LEO101 LU3 LIGHT SOURCES AND LASER SAFETY TEST

Coherence in optics and lasers means:
- a. In phase or order
- b. out of step or order
- c. single wavelength
- d. travels in one direction

When a light source is monochromatic it emits
- a. many colors
- b. one color
- c. visible light
- d. white light

Halogen light sources often team up with _____ to form a popular incandescent lamp.
- a. steel
- b. mercury
- c. phosphor
- d. tungsten

Fluorescent lamps are:
- a. high temperature lamps
- b. high intensity lamps
- c. low pressure discharge lamps

Solid or crystalline lasers are usually excited by:
- a. flashlamps or arc lamps
- b. fluorescent lamps
- c. LEDs
- d. incandescent lamps

LEDs or Light Emitting Diodes could be also considered:
- a. incandescent lights
- b. fluorescent lights
- c. halogens lights
- d. none of these

Laser safety is important and necessary in:
- a. industrial manufacturers
- b. hospitals
- c. schools
- d. all of these

The structure of the eye which acts as a viewing screen is the:
- a. cornea
- b. retina
- c. lens
- d. pupil

Visible and near infrared light is absorbed by which structure of the eye?
- a. cornea
- b. retina
- c. lens
- d. pupil

The term irradiance is defined as:
- a. energy per area
- b. power per area
- c. energy per diameter
- d. power per diameter

The dermis refers to the:
- a. skin
- b. retina
- c. lens
- d. pupil

Which wavelength range has been “implicated” by studies to lead to skin cancer?
- a. IR-A
- b. UV-B
- c. UV-C
- d. IR-C

What is the light characteristic that corresponds with single frequency or color?
- a. Monochromaticity
- b. Directionality
- c. Coherence
- d. Brightness

This laser characteristic comes in handy when squaring walls or pointing a laser beam.
- a. Monochromaticity
- b. Directionality
- c. Coherence
- d. Brightness

Which part of the human eye is responsible for detailed critical vision?
- a. Fovea Centralis
- b. Vitreous
- c. Cornea
- d. Retina

LEO101 LU3 LIGHT SOURCES AND LASER SAFETY TEST

What wavelength range is absorbed primarily by the lens of the eye?
- a. UV-C
- b. Visible
- c. UV-A
- d. IR-C

What does the lens of your eye, or any positive lens do to the irradiance of a light beam?
- a. decreases irradiance
- b. does not change irradiance
- c. increases irradiance
- d. depends on the wavelength

What does HID stand for in lighting devices?
- a. Heavy Irradiance Device
- b. Hot Intense Diode
- c. High Intensity Discharge
- d. Heat Illumination Display

What does LED stand for?
- a. Laser Emitter Device
- b. Long Electrical Detector
- c. Light Emitting Diode
- d. Little Electrical Device

Which is the most dangerous class of laser radiation?
- a. Class 4
- b. Class 1
- c. Class 8
- d. Class 10

Which class of laser under normal operation poses no threat to the human eye?
- a. Class 1
- b. Class 4
- c. Class 8
- d. Class 10

What is MPE?
- a. Maximum Permissible Exposure
- b. Minimum Power Emitted
- c. Medium Personnel Equipment
- d. Marginal Paraxial E-ray

What is NHZ?
- a. Nominal Hazard Zone
- b. Neutral High Zone
- c. Negative Heat Zone
- d. National Heart Zone

Laser eyewear should drop the laser energy below the _____ level.
- a. MPE
- b. NHZ
- c. ESP
- d. NSI

Laser eyewear with an OD of 6 transmits _____ eyewear with an OD of 1.
- a. less than
- b. more than
- c. same as
- d. none, eyewear only reflects

Which laser class refers to visible laser radiation only?
- a. Class 2
- b. Class 1
- c. Class 4
- d. Class 10

This class of laser has an upper limit of 0.5W and is usually not a diffuse reflection hazard?
- a. Class 3B
- b. Class 4
- c. Class 8
- d. Class 2M

The retinal hazard region falls under what wavelength range?
- a. 400nm to 700nm
- b. 315nm to 400nm
- c. 400nm to 1400nm
- d. 700nm to 1mm

The power emitted from a Class II laser does not exceed which of the following?
- a. 0.5mW
- b. 1mW
- c. 5mW
- d. 0.1mW

LEO101 LU3 LIGHT SOURCES AND LASER SAFETY TEST

The visible portion of the electromagnetic spectrum is generally defined as which of the following wavelength ranges?

a. 400nm to 700nm
b. 315nm to 400nm
c. 400nm to 1400nm
d. 700nm to 1mm

If you must enter the Nominal Hazard Zone, what is the best thing you can do to protect yourself from potential hazardous exposure?

a. Notify the LSO.
b. Activate the warning system
c. Wear proper laser safety eyewear or other personal protective equipment
d. Stand near the temporary barrier

Which classes of lasers require a DANGER sign?

a. Class 1 & 2
b. Class 2
c. Class 3B, 4, and some 3R
d. Class 3B and 4 only

Which class laser would be considered safe if not viewed longer than the eye's aversion response?

a. Class 4
b. Class 2
c. Class 5
d. Class 3b

Hazardous exposure to diffusely reflected radiation is most likely to occur from which class of laser?

a. Class 2
b. Class 4
c. Class 3b
d. Class 1

Which of the following is NOT a property of laser radiation?

a. Monochromaticity
b. Coherence
c. Directionality
d. Low radiance

To help insure that you are not exposed to high voltage when the laser power is off, power supplies should be equipped with which of the following?

a. an ear piercing buzzer
b. Grounding strap, discharging strap, dump stick
c. Beam shutter
d. Insulating gloves

What is the task you should perform after you have finished servicing the laser?

a. Put away tools
b. Inform the LSO
c. Reactivate all of the safety features

Which type of reflection is caused when a beam strikes a mirror-like surface?

a. Direct
b..Intrabeam
c. Diffuse
d. Specular

Which of the following reason is why a light bulb is not a hazardous light source?

a. Its waves radiate in all directions
b. Its waves radiate in one direction
c. It is monochromatic
d. It has very high irradiance

Which of the following is the transparent outer surface of the eye?

a. Retina
b. Lens
c. Cornea
d. Fovea

The acronym LASER stands for which of the following?

a. Lame Acquisition Scheme for Expensive Research
b. Light Amplification by Stimulated Emission of Radiation
c. Light Amplification by Spontaneous Emission of Radiation
d. Light Alteration by Stimulated Emission of Radiation

LEO101 LU3 LIGHT SOURCES AND LASER SAFETY TEST

What does the NHZ represent?

a. The focal point of a converging beam
b. The time it takes to reach safe exposure levels
c. The region within which the level of laser radiation exceeds the MPE
d. The region over which the beam travels

Which of the following is a performance feature intended to prevent human access to hazardous laser radiation when the protective enclosure is opened?

a. Red flashing light
b. Loud siren
c. Interlock
d. Output coupler

Which is the standard for the safe use of lasers as used in the IHCC laser program?

a. ANSI Z136.1
b. CDRH 87.1
c. OSHA 157.5
d. FDA ZR186, REV A

Which type of eye damage is likely to occur if the lens is exposed to ultraviolet laser radiation?

a. Cataract
b. Retinal burn
c. Astigmatism
d. Total blindness