

Laser Safety, EHS 55 Exam (Page 1 of 4)

Initials: \_\_\_\_\_

Important note and instructions: Circle the correct answer or answers for each question. One or more answers may be correct. Each question is worth the number of points equal to the number of choices in that question. Initial requested.

1. 1. Authorized Users and Authorized Occupants in laboratories with lasers shall be acquainted with:
  - A. ANSI Standard Z136.1
  - B. OSHA Standard 1236 Part II
  - C. ANSI Standard Z142.3
  - D. 10 CFR 30
2. Which of the following is (are) not a general safety requirement(s) in the use of lasers?
  - A. Do not operate lasers in such a fashion that an open beam is at eye level.
  - B. Do not point laser beams at individuals.
  - C. All individuals other than the operator must leave the room if an open beam is being used.
  - D. All individuals in the room shall be warned before a laser beam is turned on.
3. Which of the following should be avoided when working with lasers:
  - A. Black clothing because too much energy will be absorbed if the beam should strike the clothing.
  - B. Leather shoes that are especially sensitive to laser beams.
  - C. Objects with bright reflective surfaces.
  - D. Protective glasses.

4. Authorized Users only need to verify the status of warning lights, interlocks and/or alarms:
- A. Once a month.
  - B. Once a year.
  - C. Before each use.
  - D. Once a week.
5. The use of appropriate safety glasses (goggles):
- A. Is not required for any lasers in Level I and II labs at the University of Kansas.
  - B. Does not depend on whether or not the laser beam is always fully enclosed so that it cannot be operated unless enclosed.
  - C. Shall be used for class 2b open beam laser equipment unless approved written procedures providing equivalent protection are followed.
  - D. Is always required.
6. Beam stops (diffuse/non-reflective), collimators, and barriers:
- A. Are not to be used because they provide very little protection.
  - B. Are to be used whenever feasible if the laser beam is not fully enclosed.
  - C. Need to be used even when the beam is fully enclosed.
  - D. When properly used, eliminate the need for any use of safety glasses for laser beams.

7. Before energizing an open beam laser system, the authorized user shall:
  - A. Verify that all individuals in the room are authorized to be present and need to be present and warn them that the beam will be energized.
  - B. Verify that all individuals in the room are authorized to be present but does not need to warn them that the beam will be energized because they have been trained to take the operation of the beam into account.
  - C. Occasionally make a check that warning lights are working and warning signs are in place.
  - D. Evacuate the room.
  
8. Laser beams:
  - A. Do not diverge rapidly with distance and tend to retain high-energy output per unit area at long distances.
  - B. Do diverge rapidly with distance and tend to lose the energy output per unit area inversely as the square of the distance from the source.
  - C. May have energy outputs sufficient to damage the eye before it can blink.
  - D. In Level I and II labs are never powerful enough to damage the eyes.
  
9. With respect to damage to the eyes by lasers with powerful enough beams,
  - A. Infrared and UV lasers can cause corneal damage.
  - B. Extremely low densities of pulsed laser beams can cause retinal damage.
  - C. Visible lasers may produce retinal damage.
  - D. Photophobia and exfoliation are not types of damage produced by lasers.

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10. For an exposure to an eye equal to the MPE (Maximum Permissible Exposure),
- A. No evidence of damage to the eye has been obtained.
  - B. Slight but insignificant damage is likely.
  - C. Temporary, but not permanent damage, may occur.
  - D. Significant permanent damage occurs in 1% of such exposures.

With the submission of this exam I affirm that I completed the exam without help from any other individual:

Signed: \_\_\_\_\_ ID. \_\_\_\_\_  
employee/student

The initial score for this exam was \_\_\_\_\_ points out of a possible 40 points.

Signed: \_\_\_\_\_ ID. \_\_\_\_\_  
supervisor/instructor