

The Activity of a Source

1. Explain what is meant by the activity of a radioactive source.
2. What is the symbol for the activity of a radioactive source?
3. (a) What unit is used to measure the activity of a radioactive source?
(b) How is the unit defined?

Absorbed Dose

4. State and explain what is meant by absorbed dose
5. What is the symbol for absorbed dose?
6. (a) What is the unit for absorbed dose?
(b) How is the unit defined?

Weighting Factor

7. Explain what is meant by the weighting factor for radiation
8. (a) What is the symbol for the weighting factor?
(b) Why does the weighting factor for radiation not have a unit?

Equivalent Dose

9. Explain what is meant by equivalent dose.
10. What is the symbol of equivalent dose?
11. Give the relationship between equivalent dose, absorbed dose and weighting factor
12. What is the unit of equivalent dose?
13. What is the significance of equivalent dose?
14. A person receives an absorbed dose of $40\mu\text{Gy}$ from a radioactive source which emits alpha particles only. Calculate the equivalent dose received by the person.
15. A person receives an absorbed dose of $20\mu\text{Gy}$ from a radioactive source which emits beta particles only. Calculate the equivalent dose received by the person.
16. Calculate the dose equivalent received in a year by a worker in the nuclear industry who is subjected to the following emissions during the year.
 - $200\mu\text{Gy}$ from slow neutrons of quality factor 3
 - $50\mu\text{Gy}$ from gamma radiation of quality factor 1