**Jinsung Bach**

**\*Note: All Questions Are Short Answer**

**Round 1**

**Toss-Up**

1. CHEMISTRY: Which element has the highest melting point?

ANSWER: Tungsten

**Bonus**

CHEMISTRY: What process describes the movement of water down a potential gradient?

ANSWER: Osmosis

**Toss-Up**

1. BIOLOGY: Place the following terms in the correct order from least specificity to most specificity: Kingdom, Domain, Class, Genus, Order

ANSWER: Genus, Order, Class, Kingdom, Domain

**Bonus**

BIOLOGY: Which two domains of life consist entirely of prokaryotes?

ANSWER: Domain Bacteria and Domain Archaea (accept Bacteria and Archaea)

**Toss-Up**

1. BIOLOGY: What is the mechanism that slows the process that creates a product when an excess of that product is present?

ANSWER: Negative feedback

**Bonus**

BIOLOGY: What term describes the structural change in a macromolecule caused by extreme conditions?

ANSWER: Denaturation

**Toss-Up**

1. BIOLOGY: What is the process by which a signal on a cell’s surface is converted to a specific cellular response in a series of steps?

ANSWER: signal transduction pathway

**Bonus**

BIOLOGY: What are a physical or chemical agent that induces mutations in a living organism?

ANSWER: mutagen

**Toss-Up**

1. PHYSICS: What law of motion states that an object at rest will remain at rest unless compelled to do so by an outside force?

ANSWER: Newton’s Second Law of Motion (accept second law of motion, second law)

**Bonus**

PHYSICS: What type of collision occurs when there is no net conversion of kinetic energy into other forms?

ANSWER: Elastic collision

**Toss-Up**

1. BIOLOGY: What condition is marked by more than two sets of homologous chromosomes?

ANSWER: polyploidy

**Bonus**

BIOLOGY: What genetic disease is marked by trisomy of chromosome 21?

ANSWER: Down Syndrome

**Toss-Up**

1. BIOLOGY: What law states that each pair of alleles segregates into gametes independently of the pair of alleles for any other gene/

ANSWER: Law of Independent Assortment

**Bonus**

BIOLOGY: In what type of dominance are both phenotypes expressed for a specific gene?

ANSWER: codominance

**Toss-Up**

1. CHEMISTRY: Four atoms covalently bonded to a central atom have what type of structure?

ANSWER: tetrahedral

**Bonus**

CHEMISTRY: What element is produced in alpha decay?

ANSWER: helium

**Toss-Up**

1. BIOLOGY: What principle states that the frequencies of alleles and genotypes in a population will remain constant from generation to generation, provided that only Mendelian segregation and recombination of alleles are at work?

ANSWER: Hardy-Weinberg principle

**Bonus**

BIOLOGY: Which form of light microscopy involves tagging the specimen with fluorescent dyes or antibodies?

ANSWER: Fluorescent microscopy

**Toss-Up**

1. CHEMISTRY: What is a term that describes the weakly charged regions of positive and negative charge that can occur when atoms and molecules are in close relation to each other?

ANSWER: Van der Waals interactions

**Bonus**

CHEMISTRY: What term describes the phenomenon where hydrogen bonds hold water molecules together?

ANSWER: cohesion

**Toss-Up**

**Bonus**