

## CHEM 102 Review Guide – Chapter 4 RADIOACTIVITY

1. Radioactivity involves a change in the \_\_\_\_\_ of the atom, whereas chemical reactions involve \_\_\_\_\_.
2. The three forms of radiation are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. Of the 3 forms of radiation \_\_\_\_\_ is the most ionizing but least penetrating (it can be blocked by thin clothing or even by our skin); \_\_\_\_\_ penetrates matter the most but is the least ionizing.
4. Of the 3 forms of radiation \_\_\_\_\_ can be blocked by thick clothing.
5. Rank the following in terms of increasing annual radiation exposure:
  - \_\_\_\_\_ A person living near a nuclear power plant
  - \_\_\_\_\_ A person living in an average household in Massachusetts
  - \_\_\_\_\_ A person who had one gastro-intestinal x-ray
6. (a) Identify three benefits that we get from radiation.

(b) Give an example for each benefit cited in (a).

7. Give two examples of radioactive elements used as fuel in nuclear power plants. \_\_\_\_\_ and \_\_\_\_\_.

8. Give two reasons why a nuclear explosion (like that of an atomic bomb) is not possible in nuclear power plants.

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9. Give three uses of CAT scans.

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