Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8a (20 points) November 18, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 76 | 94 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Po-218 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of Re-187 by beta emission.
3. (4 points) A certain isotope has a half life of 25.5 min. How much of a 64.0 mg sample will remain after 102 minutes?
4. (2 points) What are 2 applications of nuclear chemistry?

Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8b (20 points) November 18, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 44 | 56 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Fr-221 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of Bi-213 by beta emission.
3. (4 points) A certain isotope has a half life of 25.5 min. How much of a 128 mg sample will remain after 102 minutes?
4. (2 points) What are 2 applications of nuclear chemistry?

Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8c (20 points) November 19, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 66 | 78 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Pa-233 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of Pb-211 by beta emission.
3. (4 points) A certain isotope has a half life of 25.5 min. How long will it take for a 512 g sample to decay to 16 g?
4. (2 points) What are 2 applications of nuclear chemistry?

Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8d (20 points) November 19, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 97 | 154 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Ac-225 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of Tl-208 (thallium, not titanium) by beta emission.
3. (4 points) A certain isotope has a half life of 25.5 min. How long will it take for a 512 g sample to decay to 32 g?
4. (2 points) What are 2 applications of nuclear chemistry?

Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8e (20 points) November 24, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 93 | 147 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Ac-227 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of Pa-233 by beta emission.
3. (4 points) A 512 gram sample of a certain isotope decays to 8 grams in 192 minutes. What is the half life of the isotope?
4. (2 points) What are 2 applications of nuclear chemistry?

Chemistry 115 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Cary Willard

Quiz 8f (20 points) November 24, 2009

1. (6 points) For each of the following atoms fill in the missing information

|  |  |  |  |
| --- | --- | --- | --- |
| Isotopic elemental symbols | Elemental symbol | Number of protons | Number of neutrons |
|  |  |  |  |
|  |  | 68 | 146 |

1. (4 points) Write a correct nuclear equation for the decay of an atom of Fr-221 by alpha emission.
2. (4 points) Write a correct nuclear equation for the decay of an atom of La-140 by beta emission.
3. (4 points) A 512 gram sample of a certain isotope decays to 4 grams in 56 minutes. What is the half life of the isotope?
4. (2 points) What are 2 applications of nuclear chemistry?