

Laser Safety Training Quiz

(9/5/2007)

Name of Laser User (print): _____

Student ID#: _____

Email: _____

INSTRUCTIONS

Please carefully read the Laser Safety Manual and Laser Safety Training Supplement. These materials are available electronically on the web at

http://www.advancedlab.org/mediawiki/index.php?title=Laser_Safety_Training or at <http://radsafe.berkeley.edu>.

Please answer every question. You are encouraged to refer to the laser safety training materials to find answers you do not know. The quiz should take from 15 to 30 minutes to complete. The expectation is that you will answer all questions correctly without the assistance of other laser users. If you do not understand a question and need assistance, please talk to your lab instructor or call the Campus Laser Safety Officer at 2-3073.

- (1) On the UCB Campus, what laser Classes require a Laser Use Registration? _____
- (2) Who should be informed of the acquisition, modification, sale, or transfer of any Class 3a, 3b, or 4 laser? _____
- (3) The first rule of laser safety is never under any circumstances look into any laser beam. T or F
- (4) The potential location of injury in the eye is directly related to the wavelength of the laser radiation. T or F
- (5) Intrabeam viewing is allowed at UC Berkeley. T or F
- (6) Most laser related eye injuries occur during beam alignments. T or F
- (7) Please choose the question(s) that applies to the laser wavelength (s) that you use.

If you are using a laser with a wavelength shorter than 300 nm or longer than 1400nm the beam is absorbed in what part of the eye? _____

If you are using a laser with a wavelength between 300 nm and 400nm, the beam is absorbed in what part of the eye? _____

- If you are using a laser with a wavelength between 400 nm and 1400nm, the beam is absorbed in what part of the eye? _____
- (8) Maximum permissible exposure (MPE) is defined as the maximum level of radiation which human tissue may be exposed to without harmful effect. T or F
- (9) If you intend to use a Class 3a, 3b or 4 laser outdoor, you are required to have a Laser Use Registration (LUR)? T or F
- (10) In general, it is better to control laser hazards through the use of administrative (i.e. written procedures) and engineering (i.e. beam stops, beam tubes) controls rather than rely solely on laser protective eyewear. T or F
- (11) At UC Berkeley, laser protective eyewear is required to be worn during alignments. T or F
- (12) The UC Berkeley laser safety program is based on the _____
A) CA- OSHA
B) American National Standard Z136.1
C) Food and Drug Administration
- (13) Who can repair a high voltage laser power supply:
A) The PI
B) The senior grad student
C) The Campus electrician
D) Qualified personnel such as a manufacture technician
- (14) All laser protective eyewear must be marked with the absorption wavelength and the optical density (OD) at that wavelength. T or F
- (15) Any kind of laser warning signs can be used at the entrances to a laser facility. T or F
- (16) All doors to rooms that contain a class 3a, 3b, or 4 lasers are to be posted with a sign marked "WARNING". T or F
- (17) The four types of electrical hazards are arc, blast, shock and _____.
A) Plasma
B) Inhalation
C) Fire

- (18) The relative efficiency of human vision at 555 nm is 100%? What is the relative efficiency of human vision at 800 nm?
- A) 1%
 - B) 50%
 - C) 10%
 - D) 0.0001%
- (19) A continuous wave (CW) laser with a beam power exceeding 0.5 Watt can ignite or cause off gassing in combustible materials in the beam path. T or F
- (20) Laser standard operating procedures should cover the following areas:
- A) Alignments
 - B) Normal operation
 - C) Maintenance
 - D) Safety
 - E) All of above
- (21) For wavelengths that focus in the retina (400nm to 1400nm), the human eye has an optical gain up to?
- A) 10X
 - B) 25X
 - C) 100,000X
 - D) 100X
- (22) The three primary mechanisms of tissue injury associated with laser radiation are: (circle 3)
- A) Thermal effects
 - B) Photo effects
 - C) Acoustical transient effects
 - D) Nerve damage
- (23) Long term UV exposure can cause _____ formation in the lens of the eye.
- (24) LGAC is the acronym for:
- A) Laser Gas Air Control
 - B) Laser Generated Air Conditioning
 - C) Laser Generated Air Contaminants
 - D) Laser Gas Amplification Condition
- (25) Items in the beam path may result in a _____ or _____ reflection of the laser beam.

- (26) UV lasers and UV excitation systems may present a hazard to the _____ as well as the eye.
- (27) Some of ancillary hazards associated with the use of a laser include:
- A) Toxic Dye Solutions
 - B) LGAC
 - C) Cryogenic hazard
 - D) Compressed gas
 - E) High Voltage
 - D) A, B, and E
 - F) All of above
- (28) Whenever possible, you should enclose as much of the beam as possible without interfering with the application. T or F
- (29) The acronym MSDS stands for:
- A) Maintenance Service Docket Sticker
 - B) Missing System Data Suppression
 - C) Material Safety Data Sheet
 - D) Macular Semi-conductor Duplex System
- (30) What is the name of the campus Laser Safety Officer?