Part 16: UNITS OF RADIOACTIVITY AND RADIATION DOSE

1. Which of the following is/are equivalent to 1 mCi?

   a. 3.7×10^7 Bq
   b. 3.7×10^7 dis/sec
   c. 3.7×10^7 dis/min
   d. a and b only
   e. a and c only

2. Detector efficiency is defined as

   a. $\dfrac{\text{count rate}}{\text{disintegration rate}} \times 100\%$

   b. $\dfrac{\text{disintegration rate}}{\text{count rate}} \times 100\%$

   c. $\dfrac{\text{disintegration rate} \times \text{count rate}}{100\%}$

   d. none of the above

4. A ^{57}Co standard has a disintegration rate of 3.7×10^7 Bq. What is disintegration rate in disintegrations/sec?

   a. 3.7×10^4
   b. 3.7×10^7
   c. 3.7×10^{10}
   d. 3.7×10^{13}

4. A sample measures 100 mCi in a dose calibrator. How many GBq does this activity represent?

   a. 0.37
   b. 3.7
   c. 37.0
   d. 370

1. Which of the following relationships is/are correct? (Read all choices!)

a. 1 Rem = 100 Sv
b. 1 Sv = 100 Rems
c. 1 Rad = 100 Gy
d. 1 Gy = 100 Rads
e. a and c only
f. b and d only

6. Which ONE of the following statements is TRUE?

    a. There are 100 MBq in a TBq
    b. There are 10 TBq in a GBq
    c. A Bq is 1/1000 the activity of a MBq
    d. There are 1,000,000 MBq in a TBq

7. If a detector is 50% efficient, how many counts/sec should be detected for a 10 mCi standard?

    a. 3.7×10^{7}
    b. 3.7×10^{8}
    c. 1.85×10^{7}
    d. 1.85×10^{8}

8. Which of the following units does NOT represent an example of specific activity?

    a. mCi/mg
    b. kCi/μmole
    c. cpm/mmole
    d. dps/g
    e. c and d only

9. The Quality Factors for gamma rays, neutrons, and alpha particles, respectively are

    a. 1, 2, 3
    b. 1, 2, 5
    c. 1, 5, 10
    d. 1, 5, 20

10. Occupationally exposed individuals have an annual MPD to the lens of the eyes of 15 Rem. What is this absorbed dose in mSv?

    a. 1.5
    b. 15
    c. 150
    d. 1500