PRACTICE TEST ANSWER KEY
HS MISA

MCAP Maryland Comprehensive Assessment Program

Item Number	Key	Evidence Statements
1	A	**HS-PS1-2/2.a.ii** Students identify and describe the evidence to construct the explanation, including: identification that the number and types of atoms are the same both before and after a reaction.
2	C	**HS-PS1-2/1.a.ii** Students construct an explanation of the outcome of the given reaction, including: the numbers and types of bonds (i.e., ionic, covalent) that each atom forms, as determined by the outermost (valence) electron states and the electronegativity.
3	A, B	**HS-PS1-2/3.b** In the explanation, students describe the causal relationship between the observable macroscopic patterns of reactivity of elements in the periodic table and the patterns of outermost electrons for each atom and its relative electronegativity.
4	D, E	**HS-PS1-2/4.a** Given new evidence or context, students construct a revised or expanded explanation about the outcome of a chemical reaction and justify the revision.
5	A	**HS-PS1-5/2.a.ii** Students identify and describe evidence to construct the explanation, including: evidence of a pattern that increases in temperature usually increase the reaction rate, and vice versa.
6	CR-2	**HS-PS1-5/3.a.iii** Students use and describe the following chain of reasoning that integrates evidence, facts, and scientific principles to construct the explanation: since temperature is a measure of average kinetic energy, a higher temperature means that molecular collisions will, on average, be more likely to break bonds and form new bonds.
7	A	**HS-LS2-5/2.a.ii** Students describe relationships between components of their model, including: the role of storing carbon in organisms (in the form of carbon-containing compounds) as part of the carbon cycle.
8	C	**HS-LS2-5/1.a.i** Students use evidence to develop a model in which they identify and describe the relevant components, including: the inputs and outputs of photosynthesis.
9	B	**HS-LS2-5/1.a.iii** Students use evidence to develop a model in which they identify and describe the relevant components, including: the biosphere, atmosphere, hydrosphere, and geosphere.
10	A	**HS-LS2-5/3.b** Students make a distinction between the model's simulation and the actual cycling of carbon via photosynthesis and cellular respiration.
11	C	**HS-ESS2-6/2.a.ii** In the model, students represent and describe the following relationships between components of the system, including: the relative amount of and the rate at which carbon is transferred between spheres.
12	CR-4	**HS-ESS2-6/3** Students use the model to explicitly identify the conservation of matter as carbon cycles through various components of Earth's systems. Students identify the limitations of the model in accounting for all of Earth's carbon.

☐ = Written response.