Round 7

Lilly Chavez ● Brad Fischer ● Natalie Howell ● Clare Keenan ● Mike Laudermith
Sophie Netzel ● Lauren Onel ● Aleija Rodriguez ● Zane Smalley ● Kristin Strey
Ethan Strombeck ● Lana Kay Tutterow ● Tyler Vaughan ● Trevor Vice

Tossups

(1) **At this battle, William II of the Netherlands suffered a bullet wound and was knocked off his horse at a spot now commemorated by the 140-foot-tall Lion's Mound. The battles of Ligny [lihn-yee] and Quatre Bras [KAHT-rah brah] were fought two days prior to this battle, where (*)** Blucher's [bloo-ker's] Prussians broke through the right flank. The Seventh Coalition's victory in this battle doomed the losing general to exile for the second time. For ten points, name this 1815 battle, the final defeat of Napoleon.

ANSWER: Battle of **Waterloo**

(2) **The lattice enthalpy of this interaction can be calculated via the Born-Haber cycle. An electronegativity difference greater than 1.7 defines this interaction, which dissociates in water as (*)** crystals dissolve. Compounds such as potassium bromide form by this kind of bonding in which a metal and non-metal do not share electrons. For ten points, name this chemical bond between positively and negatively charged atoms.

ANSWER: **ionic** bonding

(3) **The protagonist of this novel secretly reads *The Theory and Practice of Oligarchical Collectivism* in a room above Mr Charrington's shop while on break from the Ministry of Truth. In this novel, citizens of (*)** Airstrip One who do not conform to the ideology of The Party are sent to Room 101 to be subjected to their worst fear. In this novel, Winston Smith is eventually arrested for thoughtcrime against Big Brother. For ten points, name this dystopian novel, set in the title year, written by George Orwell.

ANSWER: **Nineteen Eighty-Four**

(4) **A C major piece by this composer consists entirely of arpeggios up and down the piano. Another piece by this composer begins with a G major seventh chord followed by a rapid chromatic descent. This composer of the "Waterfall" and (*)** "Revolutionary" études often used musical forms from his homeland, such as the mazurka and polonaise. For ten points, name this composer of many piano works such as the *Fantasie-Impromptu* and the *Minute Waltz*.

ANSWER: Frédéric François **Chopin**

(5) **A character in this film "never looks back" because it "distracts from the now," and mocks supermodels. In this film, the password "KRONOS" is used to discover the secret behind the (*)** Omnidroid. This film's villain, Syndrome, is sucked into a jet engine by his cape, a fashion choice that Edna Mode would never have allowed. A sequel was released in 2018 for, for ten points, what 2004 Pixar film about the Parr family, which includes Elastigirl and other "supers?"

ANSWER: The **Incredibles** (do not accept or prompt on "The Incredibles 2")

(6) **The beginning of this work uses an "artificial person" to describe an ideal commonwealth. This work, whose four sections include one "Of The Kingdom of Darkness," considers the compatibility of Christian doctrine with its author's philosophy. This work describes life outside of society as (*)** "solitary, poor, nasty, brutish, and short," and thus argues for a strong government. For ten points, name this Thomas Hobbes work whose title comes from a biblical sea monster.

ANSWER: **Leviathan**, or the Matter, Form and Power of a Common-Wealth Ecclesiastical and Civil

(7) **In the Mahabharata, this god gives the Pashupatastra arrow to Arjuna, and he appeared in a pillar of flame as Nataraja. This god drank Halahala and cut off his son's head while trying to reach his wife, (*)** Parvati. Ganesha received the head of an elephant from this god, whose consumption of poison turned his throat blue. For ten points, name this three-eyed Hindu destroyer god, a member of the Trimurti along with Brahma and Vishnu.

ANSWER: **Shiva**

(8) **Babinet's principle allows this phenomenon to determine the size and shape of small objects. Under the Bragg condition, x-rays experience this effect to show crystal structure. This type of grating produces light and dark (*)** fringe patterns similar to Young's double-slit experiment, which confirmed this phenomenon for light. Huygens' [HOY-ghen's] principle, applied to sound waves, explains why this effect makes hearing around corners possible. For ten points, name this phenomenon in which waves bend around an obstacle.

ANSWER: **diffraction** (prompt on "interference")

(9) **This war names a syndrome whose symptoms included cramps, headaches, and short-term memory loss. General Norman Schwarzkopf helped launch this war, which was sparked over allegations of illegal use of the Rumaila (*)** oil fields. The 1st Armored Division's destruction during this war led to a road becoming known as the "Highway of Death." For ten points, name this war that included the American-led Operation Desert Storm against Saddam Hussein and Iraq.

ANSWER: Persian **Gulf** War (accept First **Gulf** War; accept Operation **Desert Storm** until it is read)

(10) **This short story's protagonist uses money her husband had saved for a hunting rifle to buy a dress for a Ministry of Education ball. A character in this story suggests that the protagonist buy "two or three gorgeous roses," but instead she borrows a decoration from Madame (*)** Forestier [foh-ress-tee-AY] that she later discovers is worth only a few francs. For ten points, name this short story by Guy de Maupassant [ghee duh moh-pah-SAWN], in which Mathilde Loisel [mah-TEELD lwah-ZELL] struggles for ten years to replace the title fake piece of jewelry.

ANSWER: The **Necklace** (accept The **Diamond Necklace**; accept La **Parure**)

(11) **In many stories, this man told King Vortigern a story about a pair of sleeping dragons under his castle. This man was credited with using advanced machines to move the rocks of Stonehenge to their current place. This man was trapped in a cave by (*)** Nimue after living his life backwards, and he served as an advisor to a "once and future King." For ten points, name this creator of the Round Table, a famous wizard who served King Arthur.

ANSWER: **Merlin** (accept **Merlinus** Ambrosius; accept **Myrddin** Emrys; prompt on "Emrys" or "Ambrosius" alone)

(12) **The symmetric group of this many elements is the smallest that is not a solvable group, a result that inspired the Abel-Ruffini theorem. This is the central number of the only 3-by-3 magic square. There are this many (*)** Platonic solids, and there are this many complex solutions to a quintic polynomial. The only odd proper factor of ten is, for ten points, what prime number, the number of sides of a pentagon?

ANSWER: **five**

(13) **In a poem by this man, the narrator is unable to answer a child's question "What is the grass?" This man described a time when "the great star early droop'd in the western sky." This author's poem (*)** "When Lilacs Last in the Dooryard Bloom'd" is an elegy for Abraham Lincoln, as is his poem "Oh Captain! My Captain!" This man wrote "I celebrate myself, and sing myself." For ten points, name this American poet who wrote "Song of Myself" and *Leaves of Grass*.

ANSWER: Walter "Walt" **Whitman**

(14) **After the British withdrew in 1778, this man was given military command of Philadelphia. This man's second wife, Peggy Shippen, helped him work with John André, who was hanged after being caught with (*)** letters written by this man. A monument of this man's boot was built at the site of the Battle of Saratoga, where this man's efforts went unrewarded. For ten points, name this Revolutionary War general who plotted to betray West Point to the British.

ANSWER: Benedict **Arnold**

(15) **Decline at the apex of these constructs can result in mesopredator release, and proposed models for the longest of these structures include phytoplankton. The ten percent rule explains why these pathways rarely have more than five (*)** trophic levels. Primary producers form the base of these pathways, whose links are connected by decomposers. For ten points, name these lists of organisms that show the transfer of matter and energy from plants to herbivores to carnivores.

ANSWER: **food chain**s (accept **food web**s or **food pyramid**s)

(16) **This city was built south of Tlatelolco [t-lah-tell-ohl-koh] on a small island in Lake Texcoco [tesh-koh-koh]. Pedro de Alvarado ordered the massacre of hundreds of warriors in this city's Great Temple. A month later, Alvarado helped lead an escape from this city during (*)** La Noche Triste [lah noh-chay tree-stay], bringing his men to Tlaxcala [t-LOSH-kah-lah] after they murdered Montezuma II. Hernan Cortez plotted the eight-month-long siege of, for ten points, what Aztec city whose ruins are in modern Mexico City?

ANSWER: **Tenochtitlan** ([ten-ohk-teet-lahn], but be lenient)

(17) **In this story collection, a fisherman tells his captive the story of "The Vizier and the Sage Duban" and is shown a lake of exotic fish by an ifrit. In another story in this collection, sailors who eat the chick inside an enormous egg have their ship destroyed by (*)** roc birds. Cassim's brother discovers the password to a cave inhabited by forty thieves in a story in this collection. For ten points, name this collection of Middle Eastern folk tales that includes the stories of Sinbad the Sailor, Ali Baba, and Aladdin.

ANSWER: The **Thousand and One Nights** (accept **One Thousand and One Nights**; accept The **Arabian Nights**)

(18) **This river may originate at the usually-dry Trewsbury Mead, or at a location known as Seven Springs, which would make this river its country's longest, surpassing the (*)** Severn. This river, whose name comes from the Celtic for "dark," is called the Isis where it flows through Oxford. Tower Bridge crosses this river just east of St. Paul's Cathedral. For ten points, name this English river that flows through London.

ANSWER: **Thames** River

(19) **One of this scientist's ideas successfully explained the precession of Mercury's orbit. Galaxy clusters act as lenses to create this man's namesake rings. This man and Nathan Rosen solved this man's field equations to predict (*)** wormholes. His insistence on a static universe led him to call the cosmological constant his "biggest blunder," and the observation of starlight bending during a solar eclipse validated this man's concept of spacetime. For ten points, name this scientist who modernized cosmology by incorporating gravity into his theory of general relativity.

ANSWER: Albert **Einstein**

(20) **This woman is the subject of the silkscreen *Thirty are Better Than One* by Andy Warhol, and in *L.H.O.O.Q.* [el-osh-oh-oh-koo], Marcel Duchamp added a moustache to a depiction of this woman. Overcleaning of a painting of this woman is blamed for her missing (*)** eyebrows and the transparency of her delicate black veil. For ten points, name this woman, thought to be the wife of Francesco del Giocondo, who has an enigmatic smile in a painting by Leonardo da Vinci.

ANSWER: **Mona Lisa** (accept La **Gioconda** before "Giocondo" is read; accept either name of **Lisa Gherardini**)

Bonuses

(1) The Adi Granth, a holy book, assumed the name Granth Sahib after becoming the eleventh, eternal, and final holder of this position. For ten points each,

Name this religious leadership position held initially by ten humans, the last of which was Gobind Singh. This position's name is from the Sanskrit word for teacher.

ANSWER: **Guru**

The Gurus are the spiritual leaders of this Indian religion. Practitioners of this religion undergo an initiation ceremony called Amrit, after which, if they possess the Five Ks, they earn the title Khalsa.

ANSWER: **Sikh**ism (accept **Sikh**i)

The first Guru of Sikhism was this man, its founder. Subsequent Gurus took on his name as a title and used it whenever they created new verses in the Adi Granth.

ANSWER: Guru **Nanak** (accept Rai Bhoi Ki **Talvandi**)

(2) In this short story, the death of Mr Grierson in Jefferson, Mississippi leaves his daughter a lonely and isolated spinster. For ten points each,

Name this short story, in which Miss Grierson is seen purchasing arsenic at the end of a short, strange courtship with a Northern laborer named Homer Barron.

ANSWER: A **Rose for Emily**

After Emily Grierson's death, the townspeople of Jefferson find one of these objects in her bed, and discover what happened to Homer Barron. In the novel *As I Lay Dying*, Addie Bundren's family transports one of these objects to be buried in Jefferson.

ANSWER: dead **body** (accept **corpse**; accept descriptive answers like human **remains** or a **dead person**)

"A Rose for Emily" and *As I Lay Dying* are by this American author, who also set *The Sound and the Fury* in Jefferson, Mississippi.

ANSWER: William Cuthbert **Faulkner**

(3) The "Crime of '73" ended a policy in which people who owned this commodity could freely have it struck into coins at the Mint. For ten points each,

Name this precious metal that bimetallists wanted the US government to use, along with gold, in the minting of coins.

ANSWER: **silver**

This bimetallist ran for President in 1896, electrifying the audience at the Democratic National Convention with the "Cross of Gold" speech.

ANSWER: William Jennings **Bryan**

The biggest support group for free silver was this class of workers, who hoped that the ensuing inflation would help them pay their debts. The Grange was a fraternal organization of these workers, who fueled the rise of a brief Populist Party in the late 1800s.

ANSWER: **farmer**s (accept equivalent answers)

(4) Examples of this symbiotic relationship include cattle egrets that feed on insects stirred up by buffalo; and remoras that attach themselves to sharks. For ten points each,

Name this symbiotic relationship, in which one species benefits while the other is neither helped nor harmed. Humans have this relationship with eyelash mites, and most bacteria that live on our skin.

ANSWER: **commensal**ism

About three-fourths of the species in this plant family are commensalists, growing on the branches of trees. More than one hundred thousand varieties of these flowers are raised in greenhouses, including the one that produces vanilla extract.

ANSWER: **orchid**s (accept **Orchidaceae**)

The hermit type of these crustaceans act as commensalists by living inside discarded snail shells. Other commercially harvested species of these include the Dungeness and Alaskan king.

ANSWER: **crab**s (accept **hermit crab**s; accept **Dungeness crab**s; accept Alaskan **king crab**s)

(5) This enormous composite sculpture originally included a depiction of Francesca da Rimini and her lover, Paolo, embracing in *The Kiss*. For ten points each,

Name this massive work depicting scenes from Dante's *Inferno* that also contains a smaller version of its sculptor's work *The Thinker*.

ANSWER: The **Gates of Hell** (or La **porte de l'Enfer**)

This artist worked on *The Gates of Hell* for half of his life. He also sculpted works such as *The Walking Man* and *The Burghers of Calais*.

ANSWER: Auguste **Rodin** (accept François Auguste René **Rodin**)

Rodin [roh-DAN] worked primarily by casting sculptures out of this alloy of copper and tin. Critics falsely accused Rodin of casting his intricate sculpture *The Age of* this material from a living model.

ANSWER: **bronze** (accept The **Age of Bronze**; accept **airain** or L'**Âge d'airain**)

(6) Give the following about the formula for linear equations, "*y* equals *m x* plus *b*," for ten points each.

The *m* in the formula represents this property of a line, indicating its steepness and direction.

ANSWER: **slope**

If a line is increasing, *m* will be this type of number.

ANSWER: **positive** number (accept equivalent descriptions indicating that *m* is **greater than 0**; do not accept information noting that *m* could be equal to 0)

Consider the line with equation "*y* equals *10 x* plus *10*." How many of the four quadrants does the graph of this line pass through?

ANSWER: **three** quadrants

(7) Speakers at this event included David Hogg, who has been accused of being a "crisis actor," and Emma González, who led a six-minute long moment of silence. For ten points each,

Name this March 24, 2018 demonstration and protest against gun violence, led by survivors of a February 2018 school shooting.

ANSWER: **March for Our Lives**

González and Hogg attended this school, where 17 students and staff were killed in the aforementioned February 2018 attack.

ANSWER: Marjory **Stoneman Douglas** High School

Stoneman Douglas High School is located in this state. In 2016, 49 people were killed in the Pulse nightclub shooting in this state's city of Orlando.

ANSWER: **Florida**

(8) The owner of one of these animals meets her lover at a performance of *The Geisha*. For ten points each,

Name this animal. In the aforementioned short story, Dmitri Gurov begins an affair with Anna after meeting her in Yalta where she is walking one of these animals, a small Pomeranian.

ANSWER: lap**dog** (accept pet **dog**; accept little **dog**; accept **sobachkoy**; accept The **Lady with the Dog**; accept The **Lady with the Lapdog**; accept The **Lady with the Pet Dog**; accept The **Lady with the Little Dog**; accept **Dama s sobachkoy**)

"The Lady with the Dog" is a short story by this Russian author of plays like *Ivanov*, *Uncle Vanya*, and *The Seagull*.

ANSWER: Anton Pavlovich **Chekhov**

In this Chekhov play, the title property is chopped down and replaced with cottages by the merchant Lopakhin, who purchases the title grove from Madame Ranevskaya.

ANSWER: The **Cherry Orchard** (accept **Vishnyovyi sad**)

(9) The upper hand in this war shifted drastically after a 17-year-old peasant girl with religious visions joined the army in 1429. For ten points each,

Name this war between England and France that began in 1337.

ANSWER: **Hundred Years'** War

In 1429, the French lifted a six-month-long siege of this vital city on the Loire River, preventing the English from taking southern France.

ANSWER: Siege of **Orléans**

This peasant girl inspired troops at Orléans [ohr-lay-OWN] and led the French to Reims [rehm]. She was captured at Compiègne [com-pee-yen] by the Burgundians and burned at the stake after a show trial.

ANSWER: Saint **Joan of Arc** (accept **Jeanne d'Arc**; accept **Saint Joan**; accept **Saint Jeanne**; prompt on Joan)

(10) On National Weather Service maps, two types of these features are marked with lines of blue triangles or red semicircles. For ten points each,

Name these boundaries between air masses of different temperature and density. Thunderstorms and other severe weather typically form along one of these boundaries.

ANSWER: weather **front**s (accept **warm front**, **cold front**, **stationary front**, or **occluded front**)

Besides fronts, weather maps often show these lines that connect locations of equal air pressure. One of these lines that forms a closed loop can mark a high pressure system.

ANSWER: **isobar**s

When a map shows tightly bunched isobars and perpendicular isotherms over land, there is a strong chance one of these rotating storms will form. Many of these occur each year in a namesake alley that stretches from Texas to Minnesota.

ANSWER: **tornado**es

(11) Answer the following about the pop culture inspirations of *Binging With Babish*, a popular YouTube cooking channel starring Andrew Rea [ray], for ten points each.

In the most popular video on the channel, Rea makes a Krabby Patty, as made by this yellow Nickelodeon character on his namesake show. He accurately complains that putting the lettuce directly above the meat patty is a terrible idea.

ANSWER: **SpongeBob SquarePants** (accept either underlined name)

On another episode, Rea makes congee [con-jee], a rice porridge. The congee is topped with eggs and bacon in the shape of a smiley face, the way the dragon Mushu makes it in this 1998 Disney film.

ANSWER: **Mulan**

Another episode explains how to make this rosewater-flavored confection, which is offered by the White Witch in the *Chronicles of Narnia* and "tastes like potpourri," according to the video.

ANSWER: **Turkish Delight**

(12) The prologue of this collection claims that April is when people long to go on pilgrimages and come from every part of England to seek the "holy blissful martyr." For ten points each,

Name this collection of stories told by a group of pilgrims, including a Knight and a Nun, as they stop at the Tabard Inn on the way to the grave of a famous archbishop, written by Geoffrey Chaucer.

ANSWER: The **Canterbury Tales**

In the *Canterbury Tales*, this frequently-married woman with a gap in her front teeth tells a story in which Queen Guinevere sends a knight to find what women most desire.

ANSWER: The **Wife of Bath** (accept The **Wife of Bath's Tale**)

In this man's story, an old carpenter is tricked by his young wife, Alison, and a pair of clerks named Nicholas and Absolon.

ANSWER: The **Miller** (accept The **Miller's Tale**)

(13) Answer these questions about some physical properties used as identifiers in the *CRC Handbook of Chemistry and Physics*, for ten points each.

One column in the table of physical constants lists this property, which is defined as a substance's ratio of mass to volume. Ice has a value of 0.92 grams per cubic centimeter for this property, allowing it to float in liquid water.

ANSWER: **density**

While many descriptions of the non-metal elements include the term *brittle*, most metals are described by this word, which means they can be hammered into thin sheets.

ANSWER: **malleable** (accept **malleability**)

The *Handbook*'s table of thermodynamic properties includes this one defined as the amount of energy needed to raise the temperature of one gram of a substance by one degree Celsius. Gold has a very low value for this property while liquid water has a value above four.

ANSWER: **specific heat** capacity

(14) Answer the following about geographic landmarks in California, for ten points each.

This valley of the Mojave Desert reaches nearly 300 feet below sea level at Badwater Basin. Its Furnace Creek set the American record for hottest air temperature in 1913.

ANSWER: **Death** Valley

Less than 100 miles away from Death Valley is this tallest mountain in the lower 48 states. The John Muir Trail, named for a 20th-century conservationist, ends at this peak's summit.

ANSWER: Mount **Whitney**

The John Muir Trail winds through this mountain range, passing through the Yosemite and Sequoia National Parks. Only a small portion of this range called the Carson Spur is found outside California.

ANSWER: **Sierra Nevada**s

(15) This form evolved from the ricercar [REE-cher-kar], and it is often contrasted with the simpler canon. For ten points each,

Name this contrapuntal style in which voices repeat and embellish on a central theme. In each set of *The Well-Tempered Clavier*, twenty-four pieces in this style are paired with twenty-four preludes.

ANSWER: **fugue**

This Baroque composer of *The Well-Tempered Clavier* showed his mastery of the fugue [fyoog] in an unfinished *Art of the Fugue*. He also wrote 6 *Brandenburg Concertos* and was the father of several notable composers.

ANSWER: **J**ohann **S**ebastian **Bach** (prompt on "Bach")

Some of Bach's fugues, such as the *Little Fugue in G minor* and the *Toccata and Fugue in D minor*, were written for this massive pipe instrument usually found in churches.

ANSWER: pipe **organ**

(16) The original form of this document listed 16 articles, which became condensed and contracted into 12 articles by its 1789 approval by Congress. For ten points each,

Name this document. Ten of its articles were ratified and applied to the US Constitution in 1791 as the first amendments.

ANSWER: **Bill of Rights**

This Founding Father was elected to the first Congress after pledging to introduce a Bill of Rights, which he drafted and presented to the House.

ANSWER: James **Madison**

The first two of the 12 original articles were not ratified by the states by 1791 and did not make it into the Constitution as part of the Bill of Rights. Article 1 provided formulas for calculating Congressional apportionment and is still technically pending before the states, and Article 2 concerned Congressional pay raises and ultimately became this amendment in 1992.

ANSWER: **27**th Amendment to the US Constitution

(17) Answer the following about very different mythological weavers, for ten points each.

Name this Greek woman who foolishly challenged Athena to a weaving contest. Her pride was well-placed, as she easily bested the goddess, but she was turned into a spider nonetheless.

ANSWER: **Arachne**

In this country's folklore, the Jade Emperor prevented his daughter, the Goddess Weaver, from returning to Earth to meet her husband by creating the Milky Way. Later, he took pity on her and allowed her to see her husband on the seventh day of the lunar calendar.

ANSWER: **China** (accept **Zhongguo**)

The Egyptian goddess Neith wove the fabric of the world every day, but broke the mold of a peaceful weaver by also being a god of this type. In her role as a god of this type she produced weapons and guarded the bodies of dead warriors.

ANSWER: **war**

(18) For ten points each, give the following the 1840 Treaty of Waitangi [why-tahn-gee].

The treaty was written by British colonizers and purposefully mistranslated when described to leaders of this ethnic group, which didn't intend to give up all sovereignty to the British. Western contact with these people led to a period of infighting called the Musket Wars.

ANSWER: **Maori** people (prompt on, but do *not* otherwise reveal, answers related to "indigenous New Zealanders")

The Maori were forced to give up their land rights in what is now this country. Like the Aborigines in Australia to the west, the Maori people had been native to this country for centuries before Western contact.

ANSWER: **New Zealand**

The physical document of the Treaty of Waitangi is held in New Zealand's National Library in this capital city on the North Island.

ANSWER: **Wellington**

(19) In a novel by this author, a group of squirrels decide that Veruca is a bad nut and throw her down a trash chute in a candy factory. For ten points each,

Name this author of bizarre children's books like *Charlie and the Chocolate Factory*.

ANSWER: Roald **Dahl**

In this Roald Dahl novel, the title orphan flies away from his awful aunts in a huge piece of fruit, accompanied by a grasshopper, a centipede, a worm, a spider, a ladybug, and a silkworm.

ANSWER: **James and the Giant Peach**

In this other animal-themed book by Roald Dahl, the title character creates an underground society by stealing from farmers Boggis, Bunce, and Bean.

ANSWER: **Fantastic Mr Fox**

(20) Accurate dating of Stone Age artifacts is possible because this value is equal to 5,730 years for the carbon-14 isotope. For ten points each,

Identify this quantity, the average time needed for fifty percent of a radioactive sample to decay into a new element. This quantity is 4.5 billion years for uranium-238.

ANSWER: **half-life** (accept $t_{1/2}$)

Carbon-14 undergoes this type of radioactive decay, in which an electron is emitted while a neutron is converted into a proton.

ANSWER: **beta**-minus decay

One famous example of radioactive dating in archaeology involves this Italian relic of the Roman Catholic Church. It shows the face and body of a buried man believed by some to be Jesus, but radiocarbon tests only date this item to the fourteenth century.

ANSWER: **Shroud of Turin**