 There is no actual difference between the two reactions except that a nuclear react radiation while a chemical reaction emits heat. In a chemical reaction, elements are created and destroyed while all elements are a nuclear reaction. 	
a nuclear reaction. Entropy is increased in a nuclear reaction while it is decreased in a chemical reaction. In a nuclear reaction, the elements change identities while in a chemical reaction the	conserved in on.
Entropy is increased in a chemical reaction while it is decreased in a nuclear reaction.	on.
Question 2 The key requirement for a chain reaction is that	1.5 pt
the uranium hexafluoride fuel must be in its solid state.the entropy of the system must decrease.	
 each event must produce more than one particle capable of initiating subsequent experience. the number of beta particles emitted must be equal to or greater than the number of particles emitted. 	
Question 3	1.5 pt
Which component of a nuclear power plant is responsible for controlling the reaction by absorbing neutrons?	fission
reactorsteam generator	
coolantcontrol rods	
Question 4	1.5 pt
An explosion at a Chernobyl power plant caused radioactive material to spre the air and land leading to increased cancer risks for nearby people. What is explanation for the cause of that explosion?	
Hydrogen gas igniting.Chain reaction of the nuclear fuel.	
 Pressure build-up of steam inside the plant. Sparks caused when the nuclear reaction heated up, melted the reactor core, and plastic on the electrical wiring nearby. 	melted the
Question 5	1.5 pt
Which of the following characteristics apply to fusion but NOT fission? Radiation is emitted during the process.	
 Neutrons are required to continue the chain reaction. A process that is used to generate electrical power. Involves transmutation of elements. 	
O High temperature is required to initiate the process.	
Question 6 How many protons, neutrons, and electrons respectively are in a neutral atom.	1.5 pt m of iron-55
26, 29, 2955, 26, 55	
29, 26, 2926, 29, 26	
Question 7	1.5 pt
In a nuclear power plant, heat created by is used to generate steam drives a turbine that produces electricity. An example of this type of reaction nuclear fission,	
nuclear fission,	
onuclear fission, ${}^{2}H + {}^{3}H \longrightarrow {}^{4}He + {}^{1}n$ onuclear fusion,	
nuclear fusion, 235U + ¹n → 142Ba + 91Kr + 3¹n	
Question 8 Identify the missing isotope in the nuclear reaction below:	1.5 pt
$? \longrightarrow {}^{14}_{7}N + {}^{0}_{-1}\beta$ $\bigcirc {}^{14}_{6}O$	
$egin{array}{cccccccccccccccccccccccccccccccccccc$	
Question 9	1.5 pt
When 131 I emits a $oldsymbol{eta}$ particle, what nuclide is produced?	
 127Sb 131Te 130Te 	
○ ¹³¹ Xe ○ ¹³⁰ I	
Question 10	1.5 pt
A nuclide undergoes α decay and forms ¹¹⁰ I. What is the nuclide? O ¹¹⁴ I O ¹¹⁰ Te	
O ¹¹⁴ Cs O ¹¹⁰ Xe O ¹¹² Cs	
Question 11	1.5 pt
O-15 decays by positron emission. What is the product of this decay?	
$ \begin{array}{c c} & 14 \\ \hline & 15 \\ \hline & 15 \\ \hline & 15 \\ \hline & 15 \\ \hline & 9 \\ \end{array} $	
\bigcirc None of the other answer choices are correct. $\bigcirc \ ^{11}_6 C$	
Question 12	1.5 pt
Which of the following types of radiation has the greatest penetrating ability? \circ γ	
\bigcirc β \bigcirc All of these types of radiation have the same penetrating ability.	
$\bigcirc \alpha$	
Question 13	1.5 pt
 Gamma radiation is typically considered the most dangerous form of radiation it is the only form of ionizing radiation. it can penetrate most substances, and, therefore, is very difficult to shield against. 	on because
it is the only form of radiation that can affect organic molecules.	
it typically generates further nuclear decay.	gerous when
 it typically generates further nuclear decay. This is a trick question. Gamma radiation is not actually considered to be very dang compared to other forms of radiation. 	
 This is a trick question. Gamma radiation is not actually considered to be very dang compared to other forms of radiation. Question 14 What is the neutron : proton ratio for the nucleus ¹⁶/₈O? Determine where this 	1.5 pt s nucleus lies
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This is a trick question. Gamma radiation is not actually considered to be very dang compared to other forms of radiation. Question 14 What is the neutron: proton ratio for the nucleus \$\frac{16}{8}O\$? Determine where this in relation to the band of stability. 1:1, outside 1:2, outside 1:2, within 2:1, outside	<u> </u>
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This is a trick question. Gamma radiation is not actually considered to be very dance compared to other forms of radiation. Question 14 What is the neutron: proton ratio for the nucleus \$\frac{16}{8}O?\$ Determine where this in relation to the band of stability. 1:1, outside 1:2, outside 1:2, within 2:1, outside 1:1, within 2:1, within Why does the band of stability curve upward at high atomic numbers? If we have too many protons, not enough electrons will be orbiting the atom to keen neutral overall. Excess protons are required to help keep the neutrons from sticking together as ne no charge. Atoms with high atomic numbers have a large number of electrons orbiting the nucleus to keep it their orbit. Excess neutrons are required due to the repulsion between the protons. Question 16 Which type of nuclear decay is the following radioactive isotope likely to und \$\frac{9}{2}He\$ positron emission or electron capture This isotope is already stable and will not undergo any type of nuclear decay. alpha decay beta decay	1.5 pt 1.5 pt 1.5 pt
This is a trick question. Gamma radiation is not actually considered to be very dang compared to other forms of radiation. Question 14 What is the neutron: proton ratio for the nucleus \(\frac{1}{6} O ? \) Determine where this in relation to the band of stability. 1:1, outside 1:2, outside 1:2, outside 1:1, within 2:1, within 2:1, within 2:1, within Cuestion 15 Why does the band of stability curve upward at high atomic numbers? If we have too many protons, not enough electrons will be orbiting the atom to keep neutral overall. Excess protons are required to help keep the neutrons from sticking together as ne no charge. Atoms with high atomic numbers have a large number of electrons orbiting the nucleur concessed number of electrons requires a lot of extra mass in the nucleus to keep the retrievoit. Excess neutrons are required due to the repulsion between the protons. Question 16 Which type of nuclear decay is the following radioactive isotope likely to und \(\frac{6}{2}He \) positron emission or electron capture This isotope is already stable and will not undergo any type of nuclear decay. alpha decay beta decay Question 17 The half-life of radon-222 is 3.824 days. After what time will one-fourth of a go of radon-222 remain? 7.648 days 4.736 days	1.5 pt 1.5 pt 1.5 pt
This is a trick question. Gamma radiation is not actually considered to be very dang compared to other forms of radiation. Question 14 What is the neutron: proton ratio for the nucleus \(\frac{1}{8} O \)? Determine where this in relation to the band of stability. 1:1. outside 1:2. outside 1:2. within 2:1. within 2:1. within 2:1. within Checks protons are required to help keep the neutrons from sticking together as ne no charge. Alons with high atomic numbers have a large number of electrons orbiting the nucleus to keep their orbit. Excess neutrons are required due to the repulsion between the protons. Question 16 Which type of nuclear decay is the following radioactive isotope likely to und \(\frac{6}{2} He \) positron emission or electron capture This isotope is already stable and will not undergo any type of nuclear decay. alpha decay Deta decay Question 17 The half-life of radon-222 is 3.824 days. After what time will one-fourth of a sof radon-222 remain? 7.648 days	1.5 pt 1.5 pt 1.5 pt
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Cluestion 14 What is the neutron: proton ratio for the nucleus \$\frac{4}{9}O? Determine where this in relation to the band of stability. 1:1, outside 1:2, outside 1:2, outside 1:2, within 2:1, within 2:1, within 3:11, within 4:11, within 5:11, within 6:12, outside 1:2, within 1:11, within 1:12, outside 1:2, within 1:12, within 1:13, within 1:14, within 1:15, within 1:15, within 1:16, within 1:17, within 1:18, within 1:19, within 1:19, within 1:19, within 1:10, with	1.5 pt
Cuestion 14 What is the neutron : proton ratio for the nucleus \$\frac{1}{2}\$O? Determine where this in relation to the band of stability. 1.1, outside 1.2, outside 1.2, outside 1.2, within 2.1, within 2.2, within 2.1, within 2.2, within 2.2, within 2.3, within 2.4, within 2.5, within Cuestion 15 Why does the band of stability curve upward at high atomic numbers? If we have too many protons, not enough electrons will be orbiting the utern to keep neutron breath of the protons are required to help keep the neutrons from sticking together as an enchange. Alone with high atomic numbers have a large number of electrons orbiting the ruc increased number of electrons requires a lot of extra mass in the nucleus to keep it their orbit. Excess neutrons are required due to the repulsion between the protons. Question 16 Which type of nuclear decay is the following radioactive isotope likely to und \$\frac{2}{3}He\$ position emission or electron capture This isotope is already stable and will not undergo any type of nuclear decay. alpha decay beta decay Question 17 The half-life of radion-222 is 3.824 days. After what time will one-fourth of a go of radion-222 remain? 7 648 days 9 7 648 days 5.736 days 9 550 days Question 18 Calculate the time required for the activity of a 9.0 mCl cobalt-60 source to direct the direct of the protons are required for the activity of a 9.0 mCl cobalt-60 source to direct the direct of the protons are required for the activity of a 9.0 mCl cobalt-60 source to direct the direct of the protons are required for the activity of a 9.0 mCl cobalt-60 source to direct the final file of cobalt-60 is 5.28 years. 5.2 months Guestion 19 Iridium-192 is one radioisotope used in brachytherapy in which a radioactive place in right in the file of cobalt-60 source to direct the file of the righ	1.5 pt
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Cuestion 14 What is the neutron: proton ratio for the nucleus \$^{14}_{14}O7\$ Determine where this in clustion to the band of stability. 1:1, outside 1:2, which 2:1, which 2:1, which 2:1, which 3:1, which 3:1, which 3:1, which 4:1, which 3:1, which 4:1, which 5:1, which 5:1, which 5:1, which 6:1, which 6:1, which 7:1, which 7:1, which 7:1, which 8:1, which 8:1, which 9:1, which 9:1	1.5 pt ergo? 1.5 pt ergo? 1.5 pt ergo amount 1.5 pt ergo amount 1.5 pt ergo and a higher age to 1.5 pt
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