

**CALIFORNIA VETERINARY MEDICAL BOARD
RADIATION SAFETY EXAMINATION FOR UNREGISTERED ASSISTANTS**

California law requires the employing/supervising veterinarian to provide radiation safety rules to each veterinary radiographer including any restrictions of the operating technique required for the safe operation of the particular x- ray equipment. The purpose of this examination is to ascertain that every unregistered assistant (any individual who is not a board certified Registered Veterinary Technician or a licensed veterinarian) has familiarity with the radiation safety rules. Please read the Radiation Safety Booklet provided by your employer/supervisor and then answer the questions below. You may refer to the booklet while taking the examination. You are required to achieve a passing score of 80% in order to operate radiographic equipment. ***You may not operate radiographic equipment until you have successfully passed this examination or can provide other proof of Radiation Safety Training.***

Name: _____

Employer/Supervisor: _____

Circle only one answer.

1. Repeated exposure of an individual to small but chronic amounts of radiation can have which of the following health effects?
 - A. No effect
 - B. Hair loss
 - C. Improvement of overall health
 - D. Cataract development in the eyes

2. Pregnant women should avoid exposure to radiation because of which of the following increased risks to their fetus?
 - A. Childhood leukemia and other cancers
 - B. Low birth weight
 - C. Premature birth
 - D. Glaucoma

3. Why are individuals under the age of 18 excluded from performing or assisting in radiography?
 - A. They cannot be held legally liable for their actions
 - B. They are at greater risk of injury because of their inexperience
 - C. They cannot be exposed to radiation without their parent's permission
 - D. They are at greater risk of radiation injury because their cells are reproducing more rapidly

4. An unregistered assistant may operate radiographic equipment under which of the following circumstances?
 - A. Under the direct supervision of an RVT or a licensed veterinarian
 - B. Under the direct supervision of a trained unregistered assistant
 - C. Under the indirect supervision of a licensed veterinarian
 - D. Under the indirect supervision of an RVT

5. Where should a radiation monitoring device be worn for routine radiography?
 - A. Under the apron at waist level
 - B. Under the apron at collar level
 - C. Outside the apron at waist level
 - D. Outside the apron at thyroid level

6. Which of the following statements describes the purpose of collimation?
 - A. It reduces the amount of scatter
 - B. It increases the amount of scatter
 - C. It increases the size of the primary beam.
 - D. It reduces the amount of kVp needed for exposure

7. Which of the following actions must a person who is in the x-ray room take at the time of exposure?
 - A. Stand in front of a protective barrier
 - B. Place their hands directly in the primary beam
 - C. Hold their breath while the exposure is being made.
 - D. Wear a protective apron of preferably 0.5mm lead-equivalent

8. Lead gloves are required to be worn to protect the operator from which of the following dangers when performing veterinary radiography?
 - A. Being bitten by the animal patient
 - B. Exposure to the primary beam
 - C. Contact with radiographic contrast media
 - D. Exposure to scatter radiation

9. Which of the following techniques should a veterinary radiographer use to increase radiation safety?
 - A. General anesthesia when total mobility and complete relaxation is required for accurate positioning
 - B. Chemical and mechanical restraints whenever possible to eliminate need for holding patient
 - C. Intensifying screens and/or fast film to reduce exposure time
 - D. All of the above

10. Why should leaded goggles be worn when restraining an animal patient for radiography?
 - A. To prevent contrast media from getting into the eyes

- B. To protect the lens from exposure to x-rays
 - C. To protect the cornea from scratches
 - D. To improve the operator's vision
11. What is the effect on the operator's exposure to radiation by increasing the distance between the operator and the source of radiation?
- A. Reduced by approximately the square of the distance.
 - B. Increased by approximately the square of the distance
 - C. Reduced by approximately a factor of double the distance
 - D. Increased by approximately a factor of double the distance
12. What is the purpose of cassette holders in large animal radiography?
- A. To keep the cassette from moving during exposure.
 - B. To prevent the patient from soiling the cassette
 - C. To reduce the assistant's exposure to radiation
 - D. To allow rapid change of film in the field.
13. Which of the following statements accurately describes appropriate radiation safety protocol?
- A. Anesthesia and restraint devices such as sandbags should be used only if manual restraint won't work
 - B. No individual should be employed or regularly used to hold animal patients during radiation exposures
 - C. During manual restraint, assistants should position themselves as close to the animal patient as possible.
 - D. Veterinary radiographers should restrain patients manually even if other restraint methods are available
14. Which of the following duties is a responsibility of the employing/supervising veterinarian?
- A. Ascertain that each veterinary radiographer demonstrates familiarity with radiation safety rules.
 - B. Assure that no individual stands in the path of the primary beam
 - C. Provide radiographers with personnel monitoring devices
 - D. All of the above
15. Which of the following statements describes a female radiographer's special risks?
- A. Female assistants should not inform their supervisors if they are pregnant to avoid being relieved of duty
 - B. The actual dose of radiation exposure to an embryo/fetus is greater than that received by the mother.
 - C. Her ability to bear children is very likely to be effected by occupational exposure within legal limits.
 - D. The embryo/fetus is most sensitive to radiation during the first three (3) months of pregnancy.

16. Which of the following statements is true regarding digital radiography?
- A. It is no more safe for the patient and the operator to be exposed to x-rays produced by digital radiography than by conventional radiography
 - B. Digital radiographs take longer to develop than standard radiographs
 - C. Digital radiography uses nano-technology to produce computerized images
 - D. The information required to be imprinted on standard, non-dental, radiographs cannot be imprinted on digital, non-dental, radiographs
17. Which of the following techniques is recommended when using digital radiography?
- A. Get as close to the patient as possible when positioning them for a radiograph
 - B. Use the adjustments in the computer to make corrections in exposure
 - C. Leave the film in the developer longer if the temperature is colder than normal
 - D. Open the collimator as wide as possible to get the largest view of the patient

ANSWERS:

- 1-D
- 2-A
- 3-D
- 4-A
- 5-D
- 6-A
- 7-D
- 8-D
- 9-D
- 10-B
- 11-A
- 12-C
- 13-B
- 14-D
- 15-D
- 16-A
- 17-B