1. Which of the following is NOT a use for radioisotopes in medicine?
    a. sterilization
    b. bone repair
    c. therapy
    d. new drug testing

    Answer: B

2. Radiation, when applied to medical equipment, _____ the DNA of living organisms.
    a. kills
    b. disrupts
    c. severely damages
    d. burns

    Answer: C

3. To maintain cleanliness of sterilized equipment, it is kept in _____.
    a. an incubator
    b. a sterile saline solution
    c. a sealed container
    d. an air-tight bag

    Answer: D

4. Radioisotopes are used during research of new drugs to _____.
    a. trace the drug
    b. kill bacteria
    c. verify side-effects
    d. ensure stability

    Answer: A

5. Data from radioisotopes in new drug testing is used for _____.
    a. scientific studies
    b. approval
    c. future technology
    d. test control

    Answer: B

6. Medical imaging allows physician to rapidly _____ injuries.
    a. complete
    b. repair
    c. assess
    d. decrease

    Answer: C

7. X-rays are created by _____.
    a. high energy gamma sources
    b. large magnets
    c. radioactive particles
    d. electrical current

    Answer: D

8. Bones and empty spaces are easily identifiable using X-rays because of their _____.
    a. large differences in density
    b. absorption capabilities
    c. location in the body
    d. air spaces

    Answer: B

9. X-ray machines produce _____ amounts of radiation.
    a. large
    b. small
    c. background
    d. no

    Answer: B

10. Computed tomography (CT scan) uses what type of technology?
    a. X-ray
    b. gamma ray
    c. radioisotope decay
    d. fission

    Answer: A

11. Computed tomography (CT scan) is especially good for diagnosis of _____?
    a. Heart attack
    b. torn ligaments
    c. bone breaks
    d. cancer

    Answer: D

12. Magnetic resonance imaging (MRI) machines produce _____ amounts of radiation.
    a. average
    b. large
    c. no
    d. small

    Answer: C

13. Magnetic resonance imaging (MRI) is especially good for detailed images of _____.
    a. bone structure
    b. tendons and ligaments
    c. blood vessels and blood flow
    d. tumors

    Answer: B

14. Positive Emission Tomography (PET) is based on what principle?
    a. Radioisotope is absorbed in the targeted area.
    b. Radioactivity emits from only the targeted area.
    c. PET radiation is measured directly from source.
    d. High energy gamma sources work best.

    Answer: A

15. Positive emission tomography scans are commonly used for _____.
    a. cancer detection
    b. blood flow in heart muscle
    c. brain abnormalities
    d. all the above

    Answer: D

16. What type of scan can a positive emission tomography scan be combined with to provide detailed images of cancer spread?
    a. Single Photon Emission Tomography (SPECT)
    b. X-ray
    c. Computed Tomography (CT)
    d. Magnetic Resonance Imaging (MRI)

    Answer: C

17. Radiation is used in therapy because _____.
    a. it can be targeted in specific areas
    b. it is less expensive than other treatments
    c. in some cases, there are no other options
    d. none of the above

    Answer: A

18. _____ has a physician direct radiation beams.
    a. Co-60 saturation
    b. External radiation therapy
    c. Internal radiation therapy
    d. Radiation scanning

    Answer: B

19. During internal radiation therapy, _____ is (are) used to target specific areas.
    a. stable isotopes
    b. gamma rays
    c. beta radiation
    d. radionuclides

    Answer: D

20. The most commonly used medical isotope is _____.
    a. Co-60
    b. Mo-99
    c. Ir-192
    d. Tc-99m

    Answer: D

21. Advantages of using Tc-99m include which of the following:
    a. Low production costs
    b. Low effective dose
    c. Short half-life
    d. Abundant supply

    Answer: C

22. Mo-99 is created from _____.
    a. nuclear fission of U-235
    b. chemical reaction of Mo-100
    c. decay of nuclear reactor fuel
    d. separation from Tc-99m

    Answer: A

23. Mo-99 is separated from contaminants during production using _____.
    a. its decay properties
    b. physical force
    c. gamma capture
    d. chemical separation

    Answer: D

24. The half-life of Tc-99m is approximately _____.
    a. 6 hours
    b. 66 hours
    c. 6 days
    d. 6 minutes

    Answer: A

25. Tc-99m is typically separated from Mo-99 using?
    a. An acid solution
    b. A caustic solution
    c. a saline solution
    d. an organic solution

    Answer: C

26. The half-life of Mo-99 is approximately _____.
    a. 6 hours
    b. 66 minutes
    c. 6 days
    d. 66 hours

    Answer: D

27. The solution obtained from a Tc-99m generator is tested for _____ before use.
    a. U-235 activity
    b. pH
    c. Bacteria
    d. Mo-99 activity

    Answer: D

28. Gamma knife therapy typically uses _____ as a radioactive source.
    a. Co-60
    b. Tc-99m
    c. Cs-137
    d. none of the above

    Answer: A

29. Gamma knife therapy is used for cancer treatments because _____.
    a. it is the most precise treatment available
    b. gamma radiation can penetrate the tumor
    c. dose to surrounding tissue is not important
    d. the length of time for treatment is quick

    Answer: A

30. What is brachytherapy?
    a. Small dose of radiation over a short time
    b. Small dose of radiation over a long time
    c. Large dose of radiation over a short time
    d. Large dose of radiation over a long time

    Answer: C

31. Brachytherapy commonly uses which radioisotope?
    a. Co-60
    b. Ir-192
    c. Tc-99m
    d. Cs-137

    Answer: B

32. Brachytherapy is a form of _____.
    a. external radiation therapy
    b. gamma knife therapy
    c. intravenous blood therapy
    d. internal radiation therapy

    Answer: D

33. One of the primary regulators for medical isotope shipments is:
    a. Nuclear Regulatory Commission (NRC)
    b. United States Postal Service (USPS)
    c. Federal Aviation Administration (FAA)
    d. Department of Energy (DOE)

    Answer: A

34. Training requirements for medical isotope shipments is defined by the _____
    a. Nuclear Regulatory Commission (NRC)
    b. Department of Energy (DOE)
    c. United States Postal Service (USPS)
    d. Department of Transportation (DOT)

    Answer: D

35. Training for radioactive material shipping must cover which topic?
    a. Security Awareness
    b. Packaging Materials
    c. Shielding Requirements
    d. Dose Calculations

    Answer: A

36. Task specific training should be provided to _____.
    a. source custodians
    b. the radiological control officer
    c. mailroom attendants
    d. laboratory technicians

    Answer: D

37. Which of the following is the source custodian responsible for with regard to radioactive materials?
    a. Spill control
    b. Tracking
    c. Dose Assessments
    d. Safe handling practices

    Answer: D

38. A lost source should be reported to the _____.
    a. Radiological Control Officer
    b. Radiological Technician
    c. Laboratory Manager
    d. Security Chief

    Answer: A

39. Disposal of radioactive medical waste can include _____.
    a. dilution
    b. return to manufacturer
    c. destruction
    d. All the above

    Answer: D

40. I-131 is used to treat _____.
    a. lung cancer
    b. brain cancer
    c. breast cancer
    d. thyroid cancer

    Answer: D

41. Ir-192 is typically used to treat _____.
    a. lung cancer
    b. brain cancer
    c. breast cancer
    d. thyroid cancer

    Answer: C

42. Co-60 is most commonly used to treat _____.
    a. lung cancer
    b. brain cancer
    c. breast cancer
    d. thyroid cancer

    Answer: B