

FBQ1: The defect of the lens is called ____.

Answer: chromatic aberration

FBQ2: In an experiment to determine focal length of a converging lens using the displacement method, a clear image of an object was obtained when the lens was placed at 20cm from a source that is placed at 80cm from a screen. Calculate the focal length of the lens, in cm.

Answer: 15.0cm

FBQ3: In a metre bridge, the balance is obtained at a point 25cm from one end of a wire 100cm long. The resistance to be tested is connected to that end and a standard resistance of 3.6Ω is connected to the other end of the wire. What is the value of the unknown resistance, in Ω ?

Answer: 1.2Ω

FBQ4: When seeking the "null" point, the key K should be closed before contact is made at the point of balance. This is done to avoid deflections due to ____.

Answer: induction effects

FBQ5: Convex mirrors are mostly used as ____.

Answer: driving mirrors

FBQ6: diopter is the unit of ____

Answer: power of lens

FBQ7: In an experiment, derived values such as those obtained from four figure tables should be recorded to at least ____ decimal places

Answer: 3

FBQ8: Which of the following remains unchanged when refraction occurs?

Answer: Frequency

FBQ9: The slide wire of the figure shown is balanced when the uniform slide wire AB is divided as shown. The value of the resistance X is ____.

Answer: 2

FBQ10: For a metallic conductor, Ohm's law holds provided ____ remains constant

Answer: temperature

FBQ11: The lens of the human eye is ____.

Answer: Converging

FBQ12: The advantage of potentiometer over voltmeter in measurements of emf is that it does not draw ____ from the circuit under test.

Answer: Current

FBQ13: A glass prism of refracting angle 60 degrees gives a minimum deviation of 47degrees. What is the refractive index of the glass?

Answer: 1.61

FBQ14: The null condition in potentiometer experiment shows that ____ are balanced

Answer: potential difference

FBQ15: The ____ of the eye plays an equivalent role of the screen in optical experiments

Answer: Retina

FBQ16: ____ cell is preferred in Wheatstone bridge experiment, as its e.m.f. is high enough to give the required sensitivity and its internal resistance is high enough to limit the current to safe maximum.

Answer: Leclanche

FBQ17: Which mirror is used as a dentist mirror?

Answer: concave

FBQ18: If an object is placed at the principal focus of a concave mirror, its image will be formed at:

Answer: Infinity

FBQ19: An image that can be formed on a screen is said to be ____.

Answer: Real

FBQ20: For a concave mirror to form a real diminished image, the object must be placed at a distance greater than the ____.

Answer: radius of curvature

FBQ21: A virtual image is always :

Answer: upright

FBQ22: No parallax tells us that the two objects are ____.

Answer: Coincident

FBQ23: ____ is the apparent motion between an object and its image, situated along the line of sight, relative to each other in an experiment.

Answer: Parallax

FBQ24: A 10 ohm and a 20 ohm resistor are connected in parallel to a current source. What fraction of the current flows through the 20 ohm resistor?

Answer: $\frac{1}{3}$

FBQ25: An object is placed 15 cm in front of a convex mirror of focal length 7.5 cm. The image position behind the mirror is ____.

Answer: minus 5 cm

FBQ26: A glass prism is made from transparent refracting medium with two refracting faces and a refracting edge of the prism. The two refracting faces give ____.

Answer: angle of prism

FBQ27: A ray of light experiences a minimum deviation when passing symmetrically through an equilateral triangle. The angle of incidence of the ray for a glass of 1.5 refractive index is ____.

Answer: 49°

FBQ28: A resistor of value $\frac{R}{2}$ is connected in parallel with a resistor of value $\frac{R}{3}$. The voltage drop across the parallel combination is V. The total current supplied by the voltage source is ____.

Answer: $5 \frac{V}{R}$

FBQ29: Resistivity of iron is $10^{-7} \Omega\text{-m}$. The resistance of an iron wire is 1Ω . If its diameter is halved and length doubled, the resistivity in $\Omega\text{-m}$ will be equal to ____.

Answer: 10^{-7}

FBQ30: To get three images of a single object, one should have two plane mirrors at an angle of ____.

Answer: 90°

FBQ31: How many images will be formed when two plane mirrors are placed parallel to each other?

Answer: One

FBQ32: A person having the nearest distance of distinct vision of 32 cm uses a reading lens of 8 cm focal length. The magnification of his reading lens is ____.

Answer: 5

FBQ33: The size of the image of an object, which is at infinity, as formed by a

convex lens of focal length 30 cm is 2 cm. If a concave lens of focal length 20 cm is placed between the convex lens and the image at a distance of 26 cm from the convex lens, the size of the new image will be ____.

Answer: 2.5cm

FBQ34: If the length and diameter of a wire of circular cross section are both doubled, the resistance is ____.

Answer: Halved

FBQ35: The mirror used as driving mirror is ____.

Answer: convex

MCQ1: Which of these is an apparatus used in carrying out experiment on refraction through glass block?

Answer: Protractor

MCQ2: The resistance of a coil at 100 °C is 4.2 Ω. If temperature coefficient of resistance is 0.004 / °C, then its resistance at 0 °C is ____

Answer: 3 Ω

MCQ3: The length of a wire of potentiometer is 100 cm and the e.m.f. of its standard cell is E volt. It is employed to measure the e.m.f. of a battery whose internal resistance is 0.5 Ω. If the balance point is obtained at $l = 30$ cm from the positive end, the e.m.f. of the battery is

Answer: 0.3E

MCQ4: Which of these quantities remains unchanged when light passes from a vacuum into a block of glass ____.

Answer: Frequency

MCQ5: Assume that a ray of light passes from glass into air at an angle of incidence greater than zero degrees. The ray of light will be bent ____ the normal as it passes into the air

Answer: away from

MCQ6: A beam of light is incident on a perfectly smooth body of water. The angle that the REFLECTED ray makes with the normal is ____.

Answer: the same as the angle the incident ray makes with the normal

MCQ7: A five ohm and a ten ohm resistor are connected in parallel, the single resistance "equivalent" to this combination is ____

Answer: 3.33 Ohms

MCQ8: A five ohm and a ten ohm resistor are connected in parallel, the single resistance "equivalent" to this combination is ____

Answer: 3.33 Ohms

MCQ9: A current of 6 amperes flows through a 2 ohm resistor for 30 seconds. How many coulombs of charge have passed through the resistor?

Answer: 180C

MCQ10: Snell's law is the ratio of sine of angle of incidence to the sine of angle of ____

Answer: diffraction

MCQ11: An ammeter reads up to 1 ampere Its internal resistance 0.81 ohm. To increase the range to 10 ampere, the value of the required shunts is ____.

Answer: 0.09 Ω

MCQ12: An electric clothes dryer is connected to a 100-volt source. How much current does it use if it requires 2,000 watts of electric power?

Answer: 20A

MCQ13: To create an enlarged real image using a concave mirror, the object must

be placed_____.

Answer: between the center and the focus.

MCQ14: A resistor of value $R/2$ is connected in parallel with a resistor of value $R/3$. The voltage drop across the parallel combination is V . The total current supplied by the voltage source is:

Answer: $5V/R$

MCQ15: A 10 ohm and a 20 ohm resistor are connected in parallel to a current source. What fraction of the current flows through the 20 ohm resistor?

Answer: $1/3$

MCQ16: A steady current flows in a metallic conductor of non-uniform cross-section. Which of the following quantity is constant along the conductor?

Answer: current

MCQ17: A galvanometer of resistance $100\ \Omega$ is converted to an ammeter using resistance of 0.1Ω . It gives full scale deflection at $100\ \mu A$. The minimum current in the circuit for maximum deflection is

Answer: $100.1\ mA$

MCQ18: A rigid container with thermally insulated walls contains a coil of resistance $100\ \Omega$ carrying current 1 A. Change in internal energy after 5 minutes is

Answer: 30 kJ

MCQ19: Which is NOT a characteristic of a series circuit?

Answer: The total resistance is the sum of the reciprocals of the individual resistances.

MCQ20: A charge of 3 C experiences a force of 3000 N when it is moved in a uniform electric field. What is the potential difference between two points separated by a distance cm?

Answer: 10 V

MCQ21: A 20 ohm resistor and a 60 ohm resistor are connected in parallel to a voltage source. If the current in the 60 ohm resistor is one ampere, the current in the 20 ohm resistor will be:

Answer: 3A

MCQ22: A virtual image always appears:

Answer: Erect

MCQ23: You want to put up a mirror at a blind corner in a building. Which of the following will give you the largest field of view?

Answer: convex mirror

MCQ24: A small hole in a sheet of aluminum foil is used to diffract yellow light both under water and in a vacuum. Which is true?

Answer: light diffracts less in the water because its wavelength is smaller.

MCQ25: Which one of the following is the advantage of connecting two dry cells in parallel instead of in series? It is because the parallel arrangement:

Answer: has half the internal resistance of a single cell

MCQ26: By which one of the following can a real image be produced? Can it be produced by a:

Answer: concave mirror

MCQ27: When white light passes through a red plate of glass and then through a green plate of glass which one of the following things occur?

Answer: the light is totally absorbed

MCQ28: The number of free electrons per unit volume in copper is n . The

electrons each of charge q flowing with velocity v constitute current I . If A is the cross-sectional area of the wire, the current density in the wire is

Answer: $n q v/A$

MCQ29: If the change in resistance of a copper wire on stretching is 0.4 %, then its length is stretched by

Answer: 0.2 %

MCQ30: If an electron makes 25×10^{15} rev / s around the nucleus of an atom in an orbit of radius 1 Å , the equivalent current is nearly ____.

Answer: 4×10^{-3} A

MCQ31: A light ray traveling from glass into air strikes the glass-air surface at an angle 50 degrees to the normal. If the critical angle for the glass-air combination is 42 degrees, the percentage of light reflected from the surface is

Answer: 100

MCQ32: Electric current may be expressed in which one of the following units?

Answer: Coulomb/second

MCQ33: A beam of light travels obliquely from one medium into another medium of higher index of refraction. All of the following are true statements about the beam of light EXCEPT:

Answer: Its wavelength decreases.

MCQ34: Three resistors of 4 ohms each CANNOT be connected to give an equivalent resistance that is close to ____.

Answer: 0.75 Ohms

MCQ35: How many images of an object placed at an angle of 180° will be formed in a plane mirror?

Answer: One