

Review of First Quarter Standards
(from released STAR questions)

- 1) In order to advance to the level of a theory, a hypothesis should be
A obviously accepted by most people.
B a fully functional experiment.
C in alignment with past theories.
D repeatedly confirmed by experimentation.
- 2) Which statement *best* describes the density of an atom's nucleus?
A The nucleus occupies most of the atom's volume but contains little of its mass.
B The nucleus occupies very little of the atom's volume and contains little of its mass.
C The nucleus occupies most of the atom's volume and contains most of its mass.
D The nucleus occupies very little of the atom's volume but contains most of its mass.
- 3) Why are enormous amounts of energy required to separate a nucleus into its component protons and neutrons even though the protons in the nucleus repel each other?
A The force of the protons repelling each other is small compared to the attraction of the neutrons to each other.
B The electrostatic forces acting between other atoms lowers the force of repulsion of the protons.
C The interactions between neutrons and electrons neutralize the repulsive forces between the protons.
D The forces holding the nucleus together are much stronger than the repulsion between the protons.
- 4) A 2-cm-thick piece of cardboard placed over a radiation source would be *most* effective in protecting against which type of radiation?
A alpha **B** beta **C** gamma **D** x-ray
- 5) When cations and anions join, they form what kind of chemical bond?
A ionic **B** hydrogen **C** metallic **D** covalent
- 6) Elements found in column 2 of the periodic table are called
A alkaline metals **B** alkaline earth metals.
C transitions elements **D** halogens
- 7) What is the equivalent of 423 kelvin in degrees Celsius?
A 223 °C **B** 23 °C **C** 150 °C **D** 696 °C
- 8) How many moles of carbon-12 are contained in exactly 6 grams of carbon-12?
A 0.5mole **B** 20 .moles **C** 3.01×10^{23} moles **D** 6.02×10^{23} moles
- 9) How many atoms are contained in 97.6 g of platinum? [average atomic mass 195.08amu]
A 5.16×10^{30} **B** 3.01×10^{23} **C** 1.20×10^{24} **D** 1.10×10^{28}
- 10) How many moles of CH are contained in 96.0 grams of CH₄? [C=12.0 amu H=1.008 amu]
A 3.0 moles **B** 6.0 moles **C** 12.0 moles **D** 16.0 moles
- 11) How many moles of chlorine gas are contained in 9.02×10^{23} molecules?
A 1.5 moles **B** 2.0 moles **C** 6.02 moles **D** 9.03 moles

1D 2D 3D 4A 5A 6B 7C 8A 9B 10B 11A
