

LASER Safety Training Exam

1. The Acronym LASER stands for _____?
 - a. Light Alteration by Stimulated Emission of Radiation
 - b. Light Amplification by Spontaneous Emission of Radiation
 - c. Light Alteration by Stimulated Emission of Radiation
 - d. Light Amplification by Stimulated Emission of Radiation

2. Which one of the following is not among the basic components of a LASER?
 - a. Lasing medium
 - b. Pumping System
 - c. Optical Cavity
 - d. Prism

3. Which one of the following properties is not a characteristic of LASER radiation?
 - a. Monochromaticity
 - b. Directionality
 - c. Ultrafast pulse
 - d. Coherence

4. Which of the following explains why a regular light bulb is not hazardous light?
 - a. The regular light bulb has a very high irradiance.
 - b. The regular light bulb radiates in all directions.
 - c. The regular light bulb is certified by Underwriters Laboratories, Inc.
 - d. The regular light bulb is not going to cause a fire.

5. Based on ANSI Z136.1, the visible band of the electromagnetic radiation spectrum is defined as _____?
 - a. From 0.180 μ m to 0.400 μ m
 - b. From 0.400 μ m to 0.700 μ m
 - c. From 0.700 μ m to 1.400 μ m
 - d. From 1.400 μ m to 1 mm

6. Which of the following tissues is the transparent outer layer of the eye?
 - a. Macula
 - b. Retina
 - c. Lens
 - d. Cornea

7. Which wavelength band(s) of LASER radiation is (are) likely to cause photokeratitis?
- IRA
 - Visible and IRA
 - UVA
 - UVB and UVC
8. Which wavelength region of LASER radiation is likely to cause cataracts?
- 0.180 μ m to 0.280 μ m
 - 0.400 μ m to 0.700 μ m
 - 0.700 μ m to 3.000 μ m
 - 3.000 μ m to 1 mm
9. Which wavelengths of LASER radiation are likely to cause retinal burns?
- 0.180 μ m to 0.315 μ m
 - 0.315 μ m to 0.400 μ m
 - 0.400 μ m to 1.400 μ m
 - 1.400 μ m to 1 mm
10. UV radiation_____.
- Can cause immediate skin reddening.
 - Has no adverse health effect.
 - Exhibits a delayed biological effect.
 - Only affects light/fair skinned people.
11. In general, which one of the following viewing conditions poses the greatest threat?
- Direct Viewing
 - Specular reflection
 - Diffuse reflection
 - Backscattering
12. _____ reflection is produced by a LASER beam striking a mirror surface.
- Specular
 - Diffuse
 - Forward
 - Backward
13. The best way to control LASER generated airborne contaminants (LGACs) is to_____.
- Set up a temporary designated LASER controlled area.
 - Use flame retardant curtains.
 - Use a local exhaust ventilation system.
 - Wear personal protection equipment.

14. Non-beam hazards such as compressed gases, cryogenics, LASER dyes and solvents, and LASER generated airborne contaminants (LGACs) may be categorized as_____.
- a. Physical agents
 - b. Chemical agents
 - c. Biological agents
 - d. All of the above
15. Collateral radiation that is produced by LASER system components does not include_____.
- a. X-rays
 - b. UV light
 - c. A LASER beam
 - d. Microwave radiation
16. The upper power limit for a class 3B LASER is _____.
- a. 1 mW
 - b. 5 mW
 - c. 100 mW
 - d. 500 mW
17. Which class of LASER would be considered safe if not viewed longer than the eye's aversion response of 0.25 second?
- a. Class 2
 - b. Class 3R
 - c. Class 3B
 - d. Class 4
18. Which class of LASER presents the greatest potential danger to life and health?
- a. Class 2
 - b. Class 3R
 - c. Class 3B
 - d. Class 4
19. Which class of LASER can pose hazards to the eyes and skin by means of diffuse reflection?
- a. Class 2
 - b. Class 3R
 - c. Class 3B
 - d. Class 4
20. The signal words used on the LASER warning signs and labels are_____?
- a. Safe, Guarded, and Unsafe
 - b. Notice, Caution, and Danger
 - c. Low, Elevated, and Severe
 - d. Unattended, Beware, and Alert

21. In addition to LASER symbol and signal word, the pertinent information on the LASER warning sign does not require_____.
- a. Precautionary instructions
 - b. The type of LASER or the emitted wavelength
 - c. The class of the LASER
 - d. The location of the LASER
22. Which one of the control measures is considered to be the most effective?
- a. Human controls
 - b. Administrative Controls
 - c. Procedural controls
 - d. Engineering controls
23. Which one of the following control measures is not an engineering control?
- a. Protective housing
 - b. Key control
 - c. Beam stop
 - d. Alignment Procedures
24. Which one of the following engineering control measures is used to prevent human exposure to hazardous LASER radiation when the protective housing is opened or removed?
- a. Interlock
 - b. Service access panel
 - c. Viewing window
 - d. LASER controlled area
25. Nominal hazard zone (NHZ) is defined as the space within which level of the direct, reflected, or scattered radiation during normal operation exceeds the applicable_____.
- a. Accessible emission limit (AEL)
 - b. Maximum permissible exposure (MPE)
 - c. Pulse-repetition frequency (PRF)
 - d. Threshold limit (TL)
26. The level of LASER radiation to which a person may be exposed without hazardous effects or adverse biological changes in the eye or skin is called?
- a. Administrative control limit
 - b. Engineering control limit
 - c. Maximum permissible exposure (MPE)
 - d. Procedural control limit

27. When purchasing the LASER protective eyewear, the LASER Safety Officer shall consider_____.
- a. The operating wavelength of the LASER
 - b. The optical density of the eyewear at the operating wavelength
 - c. The visible light transmission of the eyewear
 - d. All of the above
28. Which one of the following control measures is not an administrative/procedural control?
- a. Standard operating procedures (SOP's)
 - b. Education and training
 - c. Output emission limitations
 - d. LASER area warning signs
29. A likely cause of LASER accidents is_____.
- a. Not wearing protective eyewear or wearing improper eyewear
 - b. Turning on the LASER by accident or bypassing the interlocks
 - c. Placing reflective objects on an optical table or altering the beam path.
 - d. All of the above
30. LASER accidents most commonly occur during_____.
- a. Alignment
 - b. Normal operation
 - c. Maintenance
 - d. Service
31. The ultimate success of a LASER safety program lies in responsible action by_____.
- a. The LASER area personnel
 - b. The LSO
 - c. The Federal/State regulatory inspectors
 - d. The Security officers