Round 6

Michael Etzkorn • Brad Fischer • Clare Keenan • Mike Laudermith • Lauren Onel
Noah Prince • Jacob Simmons • Kristin Strey • Tyler Vaughan

Tossups

(1) **A member of this family said "the dream shall never die" after Jimmy Carter defeated him for the Presidential nomination. Another member of this family was assassinated by Sirhan Sirhan, and served as Attorney General under his (*)** brother, who was shot by Lee Harvey Oswald in 1963. For ten points, name this American political family with members like Ted, Robert, and John Fitzgerald.

ANSWER: **Kennedy** family (accept Edward "Ted" **Kennedy**; accept Robert F. **Kennedy** after "California" is read; accept John F. **Kennedy** after "his brother" is said)

(2) **In a novel by this man, Helene Kuragina marries Pierre Bezhukov, who believes that he must kill Napoleon. The title character of one of this man's novels is upset when the horse Frou-Frou is injured; she has an affair with Count (*)** Vronsky before throwing herself in front of a train. For ten points, name this Russian author of *Anna Karenina* and *War and Peace*.

ANSWER: Leo Nikolayevich **Tolstoy**

(3) **This feat was done 195 times in 2017 by both Chris Davis and Khris Davis. Doing this 4 times earns a golden sombrero. This feat can happen 4 times in an (*)** inning because if it finishes with a wild pitch, the batter can try to reach first base. A "K" symbolizes, for ten points, what baseball stat that can be earned by swinging and missing 3 times?

ANSWER: **strikeout** (accept **K** before it is read; do not prompt on "out")

(4) **This constellation, with Gemini and Auriga, lies entirely in the Winter Circle. This constellation is never seen at the same time as Scorpius, and includes a (*)** shield west of its third-brightest star, Bellatrix. The supergiants Rigel and Betelgeuse are found in, for ten points, what constellation whose three central stars make up the hunter's belt?

ANSWER: **Orion** (accept **Orion**'s Belt after "belt" is read)

(5) **Thomas Eakins painted David Agnew teaching this profession while wearing white, and depicted Samuel Gross demonstrating this job to men trying to help an unconscious teenager. In a panting by Rembrandt, a man with this job named Nicolaes Tulp pulls on a dead convict's (*)** tendons with forceps. For ten points, name this job, whose practitioners are often painted cutting into human bodies.

ANSWER: **doctor** (accept **surgeon**)

(6) **This creature was fed cake soaked in wine by the Sibyl of Cumae to help Aeneas pass it, and this creature so terrified King Eurystheus that he hid in a jar. This brother of Orthrus was unable to pierce the Nemean Lion skin worn by (*)** Heracles during his twelfth labor, during which this creature was captured from Hades. For ten points, name this three-headed guard dog of the Greek underworld.

ANSWER: **Cerberus**

(7) **This country elected its first female president, Tsai Ing-wen, in 2016. This country's "Blue Sky with a White Sun" flag symbolizes the Kuomintang government. South Korea, Singapore, Hong (*)** Kong, and this country are often labeled the Four Asian Tigers for their high-tech economies. For ten points, name this island nation with capital Taipei whose sovereignty is disputed by its mainland neighbor, China.

ANSWER: **Taiwan** (accept **Republic of China**; accept **ROC**; do not accept or prompt on China alone)

(8) **The rare Bombay phenotype for this trait is produced by H antigen deficiency. Cross-matching for this trait helps prevent transfusion reactions. When the Rh factor is considered, there exist (*)** eight of these designations. For ten points, name this hematological trait whose "universal donor" example is O-negative and that can also be classified as A, B, or AB.

ANSWER: **blood type** (accept **blood group**)

(9) **In this novel, William Collins marries Charlotte Lucas after being rejected by the protagonist. A character in this novel protects Lydia's reputation by bribing George Wickham into marrying her, and his friend Mr (*)** Bingley gets engaged to Jane. For ten points, name this Jane Austen novel in which Elizabeth Bennet ultimately agrees to marry Mr Darcy.

ANSWER: **Pride and Prejudice**

(10) **A late chapter of this work describes fortune as a woman to be beaten. This work, written as advice for the Medici family, notes that it is safer to be (*)** feared than to be loved, but a ruler should hope to be both feared and loved. For ten points, name this 1532 work of political philosophy by Niccolo Machiavelli, named for its intended royal reader.

ANSWER: The **Prince** (or Il **Principe**)

(11) **In 2002, it was proven that this number is the only positive cubic number that is one less than a square number. This number is the only cubic number greater than 1 that appears in the Fibonacci sequence. A cube has this many (*)** vertices between its 12 edges and 6 faces. For ten points, give this number that is equal to two cubed and serves as the base of the octal number system.

ANSWER: **eight**

(12) **In the east of this desert, the salty Lake Turkana is threatened by a dam on the Omo River. The large-eared fennec fox lives in this desert, where two Grand Ergs lie in the rain shadow of the (*)** Atlas Mountains to its north. This desert is north of a transition zone that passes from Sudan to Mali called the Sahel. For ten points, name this African desert, the largest in the world.

ANSWER: **Sahara** Desert

(13) **In a uniform electric field, this quantity equals the product of charge and voltage. This quantity can only be calculated in the direction of an object's displacement, and like (*)** energy, it is measured in joules. Carrying a weight up a flight of stairs is an example of, for ten points, what quantity often expressed as force times distance?

ANSWER: **work**

(14) **One of these literary creatures, covered in blood, takes Macbeth's seat at a feast. One of these creatures drags cash-boxes and ledgers by chains, and identifies himself as Jacob (*)** Marley when he tells Ebenezer Scrooge he will be followed by three of these creatures representing Christmas Past, Present, and Yet-to-Come. For ten points, name these disembodied spirits of the dead.

ANSWER: **ghost**s (accept **spirit**s; accept **phantom**s; prompt on "dead people" until it is read)

(15) **This party sponsored John C Fremont in its first presidential election. Thaddeus Stevens led a Radical faction of this political party that tried to impeach Andrew Johnson. After the Civil War, this party supported (*)** Reconstruction, in contrast to its Southern rivals. For ten points, name this political party that elected Abraham Lincoln president over Stephen Douglas, a Democrat.

ANSWER: **Republican** Party (accept **Grand Old Party**; accept **GOP**)

(16) **A religion founded in this country practices Harae [hah-rah-ay], which involves washing away sin with water. Monks in this country created rock gardens to aid them in their (*)** meditations. Temples for this country's native religion are fronted by red gates called torii [toh-ree]. Zen Buddhism and Shinto are worshiped jointly in, for ten points, what country whose sacred sites include Mt Fuji?

ANSWER: **Japan** (accept **Nippon**-koku; accept **Nihon**-koku)

(17) **A more accurate version of this statement includes _a_ and _b_ terms to account for particle interactions and excluded volume; that version is known as the Van der Waals equation. When certain parameters are held constant, (*)** Charles's, Gay-Lussac's, and Boyle's Laws are equivalent to this law. For ten points, name this equation of state that can be expressed as "P V equals n R T" and describes the behavior of a theoretical substance.

ANSWER: **Ideal Gas** Law

(18) **Dvořák's last concerto was composed for this instrument and premiered by Leo Stern. Edward Elgar's concerto for this instrument in E Minor was popularized by Jacqueline du Pré. Pablo Casals also played this string instrument, which is slightly smaller than the (*)** double bass. Yo-Yo Ma plays, for ten points, what instrument that plays in string quartets with violins and viola?

ANSWER: **cello** (accept **violincello**; do not accept or prompt on violin)

(19) **A 9th century holder of this position named Formosus was put on trial after his death. Julius II was called the "warrior" one of these people after he formed the (*)** Holy League. The Council of Clermont was called by another of these men, Urban II, who launched the First Crusade to capture Jerusalem. For ten points, name this head of the Catholic Church.

ANSWER: **Pope** (accept **Bishop of Rome**; accept Roman **Pontiff**; accept **Pontifex** Maximus; accept Sancta **Papa**)

(20) **This character claims David and Goliath were the first two disciples. 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)

Bonuses

(1) Many books in the Tanakh and biblical Old Testament have a well-established tradition regarding their authorship. For ten points each,

Name this first book of both the Torah and Old Testament, which details the creation of the world and is usually attributed to Moses.

ANSWER: **Genesis** (accept **Bereshit** or **Bereshis**)

King David is credited with writing most of the poems in this book, including a verse that begins "The Lord is my shepherd / I shall not want."

ANSWER: **Psalms** (accept **Tehilim**)

David's son Solomon is usually credited with many of the Proverbs, Ecclesiastes, and this book, which describes God as a lover and the Hebrew people as his beloved.

ANSWER: **Song of Songs** (accept **Song of Solomon**; accept **Shir Hashirim**)

(2) The Gibbs free energy of a chemical reaction is minimized once this condition is reached, and Le Chatelier's [shat-lee-ay's] principle explains how a reaction behaves at this condition. For ten points each,

Name this state that is achieved when the forward and reverse rates of a reaction are equal.

ANSWER: (dynamic) chemical **equilibrium**

Le Chatelier's principle allows the Haber process to maximize production of this base by combining hydrogen and nitrogen gases at high pressure. This substance has chemical formula NH_3.

ANSWER: **ammonia**

A buffered equilibrium between bicarbonate and carbonic acid helps regulate the pH of this bodily fluid, which flows through veins and arteries.

ANSWER: **blood**

(3) The protagonist of this work, Oskar Matzerath, stops growing up at the age of three but has the mind of an adult. For ten points each,

Name this 1959 Günter Grass novel, set in the Polish city of Danzig. In this book, Oskar swears off playing the title musical instrument after the death of his father, Alfred.

ANSWER: The **Tin Drum** (accept Die **Blechtrommel**)

The Tin Drum, as well as the rest of Grass's *Danzig* trilogy, was written in this language.

ANSWER: **German** (accept **Deutsch**)

Alfred is shot and killed by Soviet troops while he chokes on a small pin that Oskar hands to him; the pin is an emblem of this political party, which Alfred must conceal from the interrogating Soviets.

ANSWER: **Nazi** Party

(4) In 2016, a 5.0 magnitude earthquake struck this state's city of Cushing; that was the third 5.0 quake for this state in 2016 but just the sixth since 1882. For ten points each,

Name this central US state, where quakes have rattled buildings in towns like Edmond and Stillwater.

ANSWER: **Oklahoma**

The rise in earthquakes in Oklahoma is believed to be related to the rise in this process, used in the oil and natural gas industry, in which pressurized liquid is used to crack underground rock, allowing the gas or oil to be collected.

ANSWER: **hydraulic fracturing** (accept **fracking**; accept word forms like **hydraulic fracture**)

Most of Oklahoma's earthquakes have taken place along its border with this state, its northern neighbor.

ANSWER: **Kansas**

(5) For ten points each, give the following about a seemingly interchangeable group of Hollywood stars, the Chrises.

In a 2017 appearance on this show, Chris Pine attempted to teach the audience of Studio 8H that he isn't Chris Evans, Pratt, or Hemsworth with a song set to "Uptown Girls." Meanwhile, Kate McKinnon, who debuted on this show in 2012, explains that the Chrises are "always at the airport wearing raggedy tees that are tight just around the pecs."

ANSWER: **Saturday Night Live** (accept **SNL**)

In 2009, Chrises Hemsworth and Pine united to play George and James Kirk in a J.J. Abrams reboot of this sci-fi franchise. This Gene Roddenberry-created franchise returned to television in 2017 with the premiere of *Discovery*.

ANSWER: **Star Trek**

This third film in a Marvel superhero franchise will boast the highest concentration of Chrises yet. In this film, Hemsworth, Pratt, and Evans will reprise their roles as Thor, Starlord, and Captain America to defeat Thanos.

ANSWER: Avengers: **Infinity War** (prompt on (the) Avengers)

(6) One mechanism for this process is the proton-proton chain. For ten points each,

Identify this process in which atoms of light elements combine to form atoms of heavier elements, exemplified by hydrogen turning into helium.

ANSWER: nuclear **fusion** (do not prompt on or accept "nuclear fission")

One common stellar form of fusion is a cycle in which an atom of hydrogen combines with this element to form nitrogen. In the triple-alpha process, three atoms of helium combine to form an atom of this element.

ANSWER: **carbon** (accept **C**)

Fusion of elements lighter than this element's 56-isotope releases energy, while fusing heavier elements requires energy input. This element is the heaviest produced in standard stellar nucleosynthesis.

ANSWER: **iron** (accept **Fe**)

(7) Christa McAuliffe was killed in the failure of this vehicle, which was launched in unusually cold conditions. For ten points each,

Name this Space Shuttle that broke apart during liftoff in 1986.

ANSWER: Space Shuttle **Challenger**

Christa McAuliffe was to become the first person with this job to travel in space. The *Challenger* disaster was witnessed live on television by millions of people because of McAuliffe's role in the mission.

ANSWER: **teacher** (accept **educator** and other equivalents; prompt on civilian)

The *Challenger* disaster was the second fatal mission for NASA, after a 1967 test killed three astronauts in this program. The 13th mission in this program averted disaster after an explosion en route to the Moon.

ANSWER: **Apollo** program (accept **Apollo** 1 and/or 13)

(8) This piece was written as part of an "Experiment in Modern Music," and shares some of its themes with songs like "Embraceable You" and "The Man I Love" by the same composer. For ten points each,

Name this George Gershwin piece, a fusion of classical and jazz music, that premiered in 1924 with Gershwin on the piano.

ANSWER: **Rhapsody in Blue**

Rhapsody in Blue opens with a famous solo for this instrument which glissandos despite being a single-reed instrument and not, say, a trombone.

ANSWER: **clarinet**

Gershwin's "Embraceable You" was premiered on Broadway in 1930 by Ginger Rogers, who went on to star in 10 musical films with this legendary dancer.

ANSWER: Fred **Astaire**

(9) The protagonist of this novel muses about where ducks go in the winter after visiting Central Park. For ten points each,

Name this novel, in which Holden Caulfield wanders around New York City after being expelled from Pencey Prep.

ANSWER: The **Catcher in the Rye**

The Catcher in the Rye is by this American author who also created Franny and Zooey, members of the Glass family.

ANSWER: JD **Salinger** (accept Jerome David **Salinger**)

Holden purchases the record "Little Shirley Beans" for this character. At the end of the novel, Holden watches as this character, his sister, rides a carousel in the rain.

ANSWER: **Phoebe** Caulfield

(10) For ten points each, give the following about colorful symbols throughout history.

During the American Revolution, soldiers in the British army were known as "lobsters" and as this colorful term, based on their uniforms.

ANSWER: **redcoat**s

The Redshirts were loyal supporters of this Italian unifier who led the Expedition of a Thousand and fought in the Uruguayan Civil War.

ANSWER: Giuseppe **Garibaldi**

Red Phrygian caps were used as an anti-nobility symbol during this country's violent 18th century revolution, which began with the storming of the Bastille.

ANSWER: **France** (accept **French** Revolution)

(11) This novel's protagonist is raised by the Reeds, and goes to stay with the St John family after discovering that her husband-to-be was already married. For ten points each,

Name this Charlotte Brontë novel whose title character attends Lowood School and enters into a romantic relationship with Edward Rochester.

ANSWER: **Jane Eyre**

Edward Rochester's relationship with Jane is complicated by his previous marriage to this woman. At the end of the novel, this "madwoman in the attic" kills herself by jumping off the roof of Thornfield Hall.

ANSWER: **Bertha** **Mason** (accept either name; accept either name of **Antoinette** **Cosway**)

Before jumping off of the roof, Bertha Mason destroys Thornfield Hall in this manner. Bertha had started one of these events earlier in the novel but was foiled when Jane doused Rochester with water.

ANSWER: **fire**

(12) A sclerometer is normally used to find a mineral's rank on this scale, though the Vickers scale has largely replaced it. For ten points each,

Name this traditional scale of mineral hardness. Diamond ranks a 10 on this scale because it can scratch all common materials.

ANSWER: **Mohs** scale of hardness

At the opposite end of the Mohs scale from diamond is this very soft mineral, used as a coating on rubber gloves and sometimes found in baby powder.

ANSWER: **talc**um (powder)

Hydroxyapatite [hide-rox-ee-ap-ah-tite] ranks halfway between talc and diamond and, in the body, acts as a storage bank for this element.

ANSWER: **calcium** (accept **Ca**)

(13) This mythical figure was the sister of Stheno and Euryale, and became the mother of Chrysaor and Pegasus after her death. For ten points each,

Name this snake-haired Gorgon woman, whose gaze turned all who saw her into stone.

ANSWER: **Medusa**

This Greek hero, the son of Zeus and Danae, slew Medusa and later married Andromeda.

ANSWER: **Perseus**

Perseus returned Medusa's head to Athena, who affixed it to this legendary shield.

ANSWER: **Aegis** (accept **Gorgoneion**)

(14) The Strait of Hormuz is the only route for ships to leave this body of water and enter the Indian Ocean. For ten points each,

Name this body of water, in which the island country of Bahrain lies.

ANSWER: **Persian Gulf** (prompt on partial answers)

In 1990, this small country was annexed and invaded for its oil reserves, triggering the first Persian Gulf War.

ANSWER: State of **Kuwait**

Kuwait was invaded on the orders of this Iraqi dictator. A decade later, US forces invaded Iraq, took Baghdad, and captured this man.

ANSWER: Saddam **Hussein**

(15) While he lived in the French city of Arles, Vincent van Gogh painted many local scenes, including depictions of his living quarters and a local eaterie. For ten points each,

Name this van Gogh painting of the interior of a restaurant with red walls and a green ceiling. A man in white stands near the center of this painting, next to a pool table in the center of the room.

ANSWER: The **Night Café** (accept Le **Café de la nuit**)

Van Gogh painted blue walls and yellow furniture in his depictions of this room of the "Yellow House," where he lived. Two portraits and a landscape hang on the right-hand walls in van Gogh's three paintings of this room *in Arles*.

ANSWER: **Bedroom** in Arles

After leaving Arles, van Gogh moved to an asylum in the village of Saint Rémy de Province [son ray-MEE duh proh-VONSS], where he created this painting. Behind a cypress tree in this painting, the village lies in a dark valley in the mountains, under a sky illuminated by enormous, swirling balls of light.

ANSWER: The **Starry Night** (accept De **Sterrennacht**)

(16) To predict the results of a trihybrid cross, one of these diagrams would need 64 individual boxes. For ten points each,

Name this diagram used to determine the genotypes of offspring produced by parents with known alleles.

ANSWER: **Punnett square**

If a breeding experiment results in 75% of the offspring showing the dominant phenotype, it is likely both parents have this genotype containing both a dominant and recessive allele.

ANSWER: **heterozygous**

Punnett squares are used to model the rules of inheritance as proposed by this 19th century Austrian friar, whose work on pea plants inspired the development of genetics.

ANSWER: Gregor **Mendel**

(17) For ten points each, give the following about ways to lose an argument.

This term, from the Latin for "deceptive" or "false," describes a form of reasoning that is either logically unsound or argumentatively questionable.

ANSWER: logical **fallacy** (accept word forms like **fallacies**; accept additional information)

In this type of logical fallacy, the conclusion itself is used as evidence in the argument. While the logic itself isn't faulty, the argument is flimsy because you must assume what you wish to prove.

ANSWER: **circular** reasoning (accept word forms like **circle** logic; accept **beg**ging **the question** and word forms; do not accept tautology)

An *ad hominem* fallacy is committed when you refuse to critique the substance of the argument itself and, instead, focus your criticisms on this.

ANSWER: the **other person** in the argument (accept descriptions of "your **opponent**;" accept elaborations, such as "your **opponent**'s character" or "your **opponent**'s motive;" prompt on partial answers, like "character" or "motive")

(18) As a Congressman from Tennessee, this man opposed the Indian Removal Act; that stance cost him re-election in 1831. For ten points each,

Name this politician who later fought in the Texas War for Independence. This figure became known later as the "King of the Wild Frontier."

ANSWER: David "Davy" **Crockett**

Davy Crockett died while defending this San Antonio mission during the Texas War for Independence. William Travis and James Bowie also died at this fort.

ANSWER: The **Alamo**

This leader of the Mexican forces during the Battle of the Alamo had all of its surviving defenders executed. This general was later defeated by Sam Houston at the Battle of San Jacinto.

ANSWER: Antonio López de **Santa Anna**

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(19) After spending almost six months in a secluded, iron-gated abbey, a group of nobles in this story fearfully pursue a man through a series of seven, brightly-colored rooms. For ten points each,

Name this Edgar Allan Poe short story in which Prince Prospero's costume ball is interrupted by a guest dressed as a diseased corpse.

ANSWER: The **Masque of the Red Death**

In "The Masque of the Red Death," Prospero pursues the mysterious guest from the easternmost blue room to the red-windowed, westernmost room of the abbey, which is decorated primarily with this color.

ANSWER: **black**

The black room is dominated by an ebony one of these objects, which chimes so loudly and strangely that it stops Prince Prospero's party once every hour.

ANSWER: **clock**

(20) A Fundamental Theorem notes that this operation and integration are inverses of each other. For ten points each,

Name this important tool from calculus. Numerous shortcut formulas, including the chain rule and product rule, can find this for a function.

ANSWER: **derivative**s (accept word forms like **differentiation**)

The derivative can be used to calculate this quantity for a function at a given point. This quantity can be found between two points by a difference quotient-based formula often described as "rise over run."

ANSWER: **slope** (accept **gradient**)

This fourth letter of the Greek alphabet indicates a change in a variable, as seen in many formulas related to derivatives and slope.

ANSWER: **delta**