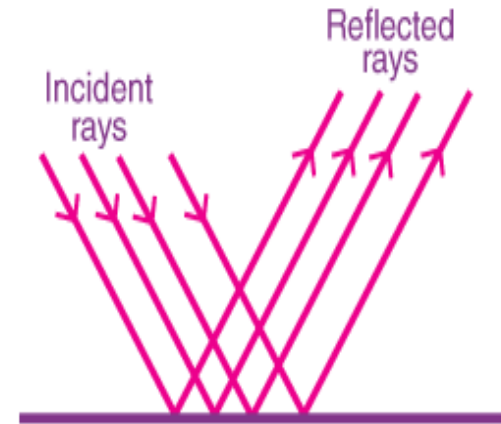


Q21. Reflection from a smooth surface like that of a mirror is called reflection-

- (a) Regular**
- (b) Irregular**
- (c) Diffused**
- (d) Fused**



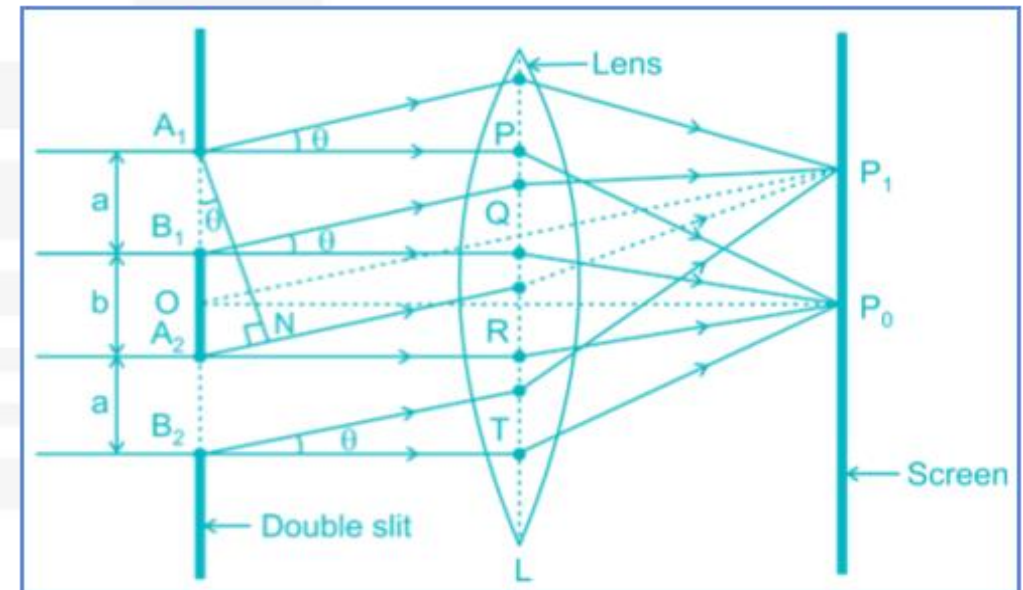
Diffuse reflection from rough surfaces



Regular reflection from smooth surfaces

Q22. The bending of light when it passes around a corner or a slit is due to-

- (a) Reflection**
- (b) Refraction**
- (c) Diffraction**
- (d) Total internal reflection**



Q23. If the time period of a sound wave is 0.02 s, then what is its frequency?

- (a) 50 Hz**
- (b) 100 Hz**
- (c) 25 Hz**
- (d) 500 Hz**





Q24. What happens to the force of gravitation between two objects when the mass of one object is doubled?

- (a) The force of gravitation is four times**
- (b) The force of gravitation is doubled**
- (c) The force of gravitation is tripled**
- (d) The force of gravitation is halved**

Q25. In which medium does light have the maximum velocity?

- (a) Glass**
- (b) Diamond**
- (c) Vacuum**
- (d) Water**

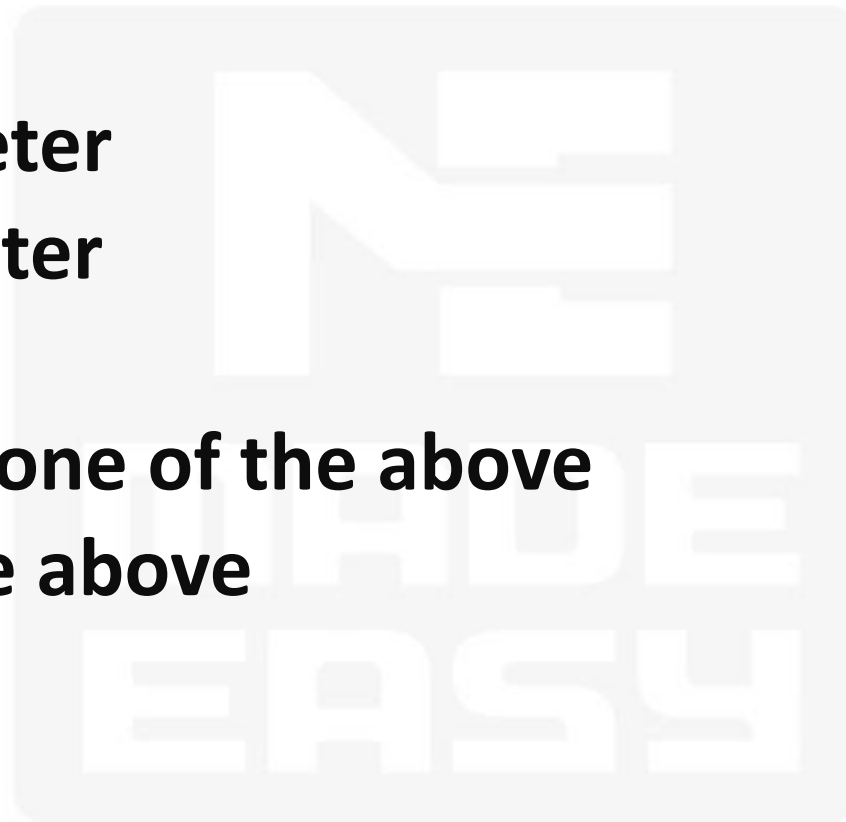


Q26. Magnetic field is a-

- (a) scalar quantity**
- (b) vector quantity**
- (c) dimensionless quantity**
- (d) More than one of the above**
- (e) None of the above**

Q27. Which instrument is used for measuring electric potential?

- (a) Potentiometer**
- (b) Galvanometer**
- (c) Voltmeter**
- (d) More than one of the above**
- (e) None of the above**



Q28. The colored light that refracts most while passing through a prism is-

- (a) yellow**
- (b) violet**
- (c) blue**
- (d) More than one of the above**
- (e) None of the above**

Q29. The resistance of a conductor is directly proportional to its-

- (a) area of cross-section**
- (b) density**
- (c) length**
- (d) More than one of the above**
- (e) None of the above**

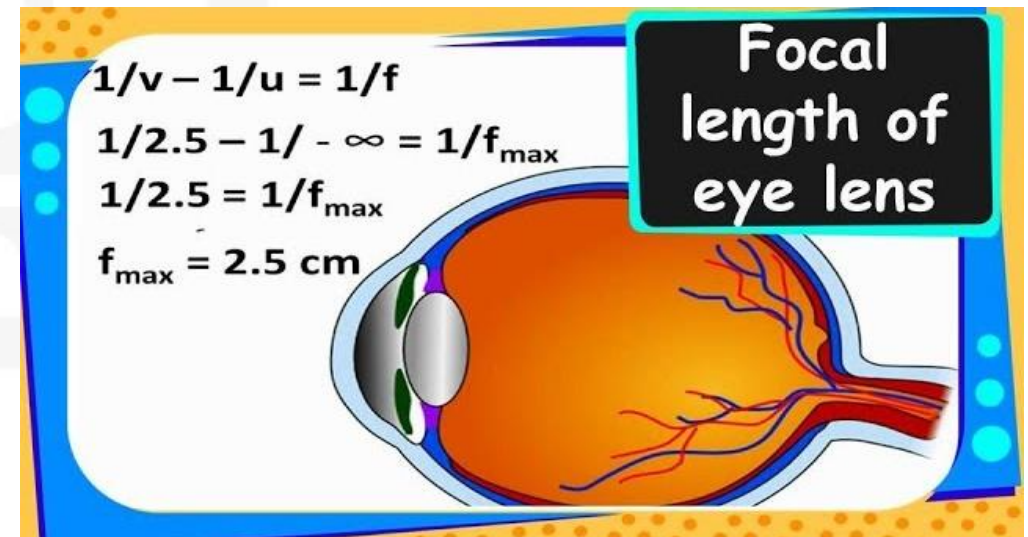
Q30. Light Emitting Diode (LED) work on principle of-

- (a) Electroluminescence**
- (b) Laser**
- (c) Thermionic emission**
- (d) Photoelectric code**



Q31. The focal length of normal eye lens is about-

- (a) 1 mm
- (b) 25 cm
- (c) 2 cm
- (d) More than one of the above
- (e) None of the above



The diagram shows a cross-section of a human eye. To the left of the eye, there is a white box containing the following mathematical derivation:

$$\begin{aligned} \frac{1}{v} - \frac{1}{u} &= \frac{1}{f} \\ \frac{1}{2.5} - \frac{1}{-\infty} &= \frac{1}{f_{\max}} \\ \frac{1}{2.5} &= \frac{1}{f_{\max}} \\ f_{\max} &= 2.5 \text{ cm} \end{aligned}$$

To the right of the eye, there is a black box with white text that reads: "Focal length of eye lens".

Q32. Equivalent energy of 1 amu is-

- (a) 9.31 MeV**
- (b) 931 KeV**
- (c) 93.1 MeV**
- (d) 931 Mev**



Q33. What type of waves are light wave?

- (a) Transverse wave**
- (b) Longitudinal wave**
- (c) Both A & B**
- (d) None**



Q34. A ball pen function on the principle of-

- (a) Viscosity**
- (b) Capillarity**
- (c) Gravity**
- (d) Atmospheric pressure**





Q35. Which one is the unit of surface tension of a liquid-

- (a) newton /m²**
- (b) electron volt /cm²**
- (c) joule/ mm**
- (d) None of the above**



Q36. The unit of Joule per Coulomb is-

- (a) Ampere (A)
- (b) Joule (J)
- (c) Volt (V)
- (d) Coulomb (C)





Q37. Which device is best suited for measuring the temperature inside metallurgical furnaces?

- (a) Pyrometer**
- (b) Thermocouple**
- (c) Thermometer**
- (d) Thermistor**

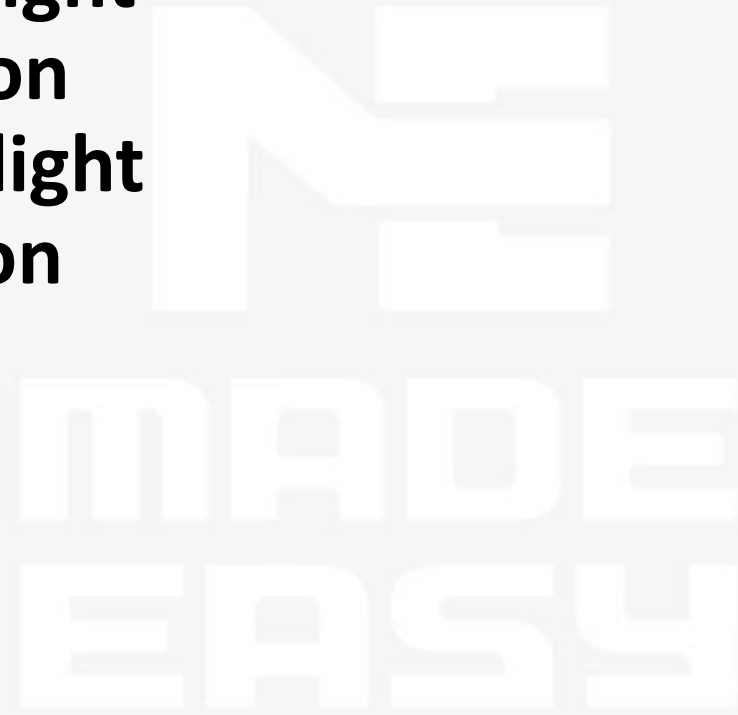
Q38. If a person mass 66 kg on the Earth, how much is his mass on the moon?

- (a) 66 kg**
- (b) 11 kg**
- (c) 132 kg**
- (d) 77 kg**



Q39. What is the concept of spherical lenses?

- (a) Radiation of light
- (b) Light refraction
- (c) Scattering of light
- (d) Light reflection

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Q40. How many electrons are there in one Coloumb of charge?

- (a) 625×10^{-19} electrons**
- (b) 0.625×10^{-18} electrons**
- (c) 6.25×10^{18} electrons**
- (d) 62.5×10^{-19} electrons**

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Q41. In which medium does sound travel at maximum speed?

- (a) Liquids**
- (b) Solids**
- (c) Same speed in gases and liquids**
- (d) Gases**



Q42. The name of first artificial satellite of India was-

- (a) Bhaskar**
- (b) Aryabhata**
- (c) Rohini**
- (d) Edusat**



Q43. A rectifier is an electronic device used to convert-

- (a) AC voltage into DC voltage/AC**
- (b) DC voltage into AC voltage**
- (c) Sinusoidal pulse into square pulse**
- (d) None of the above**



Q44. Which of the following measurements is not a unit of distance?

- (a) Ammeter**
- (b) Cubit**
- (c) Parsec**
- (d) Angstrom**





Q45. When a body is raised upwards from the Surface of the earth, its weight shall-

- (a) decrease**
- (b) fluctuate**
- (c) Increase**
- (d) remain the same**



Q46. Electric bulbs are usually filled with chemically inactive gases-

- (a) Nitrogen and oxygen**
- (b) Nitrogen and argon**
- (c) Nitrogen and carbon monoxide**
- (d) Nitrogen and carbon-dioxide**



Q47. A piece of ice is floating on water in a container. What will happen to the surface of water when whole ice piece melts-

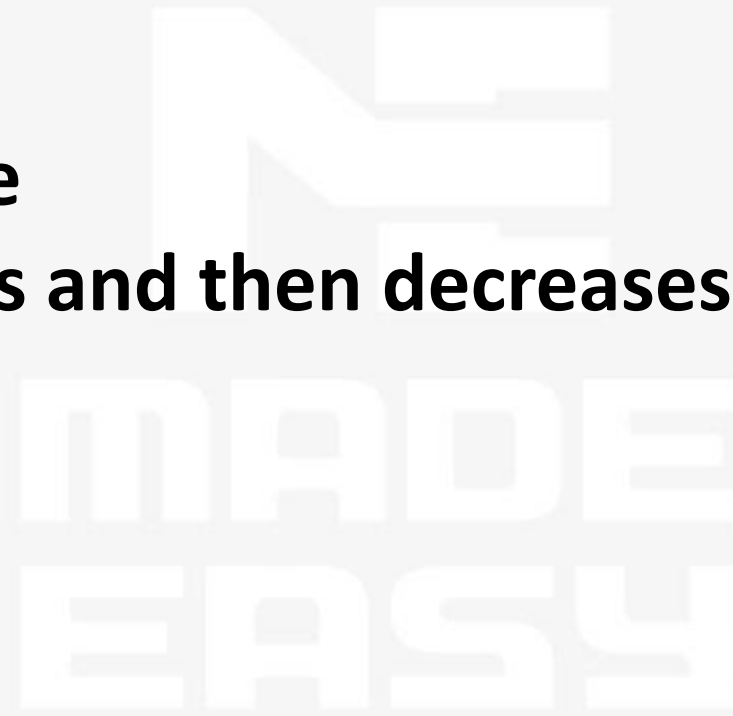
- (a) will go up**
- (b) will not change**
- (c) will go down**
- (d) none of these**



Q48. Twinkling of stars in clear sky during night time can be explained with-

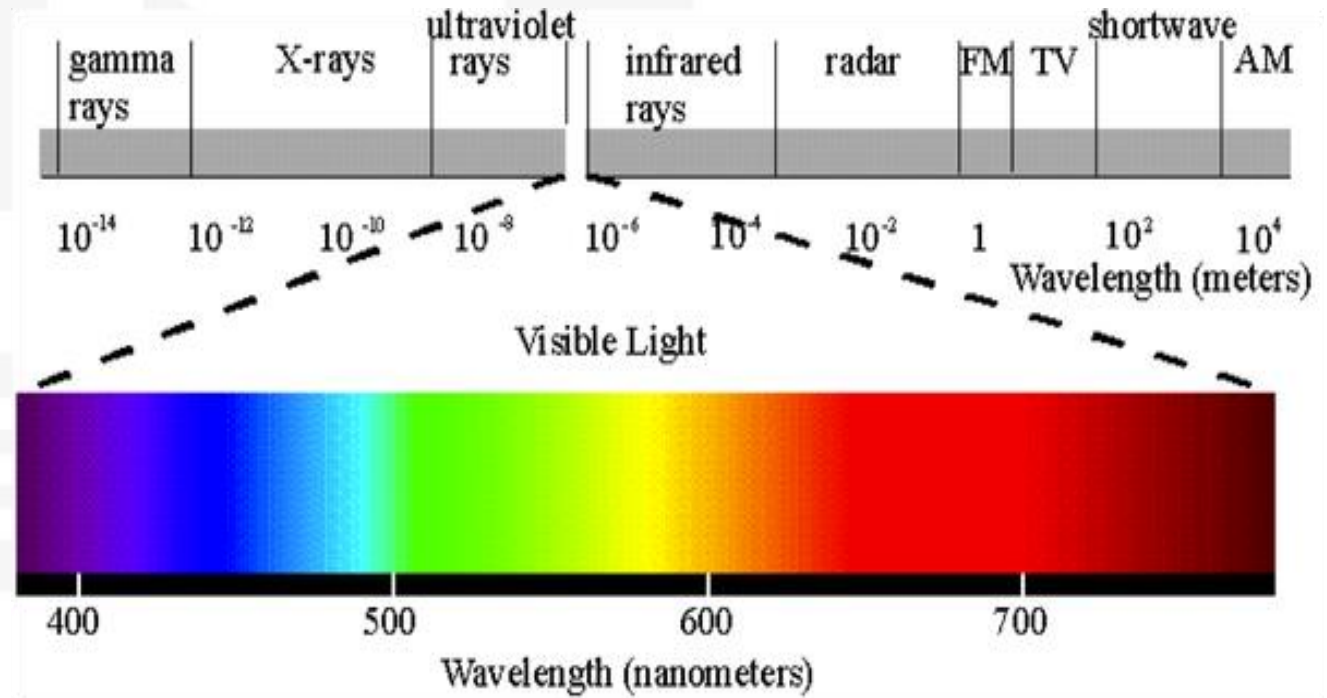
- (a) refraction of light**
- (b) reflection of light**
- (c) polarization of light**
- (d) interference of light**

- Q49. On heating, the resistance of a semiconductor-**
- (a) increases**
 - (b) decreases**
 - (c) remains same**
 - (d) first increases and then decreases**

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Q50. Which color of light has the highest energy?

- (a) Violet
- (b) Green
- (c) Yellow
- (d) Orange
- (e) Red

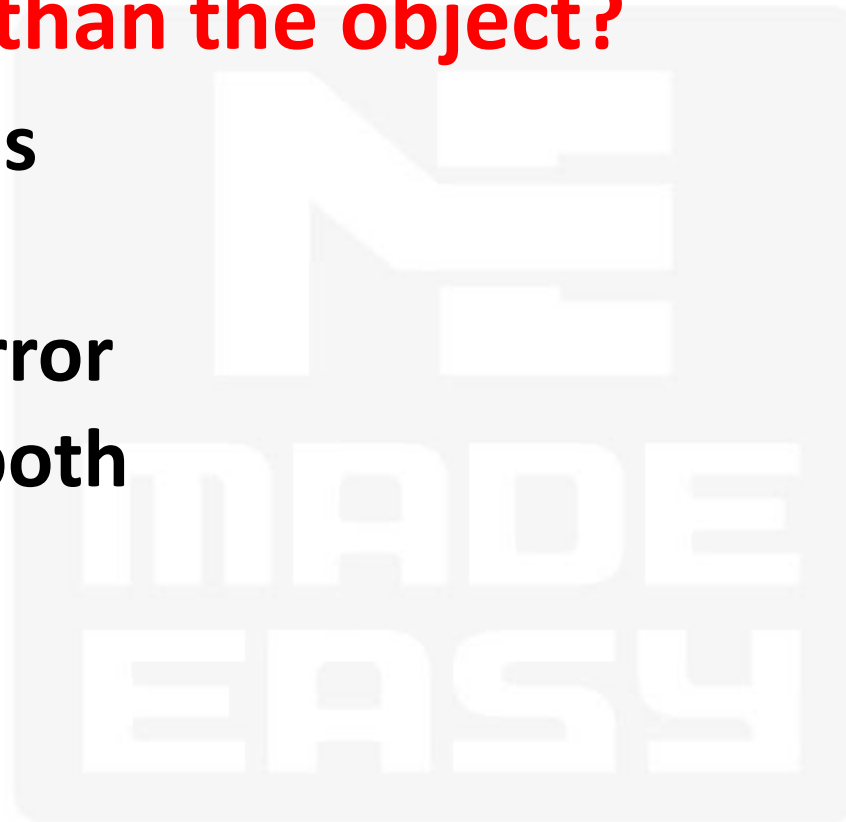




- Q51. A pendulum beats faster than a standard pendulum. In order to bring it to the standard beat, the length of the pendulum is to be-**
- (a) reduced and mass of the bob increased**
 - (b) reduced and also the mass of the bob reduced**
 - (c) increased**
 - (d) Reduced**

Q52. Which of the following produce a virtual image longer in size than the object?

- (a) Concave lens**
- (b) Convex lens**
- (c) Concave mirror**
- (d) (b) and (c) both**



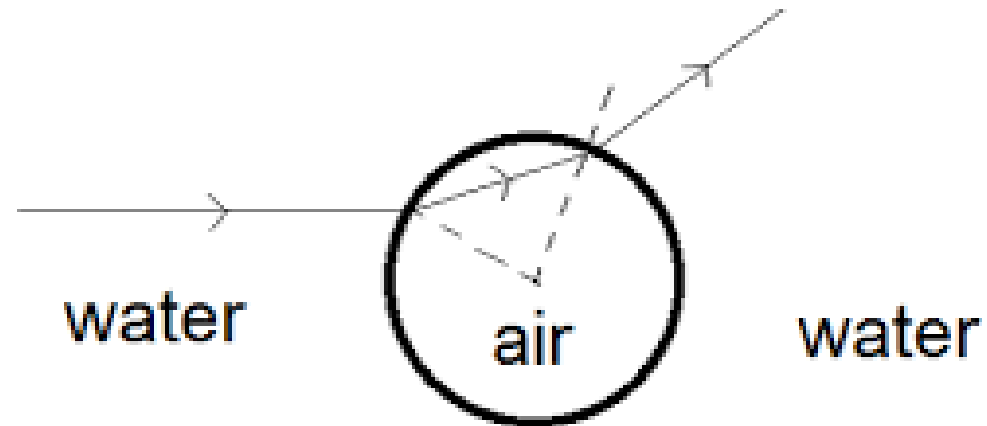
Q53. Parsec is the unit of-

- (a) magnetic force**
- (b) shining of light**
- (c) distance**
- (d) Time**



Q54. An air bubble inside water behaves as a-

- (a) concavo convex lens
- (b) plano-convex lens
- (c) concave lens
- (d) convex lens





Q55. Red light is used as danger signal because it-

- (a) absorbs least in air**
- (b) produces least chemical reactions**
- (c) is comfortable for eyes**
- (d) is scattered least**

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Q56. As you go down into a well, your weight-

- (a) increases slightly**
- (b) decreases slightly**
- (c) remains exactly the same**
- (d) None of the above**

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