Round 4

Brad Fischer • Clare Keenan • Alec Krueger • Lauren Onel • Noah Prince
Allison Salach • Zohra Sattar • Kristin Strey • Tyler Vaughan

Tossups

(1) In one poem, this author hopes that "some boy too far from town to learn baseball" will swing on the branches of his farm's "Birches." This man wrote, "my little horse must think it queer" to stop in the title place and said "I have (*) promises to keep, / And miles to go before I sleep" in "Stopping by Woods on a Snowy Evening." For ten points, name this American poet who wrote that "two roads diverged in a yellow wood" in "The Road not Taken."

ANSWER: Robert Lee **Frost**

(2) After 1916, this project included an arm that followed the Amur River to avoid Manchuria. When it was first opened, this system included a ferry across Lake Baikal. In August 1945, Japanese spying on part of this transportation system failed to indicate the (*) Soviet Army's mobilization. For ten points, name this transportation system that allows trains to travel from the Pacific port city of Vladivostok to Moscow by train, crossing a vast, cold region of Russia.

ANSWER: **Trans-Siberian Railway** (accept equivalents for "railway," such as "railroad")

(3) Small segments of this molecule are sequenced in the chain-termination method. Okazaki fragments help replicate this molecule's lagging strand with polymerase after it is (*) unzipped by helicase. This molecule consists of nucleotides formed from thymine, adenine, guanine, and cytosine. James Watson and Francis Crick discovered the double helix structure of, for ten points, what biomolecule that codes genetic information within genes?

ANSWER: **DNA** (accept **deoxyribonucleic acid**)

(4) A caldera in this location was formed after a series of eruptions at Mesa Falls and Huckleberry Ridge; within that caldera lies North America's largest supervolcano. A 1988 wildfire burned over a third of this location. Four million tourists annually visit this national park, which contains a (*) geyser known for its highly predictable eruption pattern. For ten points, name this protected area in Wyoming whose Old Faithful helped establish it as America's first national park.

ANSWER: **Yellowstone** National Park

(5) A conservatory in this country twice expelled the composer of *Pavane for a Dead Princess* for continually failing to win medals in its competitions. Another composer from this country wrote an initially-unpopular opera about Pelleas and Melisande; that (*) Symbolist composer from this country was more successful with his *La mer*. For ten points, name this home country of composers Maurice Ravel and Claude Debussy and site of the Paris Conservatory.

ANSWER: **France**

(6) **In 2010, experiments with an orbiting muon found a discrepancy in the radius of this object. A series of reactions named for two of these objects describes the fusion of hydrogen into helium. This particle is the heavier product of (*)** beta-minus decay, and they are made up of two up quarks and one down quark. The number of these particles in an atom gives the atomic number of its element. For ten points, name this particle that is found in the nucleus with neutrons.

ANSWER: **proton**

(7) **An essay by Thomas De Quincey discusses "the Knocking at the Gate" in this play, arguing that hearing Lennox and a nobleman from Fife entering Inverness Castle ends a stupor caused by a murder. This play's title murderer becomes the (*)** Thane of Glamis and Cawdor, in accordance with a prophecy given by three witches to him and Banquo, and takes the throne after killing King Duncan. For ten points, name this "Scottish play" by William Shakespeare.

ANSWER: The Tragedy of **Macbeth**

(8) **This man wrote the decision to *Fletcher v Peck*, resolving the Yazoo land scandal. In 1803, this judge ruled that, even though John Adams erred in not delivering a commission, the (*)** Judiciary Act in question was unconstitutional, taking a landmark step in establishing the power of the Supreme Court. Judicial review was established in *Marbury v. Madison* by, for ten points, what longest-serving Chief Justice in the Supreme Court's history?

ANSWER: John **Marshall**

(9) **In the Brazilian release of this film, Boi Chá replaces Peter Moosebridge as a newscaster. In this film, Manchas, a mob boss's limo driver, is attacked by a savage florist, and pastry chef Gideon Grey helps reveal (*)** Bellwether's plot, which uses "night howlers" to bring out the feral side of predators like fox Nick Wilde. For ten points, name this 2016 Disney film in which rabbit Officer Judy Hopps fights crime in the title animal city.

ANSWER: **Zootopia** (accept **Zootropolis**)

(10) **In Sikhism, a Dastar protects this substance, which is called Kesh and tended with a Kangha, two of the Five K's. Payot are a variety of this substance worn in Orthodox Judaism, and some Muslims cover this substance with a (*)** hijab. Samson derived his strength from this substance, and became weak when Delilah cut it. For ten points, name this substance that grows out of human heads and faces.

ANSWER: human **hair**

(11) **On January 1, 1946, the holder of this position issued the Humanity Declaration. In August 2016, the holder of this position suggested that, after two surgeries, his country's Parliament should amend the (*)** Imperial Household Act and allow him to retire. The holder of this position is, legendarily, a descendant of Amaterasu, though is no longer considered divine. For ten points, name this position held by Akihito since the 1989 death of his father, Hirohito.

ANSWER: **Emperor of Japan** (accept **Tenno**)

(12) **The _Janet_ fleet shuttles between this location and McCarran International Airport. This location includes Homey Airport near Groom Lake, where Lockheed established "the Ranch" for engineers working on the U-2 within Nellis (*)** Air Force Range. In 2013, the CIA first acknowledged the existence of, for ten points, what Nevada facility where the US Air Force probably tests experimental aircraft and probably doesn't hold the alien remains from Roswell, New Mexico?

ANSWER: **Area 51** (prompt on "Homey Airport," "Groom Lake," or "Nellis Air Force Range (or Base)" before they are read)

(13) **The stochastic type of these objects describe the states of Markov chains. A popular method for solving systems of linear equations works one of these objects into reduced row-echelon form. If one of these objects is (*)** square, its trace is simply the sum of values along a diagonal, and it has an inverse if and only if its determinant is not 0. For ten points, name this mathematical term for a rectangular array of numbers, arranged in columns and rows.

ANSWER: **matrix** (accept **matrices**)

(14) **Thomas Midgley developed a tetraethyl compound of this element that boosted octane rating and stopped engine knocking, much like ethanol; in the 1970s, the United States banned it as a (*)** fuel additive. Exposure to this element increases the risk of neurological problems, especially in children; a recent case of such exposure is ongoing in Flint, Michigan. For ten points, name this toxic element found in old paint and pipes, whose chemical symbol is Pb.

ANSWER: **lead** (accept **Pb** before it is read)

(15) **At the beginning of this novel, the captain of the _Demeter_ writes about the disappearance of the entire crew and seeing a large dog-like creature. Arthur Holmwood's marriage proposal wins out against those of Quincey Morris and Dr Seward, who all help kill (*)** Lucy Westenra in this novel. Jonathan Harker enlists the help of Abraham Van Helsing in this novel. For ten points, name this novel by Bram Stoker about a Transylvanian vampire.

ANSWER: **Dracula**

(16) **In one work by this artist, a boy wears a wreath of roses and sits on a stool holding a pipe. The five subjects of a painting by this man are modeled on Spanish prostitutes and African masks. _Boy With a Pipe_ and _Les_ (*)** _Demoiselles d'Avignon_ [lay day-mwah-zells da-veen-YON] are by this artist, who painted a bull standing over a screaming mother in a painting that protests a Spanish Civil War bombing. For ten points, name this painter of _Guernica_, who helped found the Cubist movement.

ANSWER: Pablo Ruiz y **Picasso**

(17) **Hermes took this child to Mount Nysa to be raised. This figure's followers were said to devour raw flesh, usually after tearing a bull apart with their bare hands. Pentheus was similarly torn apart by the maenads, this god's crazed female worshipers. This god's mortal mother, (*)** Semele, died of seeing the full glory of Zeus, who then sewed this god into his thigh. For ten points, name this "twice-born" Greek god of theater, fertility, and wine.

ANSWER: **Dionysus** (accept **Bacchus**)

(18) **Livy described this leader's genius use of vinegar and fire to clear a mountain pass. This leader ended an invasion shortly after the head of his brother, Hasdrubal, was thrown into his camp. This man ravaged the Italian countryside for over a decade but was defeated at (*)** Zama by Scipio Africanus, ending the Second Punic War. For ten points, name this Carthaginian general who led a military force, including elephants, over the Alps.

ANSWER: **Hannibal** Barca

(19) **Cyclonic activity on this planet includes Oval BA, which formed from the merger of three small white storms in 2000. The solar-powered *Juno* probe began orbiting this planet in 2016. In 1994, Comet (*)** Shoemaker-Levy 9 collided with this planet, providing evidence for its role as the "vacuum cleaner" of the Solar System. A centuries-old storm called the "Great Red Spot" rages on, for ten points, what largest planet in the Solar System?

ANSWER: **Jupiter**

(20) **In this work, a ship's crew is cursed after they kill cattle belonging to Helios in an effort to get past a whirlpool, and Laertes helps hold off suitors for a woman who repeatedly weaves and unravels a burial shroud. (*)** Penelope is reunited with her husband in this epic poem after he gets past Scylla, Charybdis, and sirens to return to Ithaca. For ten points, name this epic poem by Homer in which a namesake king returns home after the Trojan War.

ANSWER: The **Odyssey**

Bonuses

(1) Historians have been largely prevented from studying whether this event took place over 25,000 *li*, as traditionally claimed, or whether that figure is exaggerated for propaganda purposes. For ten points each,

Name this year-long retreat of the Red Army as they were chased by Kuomintang forces through China.

ANSWER: **Long March** (accept **Chángzhēng** or **Coèng zīng**)

This man's leadership during the Long March began his ascent to leadership of the Red Army and, eventually, mainland China, which he ruled as Chairman until 1976.

ANSWER: **Mao** Zedong

Specifically, Mao was Chairman of this political party, which rules China. Under Mao, this party controlled a planned economy, which has since been replaced by a socialist market economy.

ANSWER: **Communist** Party of China

(2) For ten points each, answer the following about elements in the liquid phase.

This toxic metal element with symbol Hg is, like bromine, a liquid at room temperature.

ANSWER: **mercury**

This metal is a solid at room temperature but melts at just over 85 degrees; that is, it will melt in your hand.

ANSWER: **gallium** (accept **Ga**)

When this gas is chilled to almost -300 degrees Fahrenheit, it becomes a pale blue liquid. It was used with liquid hydrogen as fuel for the Atlas rockets.

ANSWER: **oxygen** (accept **O**)

(3) This novel's title character earns his moniker while imprisoned in the Chateau d'If [sha-toh-DEEF]. For ten points each,

Name this novel in which Edmond Dantes uses a false identity to get revenge after he is framed as a Bonapartist and his fiancée, Mercédès, marries Fernand Mondego.

ANSWER: The **Count of Monte Cristo** (accept Le **Comte de Monte-Cristo**)

The Count of Monte Cristo is by this Haitian-French author of *The Three Musketeers*.

ANSWER: Alexandre **Dumas**, père (accept Alexandre **Dumas**, Sr; accept Dumas **Davy de la Pailleterie**)

This character in *The Count of Monte Cristo* befriends Edmond during his imprisonment in the Chateau d'If. After this character dies, Edmond takes the place of his corpse to escape the prison.

ANSWER: **Abbé Faria**

(4) This song's lyrics were partially written by random chance, and was inspired by the *I Ching* [ee ching]. For ten points each,

Name this 1968 song by George Harrison that protests "i don't know how someone controlled you / they bought and sold you" and declares "I look at you all, see the love there that's sleeping."

ANSWER: **While My Guitar Gently Weeps**

"While My Guitar Gently Weeps" appears on the *White Album* by this band, alongside songs by John Lennon, Paul McCartney, and Ringo Starr.

ANSWER: The **Beatles**

Regina Spektor performed a cover of "While My Guitar Gently Weeps" for the soundtrack of this 2016 stop-motion animated film set in ancient Japan. In this film made by Laika, Art Parkinson voices a young boy who tries to speak with his father's spirit and find his magic armor in this film.

ANSWER: **Kubo and the Two Strings**

(5) The Khumbu Glacier in this mountain range is the site of a dangerous icefall popular with mountain climbers, as it is part of one of the more accessible paths up the Nepalese side of one of its mountains. For ten points each,

Name this mountain range between China and India.

ANSWER: **Himalaya**s (accept **Himalaya**n Mountains)

The Himalayas are home to this tallest mountain in the world, first climbed by Sir Edmund Hillary in 1953.

ANSWER: Mount **Everest**

Hillary was assisted in his summit of Everest by this Sherpa mountaineer, who was controversially not knighted for his accomplishment.

ANSWER: Tenzing **Norgay**

(6) This god avenged the death of his son Asclepius, a god of medicine who wielded a staff wound with a snake. For ten points each,

Name this Greek god of music, light, prophecy, and healing, who was the twin brother of Artemis.

ANSWER: **Apollo**

The Staff of Asclepius is often mistaken for the Caduceus, the symbol of this other god, who is a messenger and patron of travelers.

ANSWER: **Hermes**

Asclepius learned medicine from this wise mythological figure, who raised him after the death of his mother. This centaur is also credited with having taught Achilles and Perseus.

ANSWER: **Chiron**

(7) For ten points each, give the following about 20th century art.

This Spanish surrealist painted a sphinx with Shirley Temple's head in *Shirley Temple, The Youngest, Most Sacred Monster of Contemporary Cinema*. This artist's *The Persistence of Memory* depicts soft-textured clocks.

ANSWER: Salvador **Dalí**

Though the original copy of this painting was made in 1893, Edvard Munch continued making copies and lithographs of it for decades. This painting depicts a swirling red sky above a frightened, anxious figure.

ANSWER: The **Scream** (accept **Skrik**; accept The **Cry**)

This American "action painter" was a leading abstract expressionist. Late in life, he began numbering, rather than naming, his drip paintings.

ANSWER: Jackson **Pollock**

(8) For ten points each, name the following important ships in early American history.

The first Pilgrims, including William Bradford, arrived in Cape Cod in 1620 aboard this ship.

ANSWER: **Mayflower**

In 1839, slaves aboard this ship overthrew the crew and ordered the ship sailed back to Africa; instead, the crew sailed to New York, leading to an 1841 Supreme Court case in which the slaves were freed.

ANSWER: La **Amistad**

In June 1772, this British anti-smuggler boat ran aground off the coast of Rhode Island and was controversially burned by angry colonists.

ANSWER: HMS **Gaspee** ([gas-pay], but be lenient)

(9) Answer the following about elaborate and extensive fantasy novel series, for ten points each.

This seven-volume fantasy series by J.K. Rowling follows the school life of the title "boy who lived" and his friends Ron and Hermione as they defend the world of wizards and muggles against the evil Lord Voldemort.

ANSWER: **Harry Potter**

Beginning with the novel *A Game of Thrones* and projected to end with *A Dream of Dragons*, this series by George R.R. Martin details political conflict between the seven kingdoms of Westeros using the points of view of almost two dozen characters, including Theon Greyjoy and Sansa Stark.

ANSWER: A **Song of Ice and Fire** (prompt on A**SOIAF**)

Before his 2015 death, this author wrote over forty volumes of fiction about his *Discworld* universe, in which the failed wizard Rincewind, the witch Granny Weatherwax, and a host of other characters live on a flat world on the back of the great turtle A'Tuin.

ANSWER: Sir Terence David John "Terry" **Pratchett**

(10) These pathogens are surrounded by a protein coat called a capsid. For ten points each,

Name this type of non-living pathogen that take over a host cell to replicate themselves.

ANSWER: **virus**

This type of virus infects bacteria. These pathogens can be used as an antibiotic or genetic engineering vector.

ANSWER: **bacteriophage**

The first discovered virus, studied in the late 19th century, infects this cash crop, giving its leaves a mottled appearance.

ANSWER: **tobacco** (accept **tobacco** mosaic (virus))

(11) In 2011, Airbnb co-sponsored a promotion in which, for just $70,000 per night, you could rent this country. For ten points each,

Name this doubly-landlocked European principality, nestled in the Alps west of Austria, which enjoys one of the highest GDP-per-capita in the world.

ANSWER: **Liechtenstein**

In 2007, this military force accidentally invaded Liechtenstein by wandering a mile off course during a training exercise. Members of this armed force traditionally carry multi-purpose knives made by Victorinox.

ANSWER: **Swiss Army** (accept descriptions of the **army of Switzerland**; do not accept Swiss Guard)

Liechtenstein was notoriously late in providing this right to women; Liechtenstein's suffragettes had to wait until 1984 to win this right.

ANSWER: right to **vote**

(12) This family of writers included the author of *Agnes Grey* and *The Tenant of Wildfell Hall*. For ten points each,

Give this surname shared by sisters Anne, Charlotte, and Emily, who wrote a novel in which Edgar Linton marries Catherine Earnshaw against her foster brother's wishes.

ANSWER: **Brontë**

In this only novel by Emily Brontë, Heathcliff gets revenge for the loss of Catherine by corrupting Hareton, who lives with him in the title house.

ANSWER: **Wuthering Heights**

The Brontë sisters all published their works under the names of male authors. Anne was "Acton," Emily was "Ellis," and Charlotte wrote as "Curer," all three of whom had this surname.

ANSWER: **Bell**

(13) These structures may experience phreatic events caused by steam buildup or magmatic events in which gas decompression causes magma to erupt to the surface. For ten points each,

Name these structures that exist at "hotspots" in the Earth's crust, often where two tectonic plates meet.

ANSWER: **volcano**es

Hundreds of active volcanoes lie in this region around the edge of the Pacific Ocean.

ANSWER: **Ring of Fire**

Certain types of volcanic eruptions can create these dangerous flows of superhot gas and rock debris, which travel down from the volcano.

ANSWER: **pyroclastic** flow

(14) This work's second section, "Of Commonwealth," claims that free speech should be restricted and that separation of powers would gravely damage a state's security and well-being. For ten points each,

Name this 1651 philosophical work by Thomas Hobbes that argues for a social contract between citizens and an absolute sovereign. This work's name is also that of a Biblical sea monster.

ANSWER: **Leviathan**, or the Matter, Forme, and power of a Commonwealth Ecclesiastical and Civil

Leviathan argues that there are three types of commonwealth, and that this type is much, much better than the other two: democracy and aristocracy. In a related story, during his writing of *Leviathan*, Hobbes was a royalist supporter of Charles II.

ANSWER: absolute **monarchy**

Leviathan's first section, *Of Man*, notes that the "life of man" is "solitary, poor, nasty, brutish, and short" in the state of Nature, which Hobbes described as this type of war.

ANSWER: war of **all against all** (accept bellum **omnium contra omnes**; accept descriptions of **everyone fighting everyone else**)

(15) A number of formulas note that "energy is equal to" something, and they are often confused for one another. For ten points each,

According to an equation derived by this German scientist, the energy of a *system* is equal to the mass of the system times the square of the speed of light, or e equals m c squared.

ANSWER: Albert **Einstein**

The energy of a *photon* is equal to the frequency of its wave times this constant, symbolized h and named for another German physicist.

ANSWER: **Planck**'s constant

This *type* of energy for a moving object is equal to one-half times the mass times the square of the velocity of the object. Note that, if the object is not moving, the equation for this type of energy goes to 0.

ANSWER: **kinetic** energy

(16) A common mathematical question asks to find the shape with the largest area for a given amount of this quantity. For ten points each,

Name this general mathematical term for the distance around a shape. For a square, this quantity is equal to four times the side length.

ANSWER: **perimeter**

The analog of perimeter for circles and ellipses is known by this term. For a circle, this quantity is equal to pi times the diameter.

ANSWER: **circumference**

The Koch snowflake, one of these self-similar shapes or images, bounds a finite area yet has an infinite perimeter.

ANSWER: **fractal**

(17) For ten points each, answer the following about music inspired by the stories of E.T.A. Hoffman.

A Hoffman short story about this folk character, who steals the eyes of children who won't sleep, inspired the first act of the opera *The Tales of Hoffman*. In most depictions, this character is far less vicious and simply charms kids to sleep with magic dust.

ANSWER: The **Sandman** (accept Der **Sandmann**)

The Tales of Hoffman was composed by Jacques Offenbach, though only performed posthumously. Offenbach found more fame for a telling of the Orpheus story in which a chorus line performs this "infernal galop," a dance with many high kicks.

ANSWER: **Can-Can**

A Hoffman novella inspired this Tchaikovsky ballet, in which the title toy defeats the Mouse King in Act One and the Sugar Plum Fairy dances in Act Two.

ANSWER: The **Nutcracker**

(18) This author set *A Light in August* and *Absalom, Absalom* in Yoknapatawpha County [YAWK-nah-pah-taw-fah County]. For ten points each,

Name this American author who wrote about the Compson family in *The Sound and the Fury*.

ANSWER: William Cuthbert **Faulkner**

The title of this Faulkner novel refers to the condition of Addie Bundren. In this novel, Addie's family carries her corpse to be buried in Jefferson, the seat of Yoknapatawpha County.

ANSWER: **As I Lay Dying**

Yoknapatawpha County is a fictional location in this southern state, whose real-life capital is Jackson.

ANSWER: **Mississippi**

(19) This disciple either hanged himself or died after falling in the Field of Blood, and was replaced after his death by Matthias. For ten points each,

Name this biblical man who accepted thirty pieces of silver from the Sanhedrin [san-heh-dreen] in exchange for betraying Jesus.

ANSWER: **Judas** Iscariot

Judas surrendered Jesus to his arresting soldiers by greeting him with a kiss in this garden in Jerusalem, where Jesus had gone to pray.

ANSWER: **Gethsemane** [geth-SEH-ma-nee] (prompt on "Mount of Olives" or "Mount Olivet")

While Jesus was being tried by the Sanhedrin, this disciple fulfilled a prophecy by denying knowing him three times. This apostle went on to be recognized as the first pope.

ANSWER: Saint **Peter** (accept **Petrus**; accept **Simon** Peter; accept **Simeon**; accept **Shimon** bar Yonah)

(20) This early 20th century activist for socialist and progressive causes helped found the ACLU and advocated for better treatment for the deaf and blind. For ten points each,

Name this woman who survived an early childhood disease, but was rendered deaf and blind as a result.

ANSWER: Helen **Keller**

This governess taught Keller the relationship between words and things; as shown in the play *The Miracle Worker*, this teacher's breakthrough with Keller came while signing the word "water" into her palm while running water from a pump into the other.

ANSWER: Anne **Sullivan**

After her initial success with Sullivan, Keller was introduced to this touch-based writing system developed by a Frenchman in the early 19th century.

ANSWER: **Braille**