

The total energy in an LC circuit is 5.0×10^{-6} J. If $L = 25\text{mH}$ the maximum current is:

Select the correct option

☒ 10mA

a correct

☐ 20mA

☐ 14mA

☐ 28mA

Question # 5 of 5
Which one of the following is the velocity of a carrier wave?

Select the correct option

☐ $3 \times 10^6 \text{ ms}^{-1}$

☒ $3 \times 10^8 \text{ ms}^{-1}$

b correct

☐ $3 \times 10^9 \text{ ms}^{-1}$

☐ $3 \times 10^{10} \text{ ms}^{-1}$

Select the correct statement:

Select the correct option



Ultraviolet light has a longer wavelength than infrared



Blue light has a higher frequency than x rays



Radio waves have higher frequency than gamma rays



Gamma rays have higher frequency than infrared waves

d correct



Question # 5 of 10 (Start time: 02:46:57 PM, 20 February 2021)

According to the kinetic theory of gases, the pressure of a gas is due to:

Select the correct option



Change of kinetic energy of molecules as they strike the wall



Change of momentum of molecules as they strike the wall

b correct



Average kinetic energy of the molecules



Force of repulsion between the molecules

BC200203928: SALMAN KHAN

PHY101:Online Quiz # 4 Physics (PHY101)

Question # 5 of 10 (Start time: 03:05:01 PM, 20 February 2021)

Which of the following electromagnetic radiations has photons with the greatest energy?

Select the correct option

- ☐ blue light
- ☐ yellow light
- ☐ x rays
- ☒ radio waves

c correct

PHY101:Online Quiz # 4 Physics (PHY101)

Question # 3 of 10 (Start time: 03:00:20 PM, 20 February 2021)

Average value of current and voltage over complete cycle is:

Select the correct option

- | | |
|-----------------------|----------|
| ☐ | Positive |
| ☐ | Negative |
| ☐ | Zero |
| ☐ | Infinite |

c correct

Question # 9 of 10 (Start time: 03:10:14 PM, 20 Februa

$2d\sin\theta = m\lambda$ is called:

Select the correct option

- | | |
|-----------------------|---------------------|
| ☐ | Laplace's equation |
| ☐ | Reflection equation |
| ☐ | Refraction equation |
| ☐ | Bragg equation |

d correct

A particular device transmitted a signal in the form of electromagnetic waves of frequency 7.5×10^8 Hz. What is the wavelength of the signal?

Select the correct option

☐ 0.4 m

☐ 40 m

☐ 4.0 m

☐ 4.04 m

a correct

Two sources of light are said to be coherent if the waves produced by them have the same:

Select the correct option

☐ Wavelength

☐ Amplitude

☐ Wavelength and amplitude

☒ Wavelength and constant phase difference

d correct



A gas which strictly obeys the gas laws under all conditions of temperature and pressure is called:

Select the correct option

☐ Real gas

☐ Inert gas

☒ Ideal gas

☐ Simple gas

c correct



1 atomic mass unit is about:

Select the correct option



$$1.66 \times 10^{-31} \text{ kg}$$



$$9.11 \times 10^{-31} \text{ kg}$$



$$1.66 \times 10^{-27} \text{ kg}$$

c correct



$$9.11 \times 10^{-27} \text{ kg}$$

Evidence for the wave nature of matter is:

Select the correct option

☒ Electron diffraction experiments of Davisson and Germer

a correct

☐ Thompson's measurement of e/m

☐ Young's double slit experiment

☐ The Compton effect

An erect object is in front of a convex mirror a distance greater than the focal length. The image is:

Select the correct option

☐ Real, inverted, and smaller than the object

☐ Virtual, inverted, and larger than the object

☐ Real, inverted, and larger than the object

☐ Virtual, erect, and smaller than the object

D correct

The two metallic strips that constitute some thermostats must differ in:

Select the correct option

☐ Thickness

☐ Length

☐ Mass

☐ Rate at which they conduct heat

☒ Coefficient of linear expansion

D correct

A calorie is about:

Select the correct option

☐ 8.3J

☐ 250J

☒ 4.2J

☐ 4200J

c correct

Question # 5 of 10 (Start time: 03:27:07 PM, 20 February 2021)

The smallest particle of any chemical element that can exist by itself and yet retain the qualities that distinguish it as that element is:

I

Select the correct option

An electron



A proton



A neutron



An atom



D correct

A thermometer indicates 98.6°C . It may be:

▶ Select the correct option



Outdoors on a cold day



In a comfortable room



In a cup of hot tea

c correct



In a normal person's mouth

Question # 4 of 10 (Start time: 03:26:10 PM, 20 February 2021)

Electric energy is measured:

Select the correct option



Kilowatt hour



Kilowatt



Horsepower



Watt

D correct

Question # 3 of 10 (Start time: 03:25:05 PM, 20 February 2021)

Kirchhoff's 2nd rule is the manifestation of the law of conservation of:

Select the correct option

- | | |
|-----------------------|----------|
| ☐ | Momentum |
| ☐ | Energy |
| ☐ | Charge |
| ☐ | Mass |

b correct

Which of the following types of electromagnetic radiation travels at the greatest speed in vacuum

Select the correct option

☒ Radio waves

☐ X rays

☐ Gamma rays

☐ All of these travel at the same speed

D correct

Maxwell's equations predict that the speed of light in free space is

Select the correct option

☐ an increasing function of frequency

☐ a decreasing function of frequency

☒ independent of frequency

☐ a function of the distance from the source

c correct

Question # 7 of 10 (Start time: 02:48:45 PM, 20 February 2021)

The quantum number m_s is most closely associated with what property of the electron in an atom?

Select the correct option



Magnitude of the orbital angular momentum



Energy



z component of the spin angular momentum



z component of the orbital angular momentum

c correct



Net change in entropy of a system in a Carnot cycle is:

Select the correct option



Positive



Negative



Zero

c correct



One

Question # 6 of 10 (Start time: 02:48:03 PM, 20 February 2021)

When two gases separate by a diathermal wall are in thermal equilibrium with each other:

Select the correct option



Only their pressures must be the same



Only their volumes must be the same



They must have the same number of particles



Only their temperatures must be the same

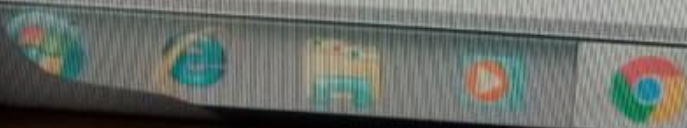
d correct

Inductive reactance X_L of an inductor is:

Select the correct option

- | | |
|-----------------------|--------------|
| ☐ | $n\omega L$ |
| ☐ | $4n\omega L$ |
| ☐ | $2n\omega L$ |
| ☐ | $2\omega L$ |

c correct



A balloon is filled with cold air and placed in a warm room. It is NOT in thermal equilibrium with the air of the room until:

Select the correct option

☐	It rises to the ceiling	
☐	It sinks to the floor	
☐	It stops expanding	c correct
☐	It starts to contract	

Question # 10 of 10 (Start time: 02:51:35 PM, 20 February 2021)

The concept of direction is purely:

Select the correct option

- | | |
|-----------------------|---------------------|
| ☐ | Relative to stars |
| ☐ | Relative to the sun |
| ☐ | Relative |
| ☐ | Absolute |

c correct

BC200203928: SALMAN KHAN

PHY101:Online Quiz # 4 Physics (PHY101)

Question # 1 of 10 (**Start time: 02:57:38 PM, 20 February 2021**)

When we accelerate the charge, which types of waves are produced?

Select the correct option

- | | |
|-----------------------|-----------------------|
| ☐ | Mechanical waves |
| ☐ | Travelling waves |
| ☐ | Stationary waves |
| ☐ | Electromagnetic waves |

d correct