





Mixed practice on absorbed dose and dose equivalent.

<p>1. <i>Ans [500 μGy]</i></p> <p>A 0.2 kg lump of tissue receives 100 μJ of radiation. Calculate the absorbed dose.</p>	<p>2. <i>Ans [0.67 kg]</i></p> <p>A patient receives a chest X-Ray. The absorbed dose is 0.3 mGy. Calculate the mass of tissue which absorbed 50 μJ of radiation.</p>	<p>3. <i>Ans [0.04 Gy]</i></p> <p>A worker absorbs 0.8 J of energy into his left arm of mass 20 kg. Calculate the absorbed dose</p>
<p>4.</p> <p>State the units of one Gray (Gy)</p>	<p>5. <i>Ans [6x10⁻⁶ J]</i></p> <p>A nurse has a body mass of 60 kg. She receives an absorbed dose of 0.1 μGy. How much radioactive energy was absorbed by her body?</p>  <p style="text-align: center; font-size: small;">Absorbed dose in rads or grays</p>	<p>6. <i>Ans [300mSv]</i></p> <p>A patient receives an absorbed dose of 30 mGy from a beam of slow neutrons, radiation weighting factor 10. Calculate the equivalent dose the patient received.</p>
<p>7. <i>Ans [(a) 100 μSv, (b) 5 $\mu\text{Sv h}^{-1}$]</i></p> <p>A foot receives an absorbed dose of 100 μGy by radiation of weighting factor 1.</p> <p>(a) Calculate the equivalent dose the foot received.</p> <p>(b) If this foot received the radioactive dose over a period of 20 hours calculate the equivalent dose rate in $\mu\text{Sv h}^{-1}$</p> 	<p>8. <i>Ans [(a) 4 μSv, (b) 1.3 Gy, 1.95 μJ]</i></p> <p>A brain has a mass of 1.5 kg. It receives an equivalent dose rate of 2 $\mu\text{Sv h}^{-1}$.</p> <p>(a) Calculate the dose equivalent the brain receives if exposed to this radiation for 2 hours.</p> <p>(b) If the radiation weighting factor of the radiation is 3 find the absorbed dose.</p> <p>(c) Calculate the amount of energy the brain received during the two hours of exposure.</p>	<p>9. <i>Ans [60 μSv]</i></p> <p>A sample of body tissue is irradiated by two types of radiation:</p> <p>Radiation X radiation weighting factor = 10 Absorbed dose = 5 μGy Radiation Y radiation weighting factor = 5 Absorbed dose = 2 μGy</p> <p>Calculate the total equivalent dose received by the body tissue.</p>