

### Ladue Invitational Spring Tournament VI

Written and edited by the Ladue Academic Team: Raj Paul(head editor), Moses Schindler(head editor), Akshay Govindan, Glen Morgenstern, Charlie Loitman, Logan Page, Nevan Giuliani, Philip Adams, Jacob Cytron, and Maya Mutic with help from Ben Zhang, Alston Boyd, Ethan Strombeck, Pranav Sivakumar, Henry Roe, and Arjun Nageswaran

## ROUND 4 - TOSSUPS

1. **The main proponent of this movement meditated on the words “deliver me in thy justice”, leading to his “tower experience”. The start of this movement was partly inspired by a Dominican friar named Johann Tetzel in northern Germany, who was selling indulgences, claiming they would lead to heaven. Anabaptism, (\*) Zwinglianism, and Calvinism were the results of this movement in Switzerland, and the Diet of Worms said that the leader of this movement, who hammered his 95 Theses to a Wittenberg church door, was an outlaw. For ten points, name this 16th century religious movement in Europe that was led by Martin Luther.**

ANSWER: Protestant Reformation [prompt on “Reformation”, accept Lutheran Reformation, do NOT accept “English Reformation”]

<AG>

2. **The operator of this quantity is equal to negative i times h-bar times the gradient, and de Broglie’s equation states that this quantity for a particle is equal to h divided by its wavelength. Another theorem states that the product of the standard deviation of this quantity and the standard deviation of position is greater than or equal to (\*) h-bar over two, and that statement is Heisenberg’s Uncertainty Principle. The derivative of this quantity with respect to time is force, and the change in this quantity over a period of time is known as impulse. Measured in Newton-seconds, For ten points, name this quantity which is equal to the product of the mass and velocity of an object.**

ANSWER: momentum

<MS>

3. **A character in a novel by this author is threatened for cheating on his fiancée with Angela, but he misses the warning from Cristo Bedoya because he is at his fiancée’s house. In that novel, the Vicario brothers visit a butcher and a milk shop before killing Santiago Nasar. In another novel by this author, a character who crafts golden fish fathers (\*) 17 illegitimate sons, who are all assassinated and marked with a cross. That work is set in Macondo and follows the Buendia family. For ten points, name this Colombian author of *Chronicle of a Death Foretold* and *One Hundred Years of Solitude*.**

ANSWER: Gabriel Garcia Marquez

<RP>

4. **The Economist publishes an index named after this firm’s signature product, and that index uses the price of that product to estimate purchasing power parity. In *The Lexus and the Olive Tree*, Thomas L. Friedman claimed that no two countries containing franchises of this firm had ever fought against each other in a war. Sociologist George (\*) Ritzer argued that global culture is becoming homogenized in a process named after this firm. Stella Liebeck sued this firm after she received serious burns from spilling the dangerously hot coffee that was sold by this firm. For ten points, name this fast food chain with the slogan “I’m Lovin’ It.”**

ANSWER: McDonald’s Corporation

<PA>

5. **A man with this surname cofounded a company with Samuel Andrews and Henry Flagler that was later criticized in McClure’s magazine. That man cofounded the University of Chicago. A different man with this surname utilized tear gas and the National Guard in suppressing the (\*) Attica Prison Riots, and served four terms as Governor of New York as well as one term as Vice President under Gerald Ford. Ida Tarbell conducted detailed interviews on a magnate owned by a man with this surname. For ten points, name this surname shared by Nelson and the founder of Standard Oil, John.**

ANSWER: Rockefeller [accept John Davidson Rockefeller or Norman Rockefeller]

<RP>

6. This man was one of the first to identify the connection between pitch and frequency, which he discovered in an experiment involving a chisel. This man described Salviati's attempts to sway the neutral Sagredo and Simplicio in one work, and he claimed that mathematics should form the basis of physics in his *The Assayer*. In a pamphlet by this man, he described several celestial objects which supported the (\*) Copernican view of the solar system, such as the four largest moons of Jupiter, which would be collectively named after this man; that pamphlet was *The Starry Messenger*. For ten points, name this Italian scientist who supposedly dropped two differently weighted balls from the Leaning Tower of Pisa.

ANSWER: Galileo Galilei

<MS>

7. This man wrote a novel in which the protagonist is harassed by a corporal per the master-at-arms' request. In that work, the protagonist was originally a sailor on the Rights-of-Man, but then transfers to the HMS Bellipotent, where he is executed by Captain Vere after killing John Claggart. A more notable novel by this author contains the Zoroastrian prophet (\*) Fedallah, who makes three predictions of a character's death. That work features the characters Starbuck and Queequeg aboard the Pequod, and begins with the phrase, "Call me Ishmael." For ten points, name this American author of *Billy Budd*, who wrote about Captain Ahab's persistent search for a whale in *Moby Dick*.

ANSWER: Herman Melville

<RP>

8. Young's Inequality relates the product of two numbers to the value obtained by performing this process on a function and its inverse, and the Laplace Transform of a function can be found by performing this process on  $e$  to the negative  $s$  times that function of  $t$ . The "improper" form of this process occurs when one of the limits is (\*) infinity. One method used to perform this process is derived from the product rule and is known as "by parts," while the Fundamental Theorem of Calculus deals with the definite and indefinite forms of this process. For ten points, name this process used to calculate the area under a curve, the opposite of differentiation.

ANSWER: integration

<MS>

9. The Greek version of this book describes how one character debunks a story about an idol named Bel who had been consuming food left out for him in the night, as well as how that same character manages to kill a dragon. This book of the Bible describes a dream about a tree that overshadows all animals and how "all flesh was fed of it." That tree represents a (\*) ruler in this text. This book describes a disembodied hand writing on the wall at Belshazzar's feast, and it notes how Shadrach, Meshach, and Abednego survive being thrown in a furnace. For ten points, name this book of the Bible, which describes how the title character survived being thrown in a lion's den.

ANSWER: Book of Daniel

<MS>

10. The sex of this organism is determined by the ratio of X chromosomes to autosomes, and cells of this organism independently decide to be either male or female. Some of the genes found in this organism include the bicoid and hunchback genes that regulate its development, as well as the Ken and Barbie genes. The cell mediated immune response in this organism is mediated by the IMD and (\*) toll pathways. This organism was used to prove the concept of genetic linkage by a Columbia student named Alfred Sturtevant, who worked in a room named for this organism. For ten points, name this model organism used by Thomas Hunt Morgan with the scientific name *Drosophila Melanogaster*.

ANSWER: fruit fly [accept Drosophila Melanogaster before read, prompt on partial answer]

<LP>

## HALFTIME

11. A satire of this poem describes how one character "had in mind / the notion of what his whiskers would feel like / on the back of her neck". The speaker of that poem notes how he "sometimes brings her a bottle of Nuit d'Amour." This poem's speaker notes how the world "seems / to lie before us like a land of dreams," but really has "neither joy, nor love, nor light." This poem begins by describing how "The (\*) sea is calm tonight / the tide is full, the moon lies fair," and later claims that "Sophocles long ago" heard "the eternal note of sadness" on the Aegean sea. For ten points, name this poem, set in a location where "ignorant armies clash by night," written by Matthew Arnold.

ANSWER: Dover Beach

<MS>

12. This man composed two sonatas for Richard Mühlfeld, and he helped Antonin Dvorak gain fame. An extreme perfectionist, this man destroyed many of his early works, and labored over his first symphony for 15 years. This man's last major work was the *Four Serious Songs*, and the *St. Anthony Chorale* is the basis for this man's *Variations on a Theme of (\*) Haydn*. A companion piece to the *Tragic Overture* was composed by this man after receiving an honorary degree from the University of Breslau, which inspired another work. This composer of the *Academic Festival Overture* wrote a famous lullaby, and his first symphony was nicknamed "Beethoven's Tenth." For ten points, name this Romantic German composer of *A German Requiem* and a set of 21 *Hungarian Dances*.

ANSWER: Johannes Brahms

<GM>

13. One city in this state holds the Mummers Day Parade on New Year's, and the Twelve Mile Circle forms part of this state's southeastern border. The Monongahela River flows through this state's second largest city before meeting the Allegheny river to form the Ohio. The Mason-Dixon Line forms this state's (\*) southern border, and its namesake "Dutch" is spoken by many Amish people. The Battles of Brandywine and Gettysburg were fought in this state, which was also the state in which the Declaration of Independence was signed. Harrisburg is the capital of, for ten points, what state home to Philadelphia and Pittsburgh?

ANSWER: Pennsylvania

<AG>

14. A leader of these people invaded the Gallipoli peninsula and won the Battle of Chersonesus, which forced Theodosius II to pay over two thousand pounds of gold annually by the Peace of Anatolius. A group of barbarians who invaded the Ming dynasty, the Xiongnu, were thought to be related to these people, and after the death of Rugila, two (\*) brothers co-ruled this people. Flavius Aetius allied with the Visigoth king Theodoric I to defeat these people at the Battle of Chalons in 451, and they became unified under Bleda and his brother, a "Scourge of God". For ten points, name this nomadic tribe of horsemen who invaded Eastern Europe in 370 AD, once led by Attila.

ANSWER: Huns

<RP>

15. The Fenske equation calculates the least number of theoretical plates needed for one type of this process. A Perkin triangle may be used for air-sensitive materials in this process, in which Raschig rings are used to create columns. The McCabe-Thiele method analyzes this process by using the mole fractions of materials used in it. Its (\*) fractional type is commonly used to extract elements from the air, and entrainers are often added in this process when performed on azeotropes. This process occurs when the vapor pressure of one substance equals the partial pressure in the apparatus of the surrounding gases. For ten points, identify this process that separates liquids based on their boiling points.

ANSWER: distillation [prompt on boiling before mention]

<AG/CL>

16. The Ditchley Portrait shows Queen Elizabeth I wearing a dress of this color. In an iconic work from the Russian Suprematist movement, Kazimir Malevich created a work titled for *[this color] on [this color]*, and in his most famous work he depicted a black square within a square of this color. A cat of this color lies below the central scene in Gustave Courbet's *The Painter's Studio*, and a portrait of Joanna Hiffernan standing on a wolf fur by James Whistler is titled (\*) *Symphony in [this color]*. A servant dressed in this color stands behind a bed with sheets of this color, which the title figure lies on in Edouard Manet's *Olympia*. For ten points, name this color often paired with black in old photography.

ANSWER: white

<RP>

17. This group carried out suicide bombings in the city of Dalori on January 30, 2016, and a year earlier attacked a military base in the town of Baga. This group pledged allegiance to the Islamic State in March 2015, and appointed Abu Musab al-Barnawi as its current leader. In 2014, this organization sparked global outcry when it kidnapped Chibok (\*) schoolgirls, which prompted the "Bring Back Our Girls" movement. Abuja was bombed in 2011 by this militant group, the name of which ridicules Western education. For ten points, name Nigerian Islamist group led by Abubakar Shekau.

ANSWER: Boko Haram

<AG>

18. In one movie, this character becomes separated from her family after she hears her mother crying, and leaves to find shells to cheer her up. In the post-credit scene of this character's namesake film, the Tank Gang is visible, but their faces are obscured due to filth accumulated from the group's year in entrapment. This character comes up with nicknames for her friend's son like Chico, Fabio, Bingo, Harpo, and Elmo. This character's (\*) memory improves greatly over the course the film as shown by her ability to remember addresses and people like P. Sherman, 42, Wallaby Way, Sydney. This character consoles Marlin after bumping into him as he searches for his son. For ten points, name this blue fish that starred in the sequel of *Finding Nemo*.

ANSWER: Dory

<CL>

19. After giving this woman a gift, one man's mother tried to kill him by burning an enchanted log, and this woman killed two centaurs when they tried to rape her during an event in which she drew the first blood. That event ended with Meleager giving this woman the (\*) hide of the Calydonian boar. In one account about this person, she and her lover were supposedly turned into lions after making love in a temple sacred to Zeus, and another story about her relates how Aphrodite assisted Hippomenes in beating her at one event. For ten points, name this Greek woman who lost a foot race to Hippomenes because he distracted her by throwing golden apples.

ANSWER: Atalanta

<MS>

20. A religion integrating traditional Bantu, Fon, and Yoruba beliefs known as Candomblé was brought to this country by slaves, but slavery in this country was later abolished in a movement that began with the passage of the Law of the Free Womb. President Juscelino Kubitschek employed Lucio Costa and (\*) Oscar Niemeyer to design and construct a new capital for this country, whose independence was previously declared in the "Cry of Ipiranga" speech. Getulio Vargas began the Estado Novo period to lengthen his rule in this country, and rights to it was given to Portugal by the Treaty of Tordesillas. For ten points name this largest South American country

ANSWER: Federative Republic of Brazil

<RP>

## End of regulation, only proceed if tied

21. At the end of one work by this author, the title character is presented with the head of Danlola instead of the ceremonial yam he expected to receive. Another play by this author of *Kongi's Harvest* sees one character refuse to marry another because he won't pay the dowry, and a play by him begins with a character talking to the (\*) Praise-Singer in the market. One of his plays ends with Lakunle being upset because Sidi is going to marry Baroka, and another work by this author sees Simon Pilkington stop a ritual. For ten points, name this author of *The Lion and the Jewel*, who described the interruption of a ritual suicide by Elesin in *Death and the King's Horsemen*.

ANSWER: Wole Soyinka

<MS>

22. Thomas Wentworth was executed in the leadup to this war. Following this war, one man declared he would "not build Jericho again." Prince Rupert of the Rhine lost the battles of Marston Moor and Naseby in this war, and the more efficient New Model army was commanded by Thomas Fairfax. During this conflict, one group suffered (\*) "Pride's Purge", and that group later became known as the powerless "Rump Parliament." The victor of this war declared himself Lord Protector, and essentially became a military dictator that briefly ended the monarchy. For ten points, name this 17th-century war between the Cavalier army of Charles I and the Roundhead army of Oliver Cromwell.

ANSWER: English Civil War

<GM>

## **BONUSES**

1. Bonus: This concept is the reason behind why one identical twin ages faster than the other in the twin paradox. For ten points each:

[10] Name this concept from special relativity, the difference between the amount of time that has elapsed for two observers. The faster one observer is going relative to the other, the greater this effect is.

ANSWER: **time dilation**

[10] The reason that time dilation occurs is because this quantity is constant for all observers, even moving ones. This quantity is equal to roughly 300 million meters per second.

ANSWER: **speed of light** [prompt on “c”, accept reasonable equivalents]

[10] The amount of time dilation that occurs can be calculated using this quantity, equal to 1 over the square root of 1 minus the relative velocity of the two observers squared divided by the speed of light squared.

ANSWER: **Lorentz factor** [or **Lorentz term**]

<MS>

2. Bonus: Hercules rescued this man from the underworld when completing his 12th labor. For ten points each:

[10] Name this ancient Greek hero who slew the Minotaur. He didn't get lost in the labyrinth because he tied a ball of string to its entrance and followed it to get out.

ANSWER: **Theseus**

[10] When Theseus was traveling to Athens, he met this criminal, who would stretch people or amputate them in order to make them fit on an iron bed. Theseus killed him by fitting him to his own bed.

ANSWER: **Procrustes**

[10] Before he left to kill the Minotaur, Theseus told his father that if he died, the sails of his ship would be this color. When Theseus returned alive, he forgot to change his sails from this color, so his father jumped off a cliff and died.

ANSWER: **black**

<MS>

3. Bonus: This movement pushed for “Socialism with a human face.” For ten points each:

[10] Name this 1968 liberalization movement that was put down by Brezhnev's command for a Soviet march on the capital of Czechoslovakia.

ANSWER: **Prague Spring**

[10] Prague Spring began after this First Secretary of the Communist Party in Czechoslovakia was elected. After his removal, Gustav Husak took his office and began a period of “normalization”.

ANSWER: Alexander **Dubček**

[10] In August of 1968, this student set himself on fire to protest the invasion of Prague. This man's funeral became the site of protest against occupation.

ANSWER: Jan **Palach**

<GM>

4. Bonus: This man described the Second Punic War in his epic poem *Africa*. For ten points each:

[10] Name this father of Renaissance humanism who wrote poems, moral treatises, and recovered Latin texts. He names a type of sonnet that contrasts with those named for Shakespeare.

ANSWER: **Petrarch** [also accept **Francesco Petrarca**]

[10] Petrarch addressed several Italian, or Petrarchan sonnets, in the style of troubadours to a woman with this name, some of which are in his collection *Il Canzoniere*.

ANSWER: **Laura**

[10] After climbing this French peak, Petrarch asserted in a published letter that he was the first person to climb a mountain solely for its view. That letter is featured in his collection *Epistolae familiares*.

ANSWER: Mont **Ventoux** [accept *The Ascent of* **Mont Ventoux**]

<AG>

5. Bonus: Organisms need a lot of energy in order to carry out the necessary processes for survival. For ten points each:

[10] Identify this set of metabolic reactions by which organisms obtain energy in the form of ATP from nutrients. It comes in two varieties, aerobic and anaerobic.

ANSWER: cellular **respiration**

[10] In aerobic respiration acetyl-CoA reacts with Oxaloacetate to generate 2 ATP, 6 NADH, and 2 FADH<sub>2</sub> in this cycle that takes place in the matrix of mitochondria.

ANSWER: **Krebs Cycle** or **Citric acid cycle** or **Tricarboxylic Acid Cycle**

[10] This enzyme with FO and F1 components uses the movement of H<sup>+</sup> ions down an electrochemical gradient to generate the energy currency of the cell in aerobic respiration. It can be found in the inner mitochondrial membrane.

ANSWER: **ATP synthase**

<LP>

6. Bonus: A character shouts “it was PINEAPPLE, SEE?!” after being attacked by another character who thought he was opening a can with this food in it. For ten points each:

[10] Name this food. A character catches a tiger after noting that “tigers will do ANYTHING” for a sandwich with this food.

ANSWER: **Tuna** [or **Tuna** can, **Tuna** fish sandwich, just accept anything containing **tuna**, prompt on “fish”]

[10] Those stories appear in this Bill Watterson comic, which follows the life of the title six-year old and his stuffed tiger. Other characters in this comic include the title character’s neighbor, Susie Derkins, and his teacher, Mrs. Wormwood.

ANSWER: **Calvin and Hobbes**

[10] Calvin once described this babysitter of his as a “sadistic kid hater” to her boyfriend Charlie, and in the last strip where she appears, this woman plays Calvinball with the two.

ANSWER: **Rosalyn**

<MS>

7. Bonus: In 2006, a Malay insurgency in this country’s south caused its military to remove then-president Thaksin Shinawatra from office. For ten points each:

[10] Name this Asian country which has recently seen deadly bombings in places like Phuket and Bangkok.

ANSWER: **Thailand**

[10] Thailand’s government ordered a year of mourning after the death of this 88 year old Thai king, who died in October 2016 and is expected to be succeeded by his son Vajiralongkorn.

ANSWER: **Bhumibol** Adulyadej

[10] In 2014, Prayuth Chan-ocha led the Thai military in creating the National Council for Peace and Order, which is this type of government, where military officers take over the country.

ANSWER: military **junta**

<AG>

8. Bonus: The speaker of this poem describes the title feeling as a “little bird / that kept so many warm,” for ten points each:  
[10] Name this poem that describes a feeling “that perches in the soul / and sings the tune without the words.”

ANSWER: “**“Hope” is the thing with feathers**”

[10] The author of “Hope is a thing with feathers” also wrote about hearing a “blue, uncertain, stumbling buzz” in this poem whose speaker “could not see to see.”

ANSWER: “**I Heard a Fly Buzz When I Died**”

[10] “Hope is a thing with feathers” and “I Heard a Fly Buzz When I Died” were both written by this American, a reclusive “Belle of Amherst”, who also wrote, “Because I Could Not Stop for Death”.

ANSWER: Emily **Dickinson**

<RP>

9. Bonus: The winning commander of this battle announced, “We have met the enemy and they are ours.” For ten points each:

[10] Name this naval battle from the War of 1812 that was fought off the coast of Ohio. This battle is alternatively named for the location at which the winning side was stationed: Put-in-Bay.

ANSWER: Battle of **Lake Erie**

[10] This naval commander earned the title “Hero of Lake Erie” for leading the American forces to victory. With Jesse Eliot, this man defeated the British Robert Henry Barclay.

ANSWER: **Oliver Hazard Perry** (prompt on “Perry”)

[10] Oliver Hazard Perry died aboard the USS John Adams while on a voyage to discuss a treaty with this leader regarding piracy. This man was known as “El Libertador” and served as the first president of Gran Colombia.

ANSWER: Simon **Bolivar**

<RP>

10. Bonus: Apollonius’ Theorem can be used to find the length of one of these segments. For ten points each:

[10] Name these segments that connect the vertex of one side of a triangle to the midpoint of the opposite side. They concur at the centroid.

ANSWER: **medians**

[10] Medians are an example of this type of line in a triangle, which connect a vertex to a point on the opposite side. Their namesake also names a theorem relating the ratio that concurrent ones of these segments divide the sides of the triangle into.

ANSWER: **cevians**

[10] These other cevians are the perpendicular lines from one vertex to the opposite side, and they intersect at the orthocenter.

ANSWER: **altitudes**

<MS>

11. Bonus: Name these Hindu religious festivals, for ten points each:

[10] Several candles are traditionally placed around the house in this “festival of lights”, which celebrates the defeat of Ravana and the birth of Lakshmi.

ANSWER: **Diwali**

[10] Bhang, a form of cannabis, is traditionally mixed into drinks during this “festival of colors”, in which Hindus throw colorful dry powder on one another.

ANSWER: **Holi**

[10] This nine-day, Durga-oriented holiday is usually celebrated in October and involves the worship of a different goddess each day. In South India it is called Golu, and observants create displays of dolls and figurines on steps in their houses.

ANSWER: **Navaratri**

<RP>

12. Bonus: A trench and volcanism can result due to this type of plate boundary. For ten points each:

[10] Name this type of plate boundary that causes earthquakes and mountain formation if it consists of two continental plates.

ANSWER: **convergent** boundary

[10] This other type of boundary occurs when two plates slide past together. It often creates zig-zagged margins.

ANSWER: **transform** boundary

[10] This German geophysicist pioneered the theory of continental drift, using evidence such as the same fossils on different continents as well as the shape of the continents.

ANSWER: Alfred **Wegener**

<AG>

13. Bonus: Artemisia Gentileschi created one of these “*as the Allegory of Painting*”, and Albrecht Durer created one “*at the Age of Twenty Eight*”. For ten points each:

[10] Name this art form used by Vincent van Gogh to show his bandaged right ear.

ANSWER: **self-portrait** [prompt on “portrait”]

[10] This Mannerist painter included a distorted right hand hand at the bottom of his *Self-portrait in a Convex Mirror*. Other works by this artist include *The Vision of St. Jerome* and a painting of Mary with a certain exaggerated feature.

ANSWER: **Parmigianino** [or Girolamo Francesco Maria **Mazzola**]

[10] Two apples hang from a branch behind a disembodied head in this artist’s *Self-portrait with Halo and Snake*, and he sculpted his severed, bloody head in the *Jug Self-portrait*. He also painted many female nudes in Tahiti.

ANSWER: Eugene Henri Paul **Gauguin**

<RP>

14. Bonus: This character can somersault across clouds and take on 72 unique forms. For ten points each:

[10] Name this “Monkey King” who wields a massive golden staff; he is prominent in many Chinese tales and legends.

ANSWER: **Sun Wukong**

[10] Sun Wukong features as a main character in this ancient novel, one of China’s Four Great Classics, in which he joins the monk Xuanzang and attempts to obtain Buddhist works.

ANSWER: **Journey to the West** [or **Xi You Ji**]

[10] This character from *Journey to the West* travels with Sandy to help Tripitaka obtain sutras. His primary weapon is a nine-toothed rake and he was reincarnated as an animal after sexually harassing Chang’e.

ANSWER: **Pigsy** [or **Zhu Bajie**]

<AG+RP>

15. Bonus: The section “Of Human Bondage” in this work is followed by “Of Human Freedom.” For ten points each:

[10] Name this work which is “demonstrated in geometrical order.” It claims that God is nature and vice-versa, and it describes a number of “Attributes,” including Extension and Thought.

ANSWER: **Ethics**

[10] *Ethics* was written by this Dutch philosopher. His claims that God was equivalent to nature led others to believe he was Pantheist, prompting the Jewish community to ostracize him.

ANSWER: Baruch **Spinoza** [or Benedict de **Spinoza**, Benedito de **Espinosa**]

[10] This other work by Spinoza claims that Moses could not have written the Torah. It also argues that Jews are not chosen people, and that miracles are caused solely by God’s laws of nature.

ANSWER: **Tractatus Theologico-Politicus** [prompt on “TTP”, accept **Theological Political Treatise**]

<MS>



16. Bonus: Stretching from the Finlay River to the Beaufort Sea, the MacKenzie river is the longest in this country. For ten points each:

[10] Name this North American country divided into provinces and separated from the U.S. by the 49th parallel.

ANSWER: Canada

[10] The highest point of Canada is this peak of the Saint Elias mountain range. It has the largest base of any non-volcanic mountain on Earth and its namesake founded the Geological Survey of Canada.

ANSWER: Mount Logan

[10] While Mount Logan is the second highest point in North America, the first is this mountain whose name was changed officially in 2015 by President Obama after formerly being named for an Ohioan President.

ANSWER: Denali [accept Mount McKinley]

<RP>

17. Bonus: For 10 points each, name these American operas:

[10] This John Coolidge Adams opera includes characters like Zhou Enlai and Henry Kissinger and features a ballet within it titled "The Red Detachment of Women".

ANSWER: Nixon in China

[10] Along with his brother Ira, George Gershwin composed this American opera set in Catfish Row. It featured an all African-American cast as well as the lullaby aria "Summertime".

ANSWER: Porgy and Bess

[10] The title character is saved from a wasp's nest by Remus after rejecting a "bag of luck" at the end of this opera. This work is the only opera by its composer who created "The Entertainer" and various other ragtime piano pieces.

ANSWER: Treemonisha

<RP>

18. Bonus: At the Curie temperature, ferroelectricity can become paraelectricity in one of these transitions. For ten points each:

[10] Name these thermodynamic transitions between states of matter exemplified by the freezing and melting of water.

ANSWER: phase change [accept phase transitions or other equivalents mentioning "phase"]

[10] Phase transitions may be described on diagrams based on temperature and pressure and when this point is reached on the phase diagram, a substance exists as a solid, liquid, and gas at the same time.

ANSWER: triple point

[10] This thermodynamic doubly-eponymous equation, which finds the slope of coexistence curves on a phase diagram, can be written as the latent heat divided by the product of the specific volume and temperature.

ANSWER: Clausius-Clapeyron Equation

<RP>

19. Bonus: Miltiades led the Athenians to victory over the Persians, led by Artaphernes, in a 490 BCE battle. For ten points each:

[10] Name that battle. Legend holds that after it ended, the messenger Pheidippides died after running 26.2 miles to Athens to convey the news of Greek victory.

ANSWER: Battle of Marathon

[10] Greek forces at the Battle of Marathon primarily consisted of this type of soldier. These spear-wielding foot soldiers often assembled into a phalanx for greater protection.

ANSWER: Hoplites

[10] Athenian forces at Marathon were aided by the forces of this city, which were lead by the general Arimnestos. An earlier 479 battle that took place at this city was a victory for Pausanias over the army of Mardonius.

ANSWER: Plataea [accept Battle of Plataea]

<RP>

20. Bonus: In this play, one character nearly chokes another over a debate between the phrases “light the kettle” and “put on the kettle.” For ten points each:

[10] Name this play, in which the hit-men Ben and Gus wait for a kill assignment. At the end, it is implied that Gus is the man that is to be killed.

ANSWER: *The Dumb Waiter*

[10] This British author wrote *The Dumb Waiter*. At the beginning of another play by this author, one character denies that it is the title date, that play is *The Birthday Party*.

ANSWER: Harold Pinter

[10] This other play by Harold Pinter describes an affair between the characters Emma and Jerry. At the beginning of this reverse-chronological work, Emma’s husband, Robert, admits that he had known about the affair for four years.

ANSWER: *Betrayal*

<MS>

21. Bonus: The ruler of this empire was considered to be the son of the sun god, Inti. For ten points each:

[10] Name this civilization whose capital was at Cuzco, located in modern-day Peru.

ANSWER: Inca

[10] The Incas used these sets of knotted, threaded strings to count gold, corn, and other goods. They were also used for record-keeping.

ANSWER: Quipu

[10] The Incas lived in this mountain range, in which they developed a series of bridges and roads to improve communication.

ANSWER: Andes Mountains

<GM>

22. Bonus: The title character in this novel is enlisted in the army as a medic in Yuriatin. For ten points each:

[10] Name this novel set during the Russian Revolution in which Yuri, the title physician, falls in love with a woman named Lara.

ANSWER: *Doctor Zhivago*

[10] This Soviet author was forced by USSR to decline the 1958 Nobel prize he was awarded for his novel *Doctor Zhivago*

ANSWER: Boris Pasternak

[10] This character from *Doctor Zhivago*, the husband of Lara, attains the nickname Strelnikov, or “the shooter” for his merit in the White Army.

ANSWER: Pasha Antipov

<RP>