Nuclear Chemistry

CHEM

Name_____ Class_____ Date_____

1 The **main function** of a **coolant** in a nuclear fission reactor is to

A slow down the speed of the neutrons
B absorb energy produced by the reaction
C shield the wall of the reactor from radiation damage
D adjust the number of neutrons available for reaction

2 Which two substances are most commonly used for **shielding** in a nuclear reactor?

A water and heavy water
B beryllium and graphite
C molten sodium and molten lithium
D steel and high-density concrete

3 Which statement best describes what happens in a **fission reaction**?

A Heavy nuclei split into lighter nuclei

4 The **half-life** of ^{131}I is 8.07 days. What **fraction** of a sample of ^{131}I **remains** after 24.21 days?

5

7

A proton → electron → alpha particle
B proton → alpha particle → electron
C electron → proton → alpha particle
D alpha particle → electron → proton

original radioactive substance remains after **10 minutes**?

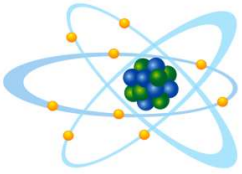
A ½
B ¼
C ⅛
D 1/16

9 Which reaction **represents natural nuclear decay**?

A $H^+ + OH^- \rightarrow H_2O$
B $KClO_3 \rightarrow K^+ + ClO_3^-$
C $^{235}_{92}U \rightarrow {}^{4}_{2}He + {}^{231}_{90}Th$
D $^{14}_{7}N + {}^{4}_{2}He \rightarrow {}^{17}_{8}O + {}^{1}_{1}H$

10 The **spontaneous decay** of an **atom** is called

A ionization
B crystallization
C combustion
D transmutation



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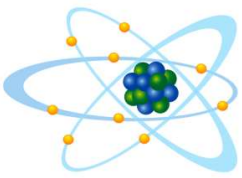

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