IMSANITY 2
January 14, 2012

-ROUND 10-

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Tossups

(1) Dühring's Rule describes a constant ratio between the temperatures and values for this quantity for two solutions. The Antoine Equation can be used to approximate this value for water, and the logarithm of this quantity is inversely proportional to temperature by the Clausius-Clapeyron Equation. Raoult's Law states that the total amount of this quantity is equal to the sum of the mole fractions of each component in solution times that compound's value for this quantity. For ten points, name this quantity, which, when equal to atmospheric pressure, causes a liquid to boil.

ANSWER: vapor pressure

(2) Its southern school emphasized the sudden enlightenment of its leader, but it perished in the eighth century, and its Obuku school was derived from the Jodo school. Its Soto sect was founded by Dogen and venerates a collection of works called the Shobogenzo, and differs from another school based on methods of attaining satori, or enlightenment; that other school is called Rinzai. The "Bloodstream" and "Wake-up" sermons were first said to be given by one of its founders after hearing the "Flower" sermon. For ten points, name this philosophical branch of Buddhism, brought to China by Bodhidharma, which emphasizes the use of paradoxical koans.

ANSWER: Zen Buddhism (or Chan Buddhism; prompt on "Buddhism" before mentioned)

(3) This polity's expansion was halted at the Battle of the Maule River, and it was divided into northeast, northwest, southwest, and southeast, giving it a name meaning "Four United Provinces." Its forced labor system was called the mita system, and its ruler was called the Sapa. The Battle of Cajamarca resulted from confusion over how to read a Bible since this empire had a writing system of knotted strings called quipu. Although Huascar lost the War of the Two Brothers, he took power after the ruler was taken hostage and later suffocated. For ten points, name this empire led by Atahualpa that was overthrown by Francisco Pizarro.

ANSWER: Incan empire

(4) The protagonist of one of this author's novels believes in the importance of her husband's unfinished treatise, "The Key to All Mythologies." One of this writer's novels focuses on the title character's love triangle with Arthur Donnithurne and Hetty Sorrel; that protagonist eventually marries Dinah Morris after Hetty dies. Another work by this author chronicles Godfrey Cass's biological golden-haired daughter, Eppie, and her choice to be with a weaver of Raveloe. In yet another of her novels, Dorothea Brooke marries Will Ladislaw after her previous husband Edward Casaubon dies. For ten points, name this author of *Adam Bede*, *The Mill on the Floss*, *Silas Marner*, and *Middlemarch*.

ANSWER: George Eliot (or Mary Anne Evans)

(5) A piano quartet in E-flat was the last in a series of works during this composer's "Year of Chamber Music". A three-bar passage called Sphinxes is often omitted from between the eighth and ninth of the twenty movements of this composer's *Carnaval*. Other famous pieces for piano solo by this composer include *Am Kamin* and *Träumerei*, which are two of the thirteen pieces from his "Scenes from Childhood". His witnessing of a cardinal's elevation at the Cologne Cathedral inspired the fourth movement of his *Rhenish Symphony*. For ten points, name this husband of Clara Wieck and Romantic composer whose first symphony is the *Spring Symphony*.

ANSWER: Robert Schumann

(6) One section in this work described the heroism that came with McGloin's death. Another describes a boy who buys beer, not bread, and twenty out of forty-eight boys who had never walked five minutes to see the Brooklyn Bridge. Pictures include "5 Cents A Spot", "The Slide that Was the Children's Only Playground", and "Bandit's Roost", and the final chapters of this work deal with "What Has Been Done" and "How the Case Stands", concluding with a workable plan of action. For ten points, name this photo-journalistic exposure of the tenements written by Jacob Riis.

ANSWER: How the Other Half Lives

(7) This artist depicted a British officer at the Battle of Jersey dying from a gunshot wound and a member of Parliament collapsing while addressing the House of Lords. In addition to depicting the demises of Major Peirson and the Earl of Chatham, this artist created a portrait of Paul Revere holding a silver teapot. He portrayed an adolescent at a desk with a leashed rodent in his *Boy with a Squirrel*. In another of his works, a figure wielding a harpoon attempts to ward off an animal charging a nude, overboard figure as two mates attempt to pull him from Havana harbor. For ten points, name this American painter of *Watson and the Shark*.

ANSWER: John Singleton Copley

(8) In one work by this author, the reclusive Paul Rayment admits his feelings for Marijana Jokik when forced to do so by the titular Australian writer of *The House on Eccles Street*. In addition to *Slow Man* and *Elizabeth Costello*, he wrote about Susan Barton's accounts of Friday and Robinson Crusoe in *Foe*. He was the first person to win two Booker prizes, one for a work in which David Lurie seduces a student, and another in which a hare-lipped gardener escapes from Cape Town, a farm, a work camp, and a rehabilitation camp. For ten points, name this South African author of *Disgrace* and *The Life and Times of Michael K.*

ANSWER: John Maxwell Coetzee

(9) Synthesis of vitamin C occurs in the Reichstein process, whose first step involves the reduction of this compound under a nickel catalyst to sorbitol. In the Embden-Meyerhof pathway, the enzyme hexokinase phosphorylates this molecule in its first step. The Calvin Cycle produces glyceraldehyde-3-phosphate, the combination of two of which can form this molecule. The presence of this molecule inhibits the lac operon, which breaks down the disaccharide lactose into galactose and this molecule. Table sugar, or sucrose, is a disaccharide composed of fructose and this molecule. For ten points, name this monosaccharide with formula $C_6H_{12}O_6$ whose levels in the blood are regulated by insulin and which is broken down in metabolism.

ANSWER: glucose

(10) During this war, Prince Menshikov failed to stop a landing by Armand de Saint-Arnaud and Lord Raglan. The Battle of Oltenitza was the first in this war, and the fortress at Kars fell near its end. The Count of Cavour sent troops of Piedmont-Sardinia to join this war to raise support for Italian unification. The Russian fleet won a victory at the Battle of Sinope after sparking the war by violating the London Straits Convention. The Battles of Inkerman and Balaclava failed to relieve Russian forces in the namesake theatre of this war. The Siege of Sevastopol occurred during, for ten points, this war between Russia and an alliance of British, French, and Ottomans that featured Florence Nightingale and the Charge of the Light Brigade.

ANSWER: Crimean War

(11) Upon arrival at a merchant's home, one of the two protagonists of this opera gives the other the intimate nickname "Quinquin". The chiming of a clock thirteen times and a stupid hairdresser cause another character to muse on her old age. That character's lover disguises himself twice as a chambermaid named Mariandel, which helps him trap the scandalous Baron Ochs. A trio in the final act sees the Marschallin gracefully release her younger lover after he had fallen in love with Sophie. For ten points, name this opera in which Octavian is chosen to fulfill the title role and deliver a silver engagement flower, written by Richard Strauss.

ANSWER: Der Rosenkavalier (or The Knight of the Rose)

(12) A 1986 R.E.M. song of this name declares that "I know you don't love that guy cause I can see right through you" before declaring to be the title figure. The 2011 album Doggumentary features a duet of this name by Snoop Dogg and Willie Nelson. The song *Crank That* instructs the listener to watch the singer perform this action after he "crank[s] that soulja boy". A song of this name by Five For Fighting repeats the line "it's not easy to be me" and appeals "don't be naive/ even heroes have the right to bleed". For ten points, Three Doors Down asked "if I go crazy then will you still call me" this name in its song *Kryptonite*.

ANSWER: Superman

(13) The quasi-biennial oscillation exists between easterly and westerly winds in this region, and the reason why polar air has higher concentrations of ozone than tropical air in this region can be explained by the Brewer-Dobson circulation. It is not the thermosphere, but air temperature actually rises with increases in altitude in this region, a phenomenon known as thermal inversion. The hole in the ozone layer over Antarctica is present in this layer, and the tropopause separates this layer from the lowest layer of the atmosphere. For ten points, name this layer of the atmosphere, the second highest, located between the troposphere and mesosphere.

ANSWER: stratosphere

(14) The unofficial song of this group is *Happy Days are Here Again*, and though not part of this group, Mugwumps were supporters of one member of this group. This group was accused of "stupidmandering" in the 1990s. One member of this group invented the Rose Garden Strategy. The "boll weevil" members of this group were opposed to the Civil Rights movement, and "Bourbon" members of this group opposed bimetallism. Copperheads were members of this group who supported a negotiated peace with the South. Mottos used by members of this group include "Every Man a King," "It's the Economy, Stupid," and "Yes We Can." For ten points, name this party whose members included James Buchanan, Jimmy Carter, and Barack Obama.

ANSWER: Democratic Party

(15) In this work, a soldier is about to shoot someone until his lover covers the mouth of his rifle with her hand. When the Friends of the ABC give the main character orders to kill the man who has hunted him for years, the protagonist lets him go free. That man later commits suicide by drowning in the Seine. After the Bishop of Digne gives the protagonist candlesticks and another chance at life, he adopts the illegitimate daughter of Fantine from the Thénardiers and saves Cossette's lover by bringing Marius away from the barricades. For ten points, name this book about Inspector Javert and the criminal Jean Valjean, a work by Victor Hugo.

ANSWER: Les Misérables

(16) He traveled with Shu to convince Tefnut to come back to Egypt. His consort, who was the guardian of the fire lake Duat, was called Astenuu, and his wife or daughter redrew boundary lines each year after the annual flood and was called Seshat. By gambling with Khonsu, he won five days that were added to the calendar to help Nut have children, and he helped bring back Osiris so that Horus could be conceived. He arbitrated several battles between Egyptian gods, and recorded the outcome of the weighing of the heart. For ten points, name this Ibis-headed god of writing.

ANSWER: Thoth

(17) In electrodynamics, this term can be used for a vector quantity such that the curl of that vector quantity is the magnetic field. In thermodynamics, this term describes a scalar function that commonly defines the internal energy of a system. In electromagnetism, its electric form is a scalar quantity measured in joules per coulomb, also known as voltage, or the amount of energy per unit charge. For ten points, identify this term that describes a form of energy used to restore objects to lower energy configurations, coming in spring and gravitational varieties.

ANSWER: <u>potential</u> energy

(18) A bullet passed through this person's hat when a group of Latvian thieves led by Peter the Painter were attacked in the Siege of Sidney Street. He's not Saddam Hussein, but this man wanted to use chemical weapons against Kurds in Iraq while serving as Secretary of State for War. He resigned from his post as First Lord of the Admirality after the failed Gallipoli landings. He was excluded from Ramsay McDonald's cabinet, but still advised King Edward VIII during the abdication crisis. After Lord Halifax refused to be Prime Minister, this man was appointed instead, telling the House of Commons, "I have nothing to offer but blood, toil, tears, and sweat." For ten points, name this Prime Minister who led Britain through the evacuation of Dunkirk, the Battle of Britain, and most of World War II.

ANSWER: Sir Winston Leonard Spencer-<u>Churchill</u>

(19) Zeckendorf's Theorem states that any positive integer can be written as a sum of distinct elements of these numbers. These numbers are the coefficients of the Taylor series of the function x divided by the quantity 1 plus x plus x squared. The nth one of these numbers is the closest integer to phi to the n power divided by the square root of five, where phi is the golden ratio, by Binet's Formula. As a result, the ratio between consecutive number of this kind approaches the golden ratio. Defined recursively so that each element is the sum of the two previous ones, for ten points, name this set of numbers named for an Italian mathematician which begins 1, 1, 2, 3, 5, 8.

ANSWER: <u>Fibonacci</u> numbers or sequence

(20) The speaker of this poem notes that it is just as lucky to die as to be born. He calls "the scent of these armpits finer than prayer," and says he is "no more modest than immodest." The eighth section describes a baby in a cradle, a boy and a girl on a hill, and a suicide on the floor, and its fifteenth section concludes that people "tend inward to me, and I tend outward to them." In the last section, the speaker sounds his "barbaric yawp over the roofs of the world." This poem ends with "I stop somewhere waiting for you" and begins with the line "I celebrate myself." For ten points, name this fifty-two section poem of the collection *Leaves of Grass* written by Walt Whitman.

ANSWER: <u>Song of Myself</u>

(21) Three weeks before his marriage to one of his predecessors' sister, his mother died, and one week after the marriage, the killing of Gaspard de Coligny was ordered by his mother-in-law Catherine de Medici. Many of the early years of his reign were spent fighting for control of his country, mainly from the Holy League controlled by the Guise family. He spent the later years of his reign improving his country with Maximelien de Bethune, but he only reigned those years because he converted from Protestantism to Catholicism in 1593, famously saying, "Paris is well worth a mass." For ten points, name this king of France who issued the Edict of Nantes, granting religious tolerance to Protestant Huguenots.

ANSWER: Henry IV or Henry of Navarre

Bonuses

(1) This short story ends with Tessie Hutchinson complaining that "It isn't fair, it isn't right." For ten points each:

[10] Name this short story in which the titular event occurs every year to determine who would be stoned to death to ensure good harvests.

ANSWER: The Lottery

[10] *The Lottery* was written by this author. She also wrote a novel in which Merricat Blackwood puts arsenic in sugar, *We Have Always Lived in the Castle.*

ANSWER: Shirley Jackson

[10] Another Jackson work is this novel in which Eleanor crashes her car shortly after leaving Dr. Montague, Theodora, and Luke.

ANSWER: The Haunting of Hill House

(2) Some people really care who the king is. Answer the following about a certain throne for ten points each:

[10] This country was the subject of a namesake succession war in which a member of the house of Bourbon should have become its king. That war ended with the Peace of Utrecht. Other kings of this nation included Charles V and Philip II.

ANSWER: Spain

[10] After the deposition of Isabella II, Spain's throne was offered to a Hohenzollern, which arose protests from Napoleon III. In response, Bismarck started this other war to unify Germany.

ANSWER: Franco-Prussian War

[10] This is the name given to Spanish monarchists who wanted a Bourbon on the throne. They started three namesake wars during the 1800s where they fought against liberalism and republicanism. They rallied to the nationalists during the Spanish Civil War, but were marginalized by Franco's regime.

ANSWER: Carlists

(3) It will succeed the Spirit and Opportunity rovers. For ten points each:

[10] Name this rover, part of NASA's Mars Science Laboratory mission, which will land on August 6th, 2012.

ANSWER: Curiosity

[10] NASA recently ended the program that launched these orbiters into space. Begun in 1981, this program included the Challenger and Columbia disasters.

ANSWER: Space Shuttle program (accept Space Transportation System or STS)

[10] This was the last space shuttle to fly, launching on July 8th and landing on July 21st in 2011. In addition to the Discovery and the Endeavor, it was one of last three remaining shuttles.

ANSWER: Atlantis

(4) Two integers are called relatively prime if this quantity equals one. For ten points each:

△ [10] Identify this quantity, the largest integer by which two given integers are divisible.
ANSWER: greatest common divisor or greatest common factor or gcd or gcf

▽ [10] This man names an algorithm to compute the greatest common divisor of two integers through successive applications of the division algorithm. He also names a lemma that if b times c is divisible by a and the greatest common divisor of a and b is one, then c is divisible by a.
ANSWER: Euclid of Alexandria

[10] The greatest common divisor of a and b is the smallest positive number that can be written as one of these expressions of a and b, which are defined as a sum of scalar multiples of a and b.
ANSWER: linear combinations

(5) Glycine is the only amino acid that lacks this property because its R group is a hydrogen. For ten points each:

△ [10] Name this property possessed by molecules with nonsuperimposable mirror images, all of which possess at least one stereocenter.
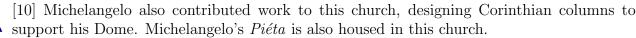
▽ **ANSWER:** chirality

[10] This scientist discovered chirality in tartaric acid. He is known for developing vaccines against anthrax and rabies, and names a process in which liquids such as milk are heated up to a high temperature and then cooled to kill the majority of microbes.
ANSWER: Louis Pasteur

[10] This alkane with formula C_6H_{12} can exist in the chair and boat conformations, but its chair conformation is more stable because it avoids eclipsed conformations.
ANSWER: cyclohexane

(6) Donato Bramante laid the first plans for this church in Vatican City. For ten points each:

△ [10] Michelangelo also contributed work to this church, designing Corinthian columns to support his Dome. Michelangelo's *Piéta* is also housed in this church.

▽ **ANSWER:** St. Peter's Basilica

[10] This sculptor also contributed to works in St. Peter's Basilica, designing the St. Peter's baldacchino. He is also famous for his *Ecstasy of St. Theresa*.
ANSWER: Gian Lorenzo Bernini

[10] Bernini created several of these structures in Rome, including his *[one] of the Four Rivers* and *[one] of Triton*. Alexander Calder created a *Mercury [one of these]*.
ANSWER: Fountains

(7) Name some philosophers who discussed Christianity for ten points each.
△   [10] This Christian existentialist included "Crop Rotation" and "The Seducer's Diary" as
     sections in *Either/Or* and discussed the "knight of infinite resignation" and "knight of
▽   faith" in *Fear and Trembling*.
     ANSWER: Soren <u>Kierkegaard</u> (prompt on any of his pseudonyms: "A", "B", "Judge
     Wilhelm", "Johannes Climacus", "Victor Eremita", "Constantin Constantius", "Young
     Man", "Vigilius Haufniensis", "Nicolaus Notabene", "Hilarius Bookbinder", "Inter et
     Inter", "H.H.", "Anti-Climacus")
     [10] This philosopher argued against supernatural occurrences in his essay *Of Miracles* and
     also wrote a work in which Philo, Pamphilus, Cleanthes, and Demea discuss the existence
     of God, *Dialogues Concerning Natural Religion*.
     ANSWER: David <u>Hume</u>
     [10] This philosopher who wrote *What I Believe* claimed that religion is based on fear and
     explained why he does not "think that Christ was the best and wisest of men" in his essay
     Why I am not a Christian.
     ANSWER: Bertrand <u>Russell</u>

(8) A proton consists of two of the up kind of these subatomic particles and one of the down
△   kind. For ten points each:
     [10] Name these subatomic particles with charge in multiples of one-third and which have
▽   the property of color.
     ANSWER: <u>quarks</u>
     [10] The strong force, which mediates quarks, is represented by a spiral in these diagrams
     which show subatomic particle interactions.
     ANSWER: <u>Feynman</u> diagrams
     [10] This force is mediated by the W+, W-, and Z bosons, and is responsible for radioactive
     decay of particles. It was unified with electromagnetism by Salam, Glashow, and Weinberg.
     ANSWER: <u>weak</u> force or interaction

(9) Himmelstoss carries the body of Haie Westhus to the main character, who also needs to see
△   Friedrich Müller's death. For ten points each:
     [10] Name this novel in which Paul Bäumer dies fighting in World War I.
▽   **ANSWER:**   <u>All Quiet on the Western Front</u>
     [10] This German author of *All Quiet on the Western Front* and wrote about the surgeon
     Ravic in *Arch of Triumph*.
     ANSWER: Erich Maria <u>Remarque</u>
     [10] This mentor of Bäumer had an amazing ability to find food. After this man is killed by
     shrapnel, Bäumer stops caring about life.
     ANSWER: Stanislaus <u>Katczinsky</u>

(10) He slayed nine serfs in the guise of Bolverk before he drank the Meade of Poetry, and he gouged his eye out to drink from the well of Mimir. For ten points each:
[10] Name this Norse god of war who hung himself from Yggdrasil for nine days and will be killed by Fenrir at Ragnarok.
ANSWER: Odin (or Wodan)
[10] Odin was the great-grandson of this frost giant, who was born in the Ginnungagap. When this figure was killed, his blood formed the oceans and his skull formed the sky.
ANSWER: Ymir (or Aurgelmir)
[10] Ymir was licked out of the primordial ice by this primordial giant cow. It also licked Buri, the first man, out of a block of salt ice.
ANSWER: Audhumla

(11) It can be used to solve a triangle when two sides and the angle between them are known. For ten points each:
[10] Identify this theorem which states that, in any triangle, the side length divided by the theorem's namesake function of the opposite angle is the same for all three sides.
ANSWER: Law of Sines (or Sine Law)
[10] In using the Law of Sines to solve a triangle, this term refers to the situation in which two possible solutions exist.
ANSWER: ambiguous case
[10] One other method to solve triangles is the Law of Cosines, a generalization of this theorem that states that the square of the hypotenuse of a right triangle is the sum of the squares of the other two sides.
ANSWER: Pythagorean Theorem

(12) He and Ravel were among the most prominent figures in Impressionist music, but he strongly disliked when others described his music as such. For ten points each:
[10] Name this French Impressionist who portrayed the "Play of the Waves" in *La mer* and who also composed the *Children's Corner* suite and *Clair de Lune*.
ANSWER: Claude Debussy
[10] *Clair de Lune* is found in this piano suite whose movements take their names from Verlaine poems. It consists of a *Prélude*, a *Menuet*, and a *Passepied* in addition to *Clair de Lune*.
ANSWER: Suite bergamasque
[10] Another of Debussy's most famous compositions is this symphonic poem inspired by a Stéphane Mallarmé poem. It opens with a flute solo playing a chromatic descent into a tritone, and Nijinsky choreographed a ballet adaptation of this work in which the titular animal appears to masturbate.
ANSWER: Prelude to the Afternoon of a Faun (or Prélude à l'aprés-midi d'un faune)

(13) This poet wrote six cantos, one for each of summer, rain, autumn, cool, winter, and spring, for his *Medley of Seasons.* For ten points each:

[10] Name this writer who wrote about the wife of Dushyanta losing her signet ring in the play *The Recognition of Shakuntala.* He also wrote of a yaksa who was exiled by King Kubera in *The Cloud Messenger.*

ANSWER: Kalidasa

[10] Kalidasa wrote in this language, which was also used by the dramatists Shudraka and Bhasa. The Vedas were written in this language.

ANSWER: Sanskrit

[10] This Sanskrit epic tells the story of the Kurukshetra War between the Kauravas and Pandavas. Krishna advises Arjuna in its most famous section, the *Bhagavad Gita.*

ANSWER: Mahabharata

(14) Answer the following about Christianity outside the West for ten points each.

[10] This Orthodox Church is centered in Egypt. Approximately ten percent of Egyptians belong to this church.

ANSWER: Coptic Orthodox Church of Alexandria

[10] Known as the "Turtle Kingdom," the Joseon dynasty on this peninsula heavily persecuted Christians. The South country on this divided peninsula is the second-largest source of Christian missionaries and had a Christian first president, Syngman Rhee.

ANSWER: Korea

[10] Thomas the Apostle supposedly was the first to introduce Christianity to this country. The Ahmadiyya movement believes that Jesus traveled to this country and died of old age in Roza Bal.

ANSWER: India

(15) Today, Western Africa is divided as a result of colonization, but it used to be more united. Answer the following questions about the empires of West Africa for ten points each.

[10] This empire, with capital at Niani, formed circa 1230 AD and collapsed in the 1500s. Timbuktu was an important cultural and scholarly city in this empire.

ANSWER: Mali empire

[10] The most famous act of this emperor of Mali, who ruled from 1312 to 1337, was to make a pilgramage to Mecca during his reign, on which he gave out legendary amounts of gold.

ANSWER: Mansa Musa

[10] This empire succeeded the Mali Empire in the 1460s, and its rulers included Sonni Ali and Askia Muhammad. Its capital was at Gao.

ANSWER: Songhai

(16) He was the official court painter to King Henry VIII. For ten points each:

△ [10] Name this artist of *Portrait of King Henry VIII* and *Portrait of Thomas Moore*.

ANSWER: Hans Holbein the Younger

▽ [10] This painting by Holbein features the two richly dressed titular figures in front of a green drape and shelves of navigational instruments. An anamorphic skull lies in the foreground, which can only be properly viewed from the far left of the painting.

ANSWER: The Ambassadors

[10] Holbein also painted a portrait of this figure from Rotterdam, whose book *The Praise of Folly* was illustrated by Holbein.

ANSWER: Desiderius Erasmus

(17) Characters in this work include O'Brien, who is later killed by Israel Hands, as well as

△ Squire Trelawney, who buys the ship Hispaniola and hires Captain Smollett to command it. For ten points each:

▽ [10] Name this work, narrated by Jim Hawkins, which tells the story of Long John Silver.

ANSWER: Treasure Island

[10] This author of *Treasure Island* also wrote of David Balfour in *Kidnapped* and collected poetry in *Underwoods* and *A Child's Garden of Verses*.

ANSWER: Robert Louis Stevenson

[10] This novel by Stevenson takes place during the Jacobite Rising. The novel is presented as Ephraim Mackeller's memoir, and it tells of the title character, James Durie, and his political conflict with his brother Henry.

ANSWER: The Master of Ballantrae

(18) Presence of these structures causes cardiac and skeletal muscle to appear to be striated. For

△ ten points each:

[10] Name these regions between consecutive Z-disks that are composed of A-bands,

▽ H-bands, and I-bands, and are central to the sliding filament model.

ANSWER: sarcomeres

[10] Along with myosin, filaments of this protein are the major components of sarcomeres. It is a polar molecule and is the constituent of microfilaments in the cytoplasm.

ANSWER: actin

[10] Myosin molecules contract and relax due to the hydrolysis of this molecule, which, in the process, releases one of its three phosphate ions. Glycolysis has a net gain of two of these highly unstable molecules.

ANSWER: Adenosine Triphosphate or ATP

(19) Australia has one continental territory, the Northern Territory. For ten points each:

△ [10] This is the capital of the Northern Territory. Bordering the Timor Sea, it shares its name with a 19th century British naturalist who visited South America on the HMS Beagle.

▽ **ANSWER:** Darwin

[10] This large sandstone formation lies at the center of Australia in the southern portion of the Northern Territory. Climbing on it is forbidden, and it glows a brilliant red at dawn and dusk.

ANSWER: Ayer's Rock or Uluru

[10] This is the second largest city of the Northern Territory. Situated northwest of the Simpson Desert, visitors heading to Ayer's Rock often stop over here.

ANSWER: Alice Springs

(20) (Note to moderator: This bonus is to be read with sufficient sarcasm.)

△ The U.S. extends from sea to shining sea because we were there first. For ten points each:

[10] In this event, the Cherokee tribe was rightfully relocated to Oklahoma under the Indian

▽ Removal Act after they refused to honor the Treaty of New Echota signed by a minority faction.

ANSWER: Trail of Tears

[10] This conflict began in 1832 after the namesake Indian chief moved into Illinois with an army of women, children, and elderly that was clearly a war party. Abraham Lincoln and many other future leaders fought in this conflict that ended at the Battle of Bad Axe.

ANSWER: Black Hawk War

[10] This Indian chief of the Nez Perce whose name means "Thunder rolling down the mountain" refused an extremely reasonable deal to give up ninety percent of his reservation. He surrendered to U.S. forces in 1877, supposedly saying, "I will fight no more forever."

ANSWER: Chief Joseph

(21) He is said to have ten avatars. For ten points each:

△ [10] Name this Hindu god, the second in the Trimurthi, who is depicted with four hands and has earned the epithet "the preserver."

▽ **ANSWER:** Vishnu

[10] This seventh avatar of Vishnu rescued his wife, Sita, from the demon Ravana with the help of his brother, Lakshmana, in his eponymous poem written by Sage Valmiki.

ANSWER: Rama

[10] Vishnu took this lowly form as his first avatar. Manu first held Vishnu in this form in a pot, but as Vishnu grew Manu moved him into successively larger pots, ponds, and lakes until he was moved into the ocean.

ANSWER: fish