

**ALBERT EINSTEIN COLLEGE of MEDICINE**  
**DEPARTMENT of ENVIRONMENTAL HEALTH and SAFETY**

**Radiation Safety Refresher Quiz**

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Email: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_ Department: \_\_\_\_\_

Building and Room: \_\_\_\_\_ Phone Ext: \_\_\_\_\_

Please circle the correct answer.

1. Types of particulate radiation include:

- a. Gamma & X-Ray
- b. Gamma & Beta
- c. Alpha & Beta
- d. Beta & X-Ray

2. Types of photon radiation include:

- a. Gamma & X-Ray
- b. Gamma & Beta
- c. Alpha & Beta
- d. Beta & X-Ray

3. An example of a beta emitter that causes both an internal and external hazard is:

- a. H-3
- b. C-14
- c. P-32
- d. S-35

4. Which of the following type of radiation is the most penetrating?

- a. Alpha
- b. Beta
- c. Gamma
- d. Ultra Violet

5. Bremsstrahlung radiation can be avoided by:

- a. Shielding high energy beta radiation with Plexiglas
- b. Shielding high energy beta radiation with lead.
- c. Shielding gamma radiation with lead.
- d. Shielding X-Ray radiation with Plexiglass

6. REM is calculated by multiplying RAD dose (D) times:

- a. Becquerel (B)
- b. Curie (C)
- c. Roentgen (R)
- d. Quality Factor (Q)

7. The quality factor for most beta and gamma emitters is:
- 1
  - 5
  - 10
  - 20
8. The estimated dose received while flying from New York to Los Angeles is \_\_\_\_\_ mREM:
- 0.5
  - 2.0
  - 4.0
  - 6.0
9. The average annual dose from background radiation to the general public is \_\_\_\_\_ mREM.
- 50
  - 180
  - 620
  - 390
10. Biological effects occur when exposure to radiation exceeds \_\_\_\_\_ Rads over a short period of time.
- 10
  - 15
  - 25
  - 50
11. The goal of an ALARA program is to reduce exposures to \_\_\_\_\_% of the regulatory limits.
- 5
  - 10
  - 25
  - 50
12. The three protective measures for reducing exposure are:
- Time, Distance and Shielding
  - Dose, Distance and Shielding
  - Time, Dose and Shielding
  - Activity, Dose and Shielding
13. Radiation labeling of waste containers should include:
- Isotope, Activity and Dose Rate
  - Isotope, Activity and Date
  - Isotope, Weight and Date
  - Investigator, Isotope, and Date

14. Prior to using a survey meter to check for contamination you should:
- Check that batteries are fully charged
  - Check that the meter has been calibrated within the last year
  - Check that the meter responds to the presence of radiation
  - All of the above
15. The best detector choice when working with C-14, S-35, and P-32 is:
- Germanium Scintillator
  - Sodium Iodide Scintillator
  - Geiger Mueller Detector
  - Ionization Detector
16. A Sodium Iodide detector would be the best choice when monitoring for:
- P-32
  - H-3
  - I-125
  - All of the above
17. The only method to detect tritium is:
- With a Geiger Mueller detector
  - The wipe test method
  - With a sodium Iodide detector
  - With a germanium crystal
18. Wipe tests results should be recorded in:
- CPM
  - DPM
  - RAD
  - REM
19. If the Counting Efficiency for H-3 is 50% and the result of your wipe test is 100 cpm, what is the activity of the H-3 sample in dpm?
- 500 dpm
  - 200 dpm
  - 50 dpm
  - 2 dpm
20. Decayed waste must be held for \_\_\_\_\_ half-lives before it can be surveyed for disposal.
- 2
  - 5
  - 10
  - 20

Signature \_\_\_\_\_