True/False
Indicate whether the sentence or statement is true or false.

____ 1. Secondary radiation comes from scatter and leakage.
____ 2. Grids are considered a protection device.
____ 3. To reduce radiation exposure, you should stay as close to the tube as possible.
____ 4. Proper care of a lead apron would be to fold it and place it in the cabinet.
____ 5. Scatter radiation is produced in the patient.
____ 6. The fluoro timer makes you aware that 10 minutes of fluoro has passed.

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 7. Which of the following is (are) guidelines used to reduce personnel and/or patient dose in fluoroscopy
1. maximum table top intensity of 10 R/min
2. maximum SSD (source to skin distance) of 12 inches
3. minimum filtration of 2.5 mm Al equivalent
   a. 1 only  
   b. 1 and 2  
   c. 1 and 3  
   d. 1, 2 and 3

____ 8. Which of the following is (are) features of fluoroscopy equipment, designed to eliminate unnecessary radiation to patient and personnel
1. protective curtain
2. filtration
3. collimation
   a. 1 only  
   b. 1 and 2  
   c. 1 and 3  
   d. 1, 2, and 3

____ 9. Radiation dose to personnel is reduced by the following exposure cord guidelines:
1. exposure cords on fixed equipment must be very short
2. exposure cords on mobile equipment must be at least 6 feet long
3. exposure cords on fixed and mobile equipment should be very short
   a. 1 only  
   b. 1 and 2  
   c. 2 and 3  
   d. 1, 2 and 3

____ 10. Some patients, such as infants and children, are unable to stay in the necessary radiographic position and require assistance. If mechanical restraining devices cannot be used, who of the following is BEST suited to hold these patients
   a. floor nurse  
   b. transporter  
   c. friend or relative  
   d. student radiographer
11. If an individual received 45 mR while standing at 4 feet from a source of radiation for 2 minutes, which of the options listed below will most effectively reduce his or her radiation exposure?
   a. standing 4 feet from the source for 3 minutes
   b. standing 5 feet from the source for 1 minute
   c. standing 4 feet from the source for 2 minutes
   d. standing 6 feet from the source for 3 minutes

12. Primary radiation barriers must be at least how high
   a. 5 feet
   b. 6 feet
   c. 7 feet
   d. 8 feet

13. The protective control booth from which the radiographer makes the x-ray exposure is a
   a. primary barrier
   b. secondary barrier
   c. useful beam barrier
   d. remnant radiation barrier

14. What is the established fetal dose limit guideline for pregnant radiographers during the entire gestation period
   a. .1 rem
   b. .5 rem
   c. 5.0 rem
   d. 10.0 rem

15. If a radiographer is performing mobile radiography on a patient in their room and another patient is situated more than 6 feet away in an adjacent bed during the exposure, the radiographer should:
   a. have the patient in the adjacent bed hold their breath
   b. place a lead shield over patient in adjacent bed
   c. have the patient in the adjacent bed wear a radiation monitor
   d. leave patient in adjacent bed alone

16. Which are considered among the cardinal rules of radiation protection?
   1. increase exposure time
   2. increase distance
   3. increase shielding
   a. 1 and 2 only
   b. 2 and 3 only
   c. 1 and 3 only
   d. 1, 2, and 3

17. The bucky slot cover on a fluoroscopic machine is used to protect:
   a. the pregnant patient
   b. the radiographer
   c. the nurse
   d. the general public the pediatric patient

18. Protective gloves worn during fluoroscopic procedures should be lined with a minimum lead equivalent of:
   a. 0.25mm Pb
   b. 0.50mm Pb
   c. 1.0mm Pb
   d. 1.5mm Pb

19. The radiographer's occupational dose should be recorded in what units?
   a. roentgen
   b. curie
   c. rad
   d. rem

20. The dose used to calibrate x-ray equipment, called the "in air" dose is the:
   a. roentgen
   b. rad
   c. rem
   d. curie
21. Most of the radiographer's exposure is due to:
   a. leakage radiation  
   b. primary-beam radiation  
   c. scatter from the patient  
   d. off-focus radiation

22. What is the best definition of attenuation?
   a. the equal production of x-radiation in all directions  
   b. the heterogeneous composition of the x-ray beam  
   c. the loss of radiation as x rays traverse matter  
   d. the filtering out of low-energy x rays

23. Which of the following refers to a regular program of evaluation that ensures the proper functioning of x-ray equipment, thereby protecting both radiation workers and patients?
   a. sensitometry  
   b. densitometry  
   c. quality assurance  
   d. modulation transfer function

24. Radiation that passes through the tube housing in directions other than that of the useful beam is termed
   a. scattered radiation  
   b. secondary radiation  
   c. leakage radiation  
   d. remnant radiation

25. Which of the following are radiation protection measures that are appropriate for mobile radiography?
   1. the radiographer must be at least 6 feet from the patient and the x-ray tube during the exposure  
   2. the radiographer must announce in a loud voice that an exposure is about to be made and wait for personnel, visitors and patients to temporarily leave the area.  
   3. the radiographer must try to use the lowest kVp
   a. 1 and 2  
   b. 1 and 3  
   c. 2 and 3  
   d. 1, 2 and 3

26. Under what circumstances might a radiographer be required to wear two dosimeters?
   1. pregnancy  
   2. while performing UGI procedures  
   3. while performing mobile radiography
   a. 1 only  
   b. 2 only  
   c. 2 and 3 only  
   d. 1, 2 and 3

27. Protective devices, such as lead aprons, are designed to protect the technologist from
   1. scattered radiation  
   2. the primary beam  
   3. remnant radiation
   a. 1 only  
   b. 1 and 2  
   c. 1 and 3  
   d. 1, 2 and 3

28. A deadman switch
   a. will not move when activated  
   b. will quit when released  
   c. will kill people  
   d. will quit when pressed

29. Which of the following has the highest atomic number
   a. bone  
   b. lead  
   c. fat  
   d. air
30. The highest radiation intensity for fluoro is
   a. at 90 degrees from the incident beam
   b. at 12 degrees from the incident beam
   c. while using 2 mA
   d. 5R
RA202 Rad protection class two
Answer Section

TRUE/FALSE

1. ANS: T
2. ANS: F
3. ANS: F
4. ANS: F
5. ANS: T
6. ANS: F

MULTIPLE CHOICE

7. ANS: C
8. ANS: D
9. ANS: B
10. ANS: C
11. ANS: B
12. ANS: C
13. ANS: B
14. ANS: B
15. ANS: D
16. ANS: B
17. ANS: B
18. ANS: A
19. ANS: D
20. ANS: A
21. ANS: C
22. ANS: C
23. ANS: C
24. ANS: C
25. ANS: A
26. ANS: A
27. ANS: A
28. ANS: B
29. ANS: B
30. ANS: A