

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

6. REM is calculated by multiplying RAD dose (D) times:
- Becquerel (B)
 - Curie (C)
 - Roentgen (R)
 - Quality Factor (Q)
7. The quality factor for most beta and gamma emitters is:
- 1
 - 5
 - 10
 - 20
8. Which unit of radiation is used for absorbed dose?
- The Curie
 - The RAD
 - The Roentgen
 - The Becquerel
9. Bioassay requirements dictate that a thyroid scan must be conducted when:
- Working with 100 μ Ci of Tritium (H-3) or more
 - Working with any amount of radioactive material
 - A radioactive material spill occurs
 - Working with a volatile form of I-125 in an amount greater than 1 mCi
10. Biological effects occur when exposure to radiation exceeds _____ Rads over a short period of time.
- 10
 - 25
 - 50
 - 75
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. High energy beta emitters should be shielded with:

- a. Lead
- b. Plexiglas
- c. Cement
- d. Wax

14. Prior to using a survey meter to check for contamination you should:

- a. Check that batteries are fully charged
- b. Check that the meter has been calibrated within the last year
- c. Check that the meter responds to the presence of radiation
- d. All of the above

15. The best detector choice when working with C-14, S-35, and P-32 is:

- a. Germanium Scintillator
- b. Sodium Iodide Scintillator
- c. Geiger Mueller Detector
- d. Ionization Detector

16. A Sodium Iodide detector would be the best choice when monitoring for:

- a. C-14
- b. P-32
- c. I-125
- d. All of the above

17. The only method to detect tritium is:

- a. With a Geiger Mueller detector
- b. The wipe test method
- c. With a sodium Iodide detector
- d. With a germanium crystal

18. Wipe tests results should be recorded in:

- a. CPM
- b. DPM
- c. RAD
- d. 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? **Formula:** $dpm = cpm/efficiency$

- a. 500 dpm
- b. 200 dpm
- c. 50 dpm
- d. 2 dpm

20. Decayed waste must be held for _____ half-lives before it can be surveyed for disposal.

- a. 2
- b. 5
- c. 10
- d. 20

Signature: _____

**Please return to James Harold, Forchheimer Building - room 800*