

Round 8

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Noah Prince • Jacob Simmons • Kristin Strey • Tyler Vaughan

Tossups

(1) **The syrinx organ is part of this body system in birds. In insects, the openings to this system are called spiracles. A dysfunction of this system in humans is sleep apnea; another disease, emphysema, damages the (*) alveoli that are crucial to this system. Tuberculosis and pneumonia are infections of this body system, that is primarily formed by the gills in fish. For ten points, name this body system that includes the trachea and lungs.**

ANSWER: respiratory system

(2) **For reporting on this goddess, Ascalaphus was turned into an owl. Pirithous was punished for eternity for trying to kidnap this goddess, who was celebrated with her mother in the Eleusinian Mysteries. This goddess lived with her mother in the (*) summer, but was forced to spend part of each year with her husband after consuming pomegranate seeds. For ten points, name this “Queen of the Underworld,” the daughter of Demeter and wife of Hades.**

ANSWER: Persephone (accept Kore)

(3) **This man wanders through the wilderness pursued by Creon in a play about this man at *Colonus*. This man’s disgrace sparks a battle between his sons Eteocles and Polynices while his daughters Ismene and (*) Antigone mourn. After the death of Jocasta, this man blinds himself with pins from her dress. For ten points, name this mythical Greek king who, in plays by Sophocles, fulfills a prophecy that he would kill his father and marry his mother.**

ANSWER: Oedipus Rex

(4) **This empire was home to the Schmalkaldic League, which was founded to protect Protestants. Francis II dissolved this empire after Napoleon founded the Confederation of the Rhine. While leading this empire, Maximilian I used a banner depicting a double-headed (*) black eagle on a yellow background. The leader of this empire was appointed by Prince-Electors. Charles V was a ruler of, for ten points, what Germanic empire whose emperors were crowned by the Pope?**

ANSWER: Holy Roman Empire (do not accept Rome)

(5) **A painting of this scene by Paolo Veronese was renamed to refer to the *House of Levi* after he was accused of indecorum. Tintoretto created a diagonal depiction of this scene, and in another version of this scene painted on dry plaster, knocked-over (*) salt may foreshadow Judas’s betrayal of the central figure. Leonardo da Vinci created a version of, for ten points, what scene depicting the final meal of Jesus and his disciples?**

ANSWER: The Last Supper (accept L’Ultima Cena)

(6) **This adjective names a type of independence for vectors in a basis. Systems of equations with this property can be solved by Cramer’s rule, Gaussian elimination, substitution, graphing, or numerous other methods. This adjective describes polynomials of degree (*) 1, because they have constant slope. For ten points, give this mathematical adjective for equations in y equals mx [“m” “x”] form that, when graphed, move infinitely far in a straight direction.**

ANSWER: linear (accept word forms related to a line; accept linear independence; accept (systems of) linear equations; accept linear polynomials)

(7) **In 1990, this city’s Isabella Stewart Gardner museum was robbed of over \$500 million worth of art. This city’s downtown area is home to a Freedom Trail, where tourists can visit Dorchester Heights, Faneuil [fan-yull] Hall, and the Old North Church. (*) Colleges in and around this city include Emerson College downtown and, across the Charles River in Cambridge, MIT, and Harvard. Logan International Airport serves, for ten points, what capital city of Massachusetts?**

ANSWER: Boston

(8) **This character claims David and Goliath were the first two disciples when asked by his love interest’s father, the town judge. After taking the blame for destroying an anatomy book, this character rekindles his relationship with (*) Becky Thatcher. This character lives with his Aunt Polly in St. Petersburg, which allows him to befriend Huckleberry Finn. Mark Twain created, for ten points, what boy who tricks his friends into whitewashing a fence?**

ANSWER: Tom Sawyer (accept either underlined name)

(9) **To ensure Abraham Lincoln’s re-election, this state was admitted to the Union a week before the election. Bugsy Siegel’s business dealings in this state were discussed at a 1946 Mafia conference in Havana; those dealings included the Flamingo (*) Hotel. In 1859, miners in the Virginia Range in what is now this state discovered the Comstock Lode. For ten points, name this western state where, annually, millions of tourists visit Las Vegas.**

ANSWER: Nevada

(10) **This film’s protagonists falsely believe their co-worker has a cat because his dog is named Mike Hat. After being told a firehouse costs \$21,000 a month, this film’s protagonists move to a space above a Chinese restaurant. Patty says “I don’t know if it was a race thing or a (*) lady thing” after a failed stage dive, shortly before her team uses their proton packs to capture a paranormal being in New York City in this 2016 film. For ten points, “who ya gonna call?”**

ANSWER: Ghostbusters: Answer the Call (accept answers like “the new Ghostbusters movie”)

(11) **People performing a nasheed, this type of action, are limited to using objects like the daf during it. In a synagogue, the hazzan leads this type of prayer, which was briefly banned after the fall of the Temple. In Exodus after the crossing of the Red Sea, (*) Miriam leads the Israelite women in this action with timbrels. Cantors lead, for ten points, what type of religious performances, examples of which include Gregorian chant, hymns, and spirituals?**

ANSWER: religious music (accept descriptions of musical prayers; accept Islamic music before “synagogue” is read; prompt on “prayer” before it is read)

(12) **This leader introduced the Four Pests campaign, which was reformed after the mass killing of sparrows ruined rice production. Backyard steel mills were encouraged by this man’s Great Leap Forward, which caused a famine and millions of deaths. This man, with (*) Zhou Enlai, led forces on the Long March after they were encircled by Nationalist forces. *The Little Red Book* is a collection of sayings by, for ten points, what former Chairman of China?**

ANSWER: Mao Zedong (accept Mao Tse-Tung; accept Chairman Mao)

(13) **The region experiences Brewer-Dobson circulation. The sudden warming of this region occurs when the polar vortex reverses. The 1991 eruption of Mt. Pinatubo formed a global sulfur dioxide cloud in this layer, whose temperature actually increases with (*) greater altitude. Most commercial aircraft reach cruising speed within, for ten points, which layer of the atmosphere that contains the ozone layer and lies above the troposphere?**

ANSWER: stratosphere (accept ozone layer before “warming” is read; prompt on “atmosphere” before it is read)

(14) **In a novel by this author, Philippe confesses to a priest that his only crime was being the twin of Louis XIV. In another novel by this author, Baron Danglars, Fernand Mondego, and Mercédès are among the targets of a man who escapes the (*) Château d’If [sha-toh deef] and adopts a fictitious noble title. *The Man in the Iron Mask* is by, for ten points, what French author who wrote about Edmund Dantès in *The Count of Monte Cristo*?**

ANSWER: Alexandre Dumas, pere (accept Dumas Davy de la Pailleterie)

(15) **The use of ruthenium in the Grubbs’ type of this substance makes it resistant to poisoning, while titanium is needed to polymerize alkenes in the Ziegler-Natta type. The production of sulfuric acid uses vanadium as one of these substances to (*) increase the rate of the oxidation step. Enzymes are biological examples of, for ten points, what chemicals that lower activation energy, thereby speeding up a reaction, without being consumed?**

ANSWER: catalysts

(16) **In February, a staffer in this government agency gave a “homework assignment” to a lobbyist for Pebble Limited, whose CEO later met with this agency’s head and received help for their proposed mine in Bristol Bay, Alaska. The current head of this agency had, as (*) Oklahoma Attorney General, sued it over a dozen times during the Obama administration. Scott Pruitt leads, for ten points, what government agency that enforces the Clean Air and Clean Water Acts?**

ANSWER: Environmental Protection Agency (accept the EPA)

(17) **A tambourine in this work accompanies woodwinds in the folk song “U Vurot,” or “At the Gate.” Cellos play the hymn “God Save Thy People” at this work’s beginning. Near the end of this piece, the French national anthem “La (*) Marseillaise” [mar-sigh-ezz] fades out as “God Save the Tsar” begins, punctuated by cannon fire and church bells. For ten points, name this piece that celebrates the defeat of Napoleon by Russian troops, a Pyotr Tchaikovsky overture.**

ANSWER: the 1812 Overture (accept The Year 1812, Festival Overture in E Flat major, Op. 49)

(18) **This author asks “Doth God exact day-labour, light denied?” in a poem that ends “They also serve who only stand and wait.” In another work by this author of “When I Consider How my Light is Spent,” a character proclaims “Better to (*) reign in Hell, than serve in Heaven” after failing in his rebellion against God. Adam and Eve are banished from Eden in a work by, for ten points, what English author who was blind when he wrote *Paradise Lost*?**

ANSWER: John Milton

(19) **The change in this value due to Compton scattering is proportional to one minus the cosine of the scattering angle. Massive particles have a de Broglie [duh BROY] variety of this value equal to Planck’s constant over momentum. For the (*) electromagnetic spectrum, the product of this and frequency is equal to the speed of light. For ten points, name this quantity, symbolized lambda, that can be computed as the distance between two peaks of a wave.**

ANSWER: wavelength

(20) **James Wilkinson exposed this man’s plan to help Mexico force Spain out of the American southwest. After 35 deadlocked ballots, this man became Vice President after Federalists switched their support to Thomas Jefferson. This man was nearly indicted in New Jersey for (*) slaying a political rival in a duel at Weehawken. For ten points, name this American statesman who ruined his political career by killing Alexander Hamilton.**

ANSWER: Aaron Burr Jr.

Bonuses

(1) This country's colonial empire included African possessions in what is now Angola and Mozambique and forts to protect Indian trade in Goa and Mumbai. For ten points each,

Name this European country that sponsored caravel voyages by Vasco da Gama and Pedro Cabral, but not Christopher Columbus, during the Age of Discovery.

ANSWER: Portugal (accept the Portuguese Empire)

Portugal's expansion in the Age of Discoveries was driven by this prince, known for his love of exploration. This son of John I captured Ceuta [say-oo-ta] and colonized the Azores.

ANSWER: Prince Henry the Navigator (accept Henry the Seafarer; prompt on "Henry")

Portugal's colonies in the New World included the eastern coast of this modern-day country, gained in the Treaty of Tordesillas [tor-de-see-as]. Today, this South American country's official language is still Portuguese.

ANSWER: Brazil

(2) In a novel by this author, Aomame enters an alternate universe after assassinating a hotel guest. For ten points each,

Name this Japanese author of *Kafka on the Shore*, *The Wind-Up Bird Chronicle*, and *1Q84*.

ANSWER: Haruki Murakami (accept names in either order)

A section of *1Q84* is titled "Town of" these animals, which often appear in Murakami's works. One of these pets goes missing at the start of *The Wind-Up Bird Chronicle*, and several of these animals are characters in *Kafka on the Shore*, including a tabby and a Siamese.

ANSWER: cats (accept Town of Cats)

Murakami's writing is often inspired by pop culture, especially this 1960s band. A 2013 short story is named for their song "Drive My Car," and in a 1987 novel, Toru Watanabe is emotionally overcome in Hamburg after hearing this band's song "Norwegian Wood."

ANSWER: The Beatles

(3) According to a conspiracy theory that this opera is an advertisement for Freemasonry, its character of the Queen of the Night is a symbolic attack on the real Maria Theresa. For ten points each,

Name this 1791 opera in which the Queen sings an aria with a series of famously high notes. The enchanted title object of this opera is given to Tamino, who plays it to protect himself in a series of trials.

ANSWER: The Magic Flute (accept Die Zauberflöte)

The Magic Flute was one of the last works composed by this Austrian composer, a former child prodigy.

ANSWER: Wolfgang Amadeus Mozart

This is the highest note hit during the Queen of the Night's aria. The major key based on this note has a single flat in its signature.

ANSWER: F (accept F6; accept F Major)

(4) In the 19th and 20th centuries, a divide arose between analytic and continental philosophers. For ten points each,

Broadly speaking, analytic philosophy describes ways of thinking that were traditional to English-speaking countries, like the US and Great Britain, while continental philosophy describes the philosophical traditions of this continent.

ANSWER: **Europe**

One major difference between the two branches was their approach to this field of philosophy that studies the basic nature of existence and reality, named for a work by Aristotle.

ANSWER: **metaphysics**

Bertrand Russell, a prominent analytic philosopher, argued in favor of this spiritual position, whose strong form argues that supernatural deities do not exist.

ANSWER: (strong) **atheism**

(5) The egg-rolling done by geese and the spinning of webs by spiders can be described with this term. For ten points each,

Name this type of behavior that is genetically hardwired from birth and done without any prior experience.

ANSWER: **instinctive** (accept **innate**; accept word forms, like **instinctual**)

Many non-instinctual behaviors are learned through this process, in which rewards reinforce a behavior while punishments discourage it. During World War II, B. F. Skinner used this type of learning to train pigeons to guide navy missiles.

ANSWER: **operant conditioning** (prompt on conditioning; do not accept “classical conditioning”)

In between purely innate and conditioned responses is this type of animal behavior that can only occur during a critical period of time. Newly hatched goslings recognized Konrad Lorenz as their mother and continuously followed him because of this type of learning.

ANSWER: filial **imprinting**

(6) Asking a survey to every person you run into at a shopping mall is an easy way to flunk a statistics project. For ten points each,

Going to the mall is a common example of the “convenience” style of performing this statistical procedure, in which a group of people are randomly - or not so randomly - chosen from the population to take the survey.

ANSWER: sampling (accept word forms of sample; accept additional information about randomness; accept convenience sample)

Asking each person you see at the mall runs the risk of ignoring people who don't shop at the mall, introducing this type of negative effect to your survey. This problem can also be introduced by writing your survey to indicate what the answer should be.

ANSWER: bias (accept any type of bias, including selection, sampling, response, etc.)

As another option, you could “ask every American in the country, period;” doing so doesn't create sample data, but rather one of these sets of information. The US government does one of these every 10 years to count the population of the US.

ANSWER: census

(7) Answer the following about Jesus's parable of the Pearl of Great Price, for ten points each.

The parable appears in this gospel, the first book of the New Testament. This book is named for its apparent author, and precedes the books of Mark, Luke, and John.

ANSWER: the Book of Matthew

The Pearl of Great Price also appears in an apocryphal Gnostic gospel attributed to this “doubting” disciple, who could not believe in the resurrection until he had felt Jesus's wounds.

ANSWER: Saint Thomas the Apostle (accept Doubting Thomas)

The Pearl of Great Price is the title of a collection of scriptures and teachings important to this church, which was founded by Joseph Smith and is headquartered in Salt Lake City.

ANSWER: The Church of Jesus Christ of Latter-Day Saints (accept LDS Church or Latter-Day Saint Movement; accept Mormon church; accept mormons or mormonism)

(8) In a short story by this man, Nick Adams is sent to warn Ole Anderson about hitmen coming to kill him. For ten points each,

Name this author of “The Killers” who wrote about the romance between Frederic Henry and Catherine Barkley in a work bolstered by his own experiences in World War I, *A Farewell to Arms*.

ANSWER: Ernest Miller Hemingway

Hemingway once again used his experience, this time as a reporter, to provide detail for this work set in the Spanish Civil War. In the novel, which takes its name from John Donne, Robert Jordan works with guerrillas to destroy a bridge.

ANSWER: For Whom The Bell Tolls

Hemingway’s last work was this calmer short story which focuses on Santiago’s attempt to catch a marlin. This work ends with Santiago dreaming of his youth after losing the marlin to a group of sharks.

ANSWER: The Old Man and the Sea

(9) For ten points each, give the following about the 1824 Supreme Court case *Gibbons v. Ogden*.

The case concerned a monopoly on steamboat waterway navigation rights that this state gave to Robert Livingston and Robert Fulton. Fulton’s *North River Steamboat* set speed records on the Hudson River to this state’s capital, Albany.

ANSWER: New York

Aaron Ogden, a business partner of Fulton and Livingston, sued Thomas Gibbons for illegally operating a steamboat between New Jersey and New York; that steamboat was captained by this “Commodore,” who later built a steamboat and railroad empire. This man’s philanthropy included founding a namesake university in Tennessee.

ANSWER: Cornelius Vanderbilt (accept Vanderbilt University)

This Congressman from Massachusetts, a member of the “Great Triumvirate,” represented Gibbons before the Supreme Court and successfully argued that interstate navigation rights were under Congress’ control.

ANSWER: Daniel Webster

(10) Anthropologists flocked to this desert area in the 1940s after pilots “discovered” a series of geoglyphs that were previously misunderstood. For ten points each,

Name this South American plain, north of the Atacama Desert, where a series of namesake “lines” in shapes like a spider, monkey, hummingbird, and hands were made from rocks in the desert terrain.

ANSWER: Nazca Plain(s) (accept Nazca Lines; accept Nazca Desert; accept Sechura Desert; prompt, but do not otherwise reveal, “Peruvian Desert”)

The Nazca Lines were preserved by the dry conditions along this country’s western Pacific region. Further up its coast are cities like Miraflores and its capital, Lima.

ANSWER: Peru

The Nazca plains and Atacama Desert are among the incredibly dry regions west of this South American mountain range, the longest continental range in the world.

ANSWER: Andes Mountains

(11) Although local legends disagree with him, a farmer reports that this man was so afraid after ruining Hans Van Ripper’s saddle that he moved to New York to become a judge in a small claims court. For ten points each,

Name this literary character who, according to local legend, haunts the ruins of his New England schoolhouse. This teacher disappears after being frightened by Brom Bones at Katrina Van Tassel’s party.

ANSWER: Ichabod Crane (accept either underlined name)

Locally, Ichabod Crane’s mysterious disappearance is blamed on this ghost, also known as the Galloping Hessian of Sleepy Hollow, who rides through the countryside at night searching for a missing body part.

ANSWER: the Headless Horseman of Sleepy Hollow

Ichabod Crane and the Headless Horseman appear in “The Legend of Sleepy Hollow,” an entry in this American author’s collection *The Sketchbook of Geoffrey Crayon*.

ANSWER: Washington Irving

(12) Hooke’s law includes k , the namesake constant for one of these devices. For ten points each,

Name these elastic devices that can store energy in volutes, leaves, or more commonly, compressed metal coils.

ANSWER: springs

In Hooke’s law, the opposite of the spring constant times the stretched distance equals this type of force, which tries to return the spring to its relaxed position. Gravity acts as this type of force on a pendulum.

ANSWER: restoring force

Under the influence of a restoring force, a mass at the end of an ideal spring displays this kind of periodic motion that can be graphed as a sine curve.

ANSWER: simple harmonic motion/oscillation (accept SHM; accept SHO; prompt on harmonic)

(13) This man took power of his country's Ba'ath Party shortly after the death of his father, Hafez. For ten points each,

Name this dictator who has violently cracked down on protests during an ongoing civil war.

ANSWER: Bashar al-Assad

Assad is the dictator of this Middle Eastern country, where protests began in the capital city, Damascus.

ANSWER: Syria (accept Syrian Arab Republic)

The protests in Syria began as part of this broad set of revolutions in the middle east in 2010 and 2011. This period began in Tunisia and resulted in government changes in Egypt, Libya, and Yemen.

ANSWER: Arab Spring

(14) For ten points each, give the following about the state of video-streaming websites in 2017.

By far the most popular video-streaming website in the US is this Google-owned website, which offers an ad-free "red" version. This site is the main outlet of JennaMarbles, Smosh, and the Fine Brothers.

ANSWER: YouTube (accept YouTube Red)

While YouTube dominates pre-recorded footage, this website reigns supreme in livestreams. Due to its recent acquisition by Amazon, Prime members can subscribe to one channel on this website for free each month.

ANSWER: Twitch.tv (accept Twitch Prime)

This company has repeatedly tried to enter the streaming market, going as far as buying the rights to the sixth season of *Community*, but hasn't found much success. In 2016, this company replaced its "Screen!" service with the Hulu-partnered View!

ANSWER: Yahoo!

(15) Redshifts and standard candles are part of the cosmic ladder used to measure this quantity on a galactic scale. For ten points each,

This quantity for Proxima Centauri from the Sun is about 1.3 parsecs, 4.2 light-years, or 24.7 trillion miles.

ANSWER: distance (prompt answers like "how far away it is")

The parsec is based on an angle of one arcsecond for this phenomenon, in which the position of a distant object appears to change when the observer's line of sight is shifted.

ANSWER: parallax (accept parallax second)

This is another unit for direct distance measurements. There are 30 of these between the Sun and Neptune, and exactly one between the Sun and Earth.

ANSWER: astronomical unit (accept AU)

(16) These creatures included the dryads, the spirits of trees and forests, and the naiads, the spirits of rivers and waterways. For ten points each,

Name these semi-divine creatures from Greek myths, feminine spirits attached to specific natural features.

ANSWER: nymphs

For her talkativeness, this nymph was cursed to only be able to repeat the words of others, and eventually wasted away to only her repetitive voice.

ANSWER: Echo

Echo's beloved was this beautiful human, who died when he fell in love with his own reflection, and transformed into a namesake waterside flower.

ANSWER: Narcissus

(17) In this play, King Claudius marries his sister-in-law, Gertrude, immediately after the death of the title character's father. For ten points each,

Name this Shakespeare play about a *Prince of Denmark* who suspects Claudius of having murdered his father.

ANSWER: The Tragedy of Hamlet, Prince of Denmark

In *Hamlet*, Claudius is advised by this bumbling, babbling father of Laertes, who is stabbed through a curtain in Gertrude's chambers.

ANSWER: Polonius

This daughter of Polonius is devastated when Hamlet seems not to love her any longer. This woman goes mad and eventually drowns herself under a willow tree.

ANSWER: Ophelia

(18) This painter's painstakingly realistic portraits have inspired suggestions that he painted onto images projected by a camera obscura. For ten points each,

Name this Dutch Golden Age painter, whose portraits includes ones of a *Milkmaid*, a *Geographer*, and an *Astronomer*.

ANSWER: Jan Vermeer (accept Johan or Johannes instead of Jan)

Vermeer painted a vast, cloudy sky over a harbour and the blue and red roofs in a *View of* this Dutch city, which was Vermeer's hometown.

ANSWER: View of Delft (accept Gezicht op Delft)

This painting by Vermeer shows a close view against a black backdrop, bringing the viewer's focus to a young woman wearing a blue and yellow turban, with a title jewelry hanging from her ear.

ANSWER: Girl with a Pearl Earring (accept Meisje met de parel)

(19) After being convicted for speaking out against this policy, a socialist politician noted “while there is a soul in prison, I am not free.” For ten points each,

Name this governmental policy affecting men of certain ages. It was instituted in 1917 after voluntary enlistment failed to create a one million man force to fight in World War I.

ANSWER: the **draft** (accept answers related to military **conscription**; accept the **Selective Service**)

This aforementioned socialist was imprisoned in 1918 for speaking out against the draft. Despite being in prison, he received 3.4 percent of the popular vote in the presidential election of 1920, his fifth time on the ballot.

ANSWER: Eugene V. **Debs**

This President called Debs a traitor for his opposition to the draft during World War I and consistently refused to pardon him. Eventually, this man’s successor, Warren Harding, commuted Debs’ sentence.

ANSWER: Woodrow **Wilson**

(20) For ten points each, give the following about the electron configuration of potassium.

Potassium’s electrons normally occupy the lowest possible energy levels, so the configuration is said to be in this state, as opposed to an excited state.

ANSWER: **ground** state

In the ground state, the 3p subshell of potassium is filled before the 4s due to this energy level principle. Its name comes from the German for “building-up.”

ANSWER: **aufbau** principle

The electron configuration of potassium can be shortened to Ar 4s1 [”a” r” 4 “s” 1] by using the symbol for argon, one of these unreactive elements found in Group 18 of the Periodic Table.

ANSWER: **noble gases** (accept **inert gases**; prompt on partial answers)