

Round 6

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Tossups

(1) **The Marangoni effect occurs to molecules in this phase of matter, which moves without doing work during capillary action. The most common type of extraction is named for this phase, since it is the normal state of solvents at (*) standard temperature and pressure. Molecules in this phase have fixed volume, but will still deform if they are not too viscous. Cohesion in this phase of matter counter-acts surface tension to form droplets. For ten points, what phase of matter is formed by condensing a gas?**

ANSWER: liquids

(2) **Rough infrastructure in what became this state included Stephen Meek’s cutoff and Sam Barlow’s toll road. Corvallis was briefly the capital of this territory, whose (*) Willamette Valley was the destination for thousands of people in covered wagons that left from Independence, Missouri. An overland trail was named for, for ten points, what Pacific Northwest state where migrants built cities like Salem and Portland?**

ANSWER: Oregon (accept Oregon Territory; accept Oregon Trail)

(3) **Examples of this concept include the ancient Chinese practice of refusing to write the name of an ancestor, respected person, or the Emperor. A controversial Sigmund Freud book titled (*) *Totem and* this concept opens with a discussion of how Australian Aborigines use totems to prevent incest. This term comes from a common Polynesian term meaning “forbidden.” For ten points, give this term for acts like cannibalism that are prohibited by society.**

ANSWER: taboos

(4) **Musical works in this style include *Tales from the Vienna Woods* and a “Grand” and “Brilliant” one by Chopin [shoh-PAN]. The polka evolved from this slower dance style, but while the polka is in duple meter, this dance for turning partners is in (*) triple meter. This ballroom dance, and its accompanying music, is characterized by an “OOM-pah-pah” rhythm. Johann Strauss wrote many of, for ten points, what kind of dance music exemplified by the “Blue Danube” one?**

ANSWER: waltzes (prompt on “dance” or “dance music” before “dance” is read)

(5) **In a novel by this author, hunger birds eat a worm that takes the form of Ursula Monkton to terrorize the narrator, who explores a magical pond with Lettie Hempstock. This author of *The* (*) *Ocean at the End of the Lane* wrote a novel about Whiskey Jack and Mr Nancy, and another about an apocalypse averted by Crowley and Aziraphale [uh-ZEER-uh-fell], a demon and an angel who are friends. For ten points, name this author of *American Gods* who wrote *Good Omens* with Terry Pratchett.**

ANSWER: Neil Gaiman (accept Neil Richard MacKinnon Gaiman)

(6) **The ruins of this city include a series of initiation frecoes at the Villa of the Mysteries. The Alexander Mosaic was excavated from the House of the Faun in this city, where the discovery of (*) graffiti allowed scholars to refine their understanding of Vulgar Latin. Stabiae [stab-ee-eye] and Herculaneum were devastated along with this town on the Gulf of Naples in 79 CE. For ten points, name this ancient Roman city that was buried under the ash of Mount Vesuvius.**

ANSWER: Pompeii

(7) **A character in this novel has her glove stolen by John Brooke, who later becomes her husband. Another character visits the Hummels, and contracts (*) scarlet fever from them after three of their children die. At the end of this novel, Professor Bhaer and his wife turn Plumfield into a school for boys. Amy accompanies Aunt Carrol to Europe during this novel. For ten points, name this Louisa May Alcott novel about the March family.**

ANSWER: Little Women

(8) **A 2021 Maisie Peters song with this title says it's "crazy to think that you still call me" this word, and insists that the singer is "playing a perfect Patrick Bateman." A Talking Heads song asks "qu'est-ce que c'est" [kess-kah-say] about a (*) "Killer" of this type. A Post Malone song describes his "A.P." with this word, which partially titles an Ava Max song about a girl who is "Sweet but" this adjective. For ten points, give this word that describes the madness of a knife murderer in an Alfred Hitchcock film.**

ANSWER: Psycho (accept Psycho Killer; accept Sweet but Psycho; Note: Patrick Bateman is a reference to the film *American Psycho*.)

(9) **The A and B coefficients of stimulated emission are named for this scientist, who first figured out the operating principle of a laser. This scientist's objection to quantum mechanics is often misinterpreted by the quote, (*) "God does not play dice." In 1905, a year called this man's *Annus mirabilis*, this scientist published papers on the photoelectric effect and special relativity. For ten points, name this German physicist who derived the formula "E equals M C squared."**

ANSWER: Albert Einstein

(10) **This religious movement's *Doctrine and Covenants* was controversially edited in 1876. A set of six lessons called "Missionary Discussions" are used by some of this church's missionaries. In 1978, this church ended its ban on having (*) Black priests, and in the nineteenth century, this church was criticized both for its support of slavery as for its support of polygamy. Joseph Smith and Brigham Young were early leaders of, for ten points, what Christian church based in Utah?**

ANSWER: LDS Church (accept the Church of Jesus Christ of Latter-day Saints; accept Mormon Church)

(11) **An island in this body of water is home to the Troodos mountain range, and is named for its extensive copper resources. The Strait of Bonifacio separates two other islands in this body of water, one of which was the birthplace of (*) Napoleon. This sea's largest island contains the cities of Palermo and Syracuse. The arms of this sea include the Tyrrhenian, Ionian, and Aegean Seas. Cyprus, Corsica, Sardinia, and Sicily are the largest islands in, for ten points, what sea that separates Africa and Europe?**

ANSWER: Mediterranean Sea

(12) In 2021, Glaxo-Smith-Kline released RTS,S [R-T-S-S], the first of these drugs to target malaria. Gardasil is the brand name of one of these drugs. German company BioNTech developed a way to formulate these drugs as nanoparticles that encapsulate an (*) mRNA, rather than injecting inactivated or dead viruses. For ten points, name these drugs that are designed to provide immunity against infection, like ones produced by Pfizer and Moderna to prevent COVID-19.

ANSWER: vaccine (accept specific types of vaccines, such as mRNA vaccines, HPV vaccines, COVID vaccines, etc.)

(13) A deity with the head of this creature was called Ailuros [“eye”-loo-rohs] in Greece, and was worshipped at Bubastis [boo-bahs-tiss]. One of these creatures, named Ta-Miu [tah-myew], was entombed with Prince (*) Thutmose. A fierce counterpart for a goddess with the head of this creature was Sekhmet, who had the head of a lion. Bastet had the head of, for ten points, what felines that were domesticated to control populations of mice in grain stores?

ANSWER: cat (accept synonyms like kitty; prompt on “feline” before it is read)

(14) Ted Sorensen’s work for this man included writing a speech that asks why Rice University plays against Texas. Sorensen also probably ghostwrote a book that won this man the Pulitzer Prize while he served as a Senator from (*) Massachusetts, *Profiles in Courage*. Sorensen helped with this President’s inaugural address, which includes the command “Ask not what your country can do for you.” For ten points, name this US President who was inaugurated in 1961 and assassinated in 1963 by Lee Harvey Oswald.

ANSWER: John Fitzgerald Kennedy (both underlined parts required; accept JFK; prompt on “Kennedy” alone)

(15) In a novel set in this country, thatch is used to camouflage a yellow bakkie that Muareen and Bam Smales use to escape a riot. Athol Fugard’s *Master Harold...and the Boys* is set in this former home country of the Australian citizen (*) J.M. Coetzee. Alan Paton’s *Cry, the Beloved Country* about the Zulu priest Stephen Kumalo is set in, for ten points, what country where, in Nadine Gordimer’s *July’s People*, a violent civil war ended the racist policy of apartheid?

ANSWER: South Africa (accept Republic of South Africa)

(16) If a complex number is multiplied by i four times, it will rotate this many degrees in the Argand plane. In degrees, this is *twice* the period of the co-tangent function; it’s also the period of the sine and cosine functions. Two (*) straight angles add up to this many degrees. This is the number of degrees in two radians, as well as the sum of the interior angles of any quadrilateral. One full rotation is, for ten points, what degree measurement, equivalent to a whole circle?

ANSWER: 360 degrees

(17) Engineer Robert Silman diagnosed structural problems with this building’s offset, stacked concrete trays that were meant to give it as much outdoor terrace space as it has indoor space. The preservation of this building has required adding support to its (*) cantilevered balconies. Edgar Kaufmann commissioned this building as a weekend home in Pennsylvania along the Bear Run creek. For ten points, name this masterpiece of architecture by Frank Lloyd Wright, a home built directly on top of a flowing stream and waterfall.

ANSWER: Fallingwater (accept Kaufmann House until “Kaufmann” is read)

(18) **In a story from this collection, Nicholas convinces John to sleep in a tub hanging from the ceiling so Nicholas can romance John's wife, Alisoun. In another story in this collection, a crone tells a knight what women want in marriage. In this collection's frame story, a group of people at the (*) Tabard Inn hear stories told by the Miller and the Wife of Bath. For ten points, name this collection of stories in poetic Middle English, written by Geoffrey Chaucer, in which travelers tell stories to each other on the way to the title town.**

ANSWER: The Canterbury Tales

(19) **The 2011" Super Outbreak" was a series of nearly 200 of these events. A hook echo on Doppler radar caused by rear flank downdraft indicates a supercell (*) storm that is capable of generating one of these events. The intensity of these events is rated F0 to F5 [F-zero to F-five] on the Fujita scale. An "alley" named for them is centered on Kansas and Oklahoma. For ten points, name these storms that display a funnel-shaped whirlwind.**

ANSWER: tornadoes

(20) **The idea that these people should study calligraphy or other artforms is promoted by *The Book of Five Rings*, which also advocates for training with two longswords. During the Sengoku [sen-goh-koo] period, people in this profession followed the (*) bushido [boo-shee-doh] moral code, which is often compared to a knight's sense of chivalry. For ten points, name this warrior class that served the daimyo [dyme-yoh] from the medieval era until the nineteenth century in Japan.**

ANSWER: samurai (prompt on "warrior," "soldier," or other generic descriptions before "warrior" is read; prompt on "Japanese warrior," "Japanese soldier," or similar answers before "Japan" is read)

Bonuses

(1) Johannes Ringk recorded the only known copy of a piece for this instrument, in which pedalboard notes are marked with a “p” instead of being written on a separate musical staff. For ten points each,

Name this enormous keyboard instrument that pushes air through arrays of metal pipes.

ANSWER: organ (accept pipe organ)

This composer supposedly walked 250 miles to Lübeck to hear Dietrich Buxtehude, a famous organ player. This composer also wrote the *Brandenburg Concertos* and numerous fugues [fyooogs].

ANSWER: Johann Sebastian Bach (accept J.S. Bach)

Bach wrote many works for the organ. Johannes Ringk recorded the sheet music for Bach’s *Prelude and Fugue* in this minor key, which has one flat.

ANSWER: D minor

(2) Sir Arthur Conan Doyle got frustrated by writing stories about this popular detective and killed him off, but ended up writing sixty works about him anyway. For ten points each,

Name this fictional English detective, who amazes Doctor Watson with his ability to solve crimes using science.

ANSWER: Sherlock Holmes (accept Sherlock Holmes)

Doyle became frustrated and tried to kill Holmes off in the story “The Final Problem,” during which the detective tumbles over the Reichenbach Falls with this criminal mastermind.

ANSWER: Professor James Moriarty

After “The Final Problem,” Doyle gave in to public demand and published this novel, in which Holmes investigates a mysterious canine apparition that haunts an estate in Dartmoor.

ANSWER: The Hound of the Baskervilles

(3) Three of the newest US National Parks are based on sand dunes. For ten points each,

A national park is located entirely within the White Sands missile testing range in this state, near the cities of Alamogordo and Las Cruces.

ANSWER: New Mexico

The tallest sand dunes in America are in Great Sand Dunes National Park in this state. More than half of the United States’ “fourteeners” - mountains taller than 14,000 feet - are found in this Rocky Mountain state.

ANSWER: Colorado

Indiana Dunes National Park lies on the shores of this Great Lake. Of all the states that have shoreline on the Great Lakes, Indiana’s shoreline on this lake is the shortest, and the dunes are pretty much the only thing to visit there.

ANSWER: Lake Michigan

(4) Electrum is one of these materials composed of gold and silver. For ten points each,

Name this solid mixtures, usually comprised of two metals, which also include useful materials like bronze and brass.

ANSWER: alloys

Nonmetals can form alloys too. For example, this element is alloyed to iron in steel.

ANSWER: carbon (accept C)

Metallurgists often alloy aluminum with this other nonmetal to make them easier to melt. Extremely pure forms of this element are often doped with aluminum, boron, or phosphorus, to increase the number of charge carriers.

ANSWER: silicon (accept Si)

(5) Give the following about historical statues by Daniel Chester French, for ten points each.

French's best known subject is Abraham Lincoln, but before he designed the seated statue in the Lincoln Memorial, he created an eight-foot-tall statue that stands on the grounds of this state's Capitol building in Lincoln.

ANSWER: Nebraska

A French memorial to this man, Lincoln's only Secretary of State, stands in his hometown of Florida, New York. Numerous statues of this man stand in Alaska, a territory he purchased from Russia.

ANSWER: William Henry Seward

French's memorial statue of Gallaudet sitting and teaching Alice Cogswell stands on the grounds of Gallaudet University, the only college in the world in which all services are designed to accommodate this disability.

ANSWER: deafness (accept descriptions of a loss of hearing)

(6) For sleeping with Poseidon in Athena's temple, this mythical woman was punished by having her hair turned into writhing snakes. For ten points each,

Name this gorgon who could turn humans to stone with her gaze.

ANSWER: Medusa

This Greek hero, who rescued the princess Andromeda, used a mirrored shield to slay Medusa without looking at her directly.

ANSWER: Perseus

After Perseus killed Medusa, he took her head to Athena, who set it onto this legendary shield.

ANSWER: Aegis (accept Gorgoneion)

(7) Name some quirks of plant cells, for ten points each.

Perhaps the most meaningful quirk, compared to animal cells, is that plant cells have these organelles where photosynthesis occurs.

ANSWER: chloroplasts

Plant cells have a rigid wall made of cellulose, which maintains turgidity. By contrast, animal cells just have this flexible and semipermeable lipid bilayer, which lets water freely in and out.

ANSWER: cell membrane (accept plasma membrane or PM)

Although plants use cellulose in their cell walls, animals can't make it. The closest structural polysaccharide made by animals is this polymer of N-acetyl-glucosamine, which comprises the cell walls of many fungi as well as the exoskeletons of insects.

ANSWER: chitin

(8) Give the following about simplifying fractions, for ten points each.

Algebra teachers often note that it is preferred to not have square root symbols in this part of a fraction, found below the numerator. Good news if you don't like rationalizing this part of a fraction; higher math classes often don't care!

ANSWER: denominator

When a complex number is in the denominator of a fraction, you can multiply both the numerator and denominator by the *conjugate* of the complex number to simplify. What is the conjugate of the complex number "five plus *i*"?

ANSWER: five minus i

A fraction is considered to be "in simplest terms" when the numerator and denominator have no common factors. When two numbers have no shared factors, they are said to have this property, which has two names each ending with the term "prime." Give either name.

ANSWER: co-prime or relatively prime (accept either; do not prompt on partial answers.)

(9) This long novel follows the fate of French citizens from the time of Napoleon to the 1832 June Rebellion in Paris. For ten points each,

Name this novel by Victor Hugo that was made into a popular musical in which the convict Jean Valjean [zhawn val-zhawn] struggles to raise his adopted daughter, Cosette.

ANSWER: Les Misérables (accept Les Mis)

In *Les Misérables*, Jean Valjean lives in hiding to avoid this police inspector, who is determined to lock him up for crimes he committed in the 1790s.

ANSWER: Inspector Javert

This young nobleman and student joins the Friends of the ABC to fight in the June Rebellion, and falls in love with Cosette, marrying her near the end of the novel.

ANSWER: Marius Pontmercy (accept Marius Pontmercy, with both underlined parts required; prompt on "Pontmercy" alone)

(10) Name the following brutal ancient Roman emperors, for ten points each.

This third Emperor of Rome was particularly cruel in treating his underlings and was accused of numerous insane acts, such as his plan to make his own horse a consul.

ANSWER: Caligula (accept Gaius Julius Caesar Augustus Germanicus, but do not prompt on any partial answers thereof)

This ruler ordered the death of his own mother, Agrippina, in 59 CE, five years before he supposedly “fiddled” while the Great Fire of Rome burned on.

ANSWER: Nero Claudius Caesar Augustus Germanicus (do not accept or prompt on any of the non-underlined names if given alone)

The Bar Kokhba revolt in Judea was suppressed by this emperor, who ordered the construction of a wall along the northern border of Roman Britain in 122 CE.

ANSWER: Hadrian (accept Caesar Traianus Hadrianus, but do not prompt on any partial answers thereof; accept Hadrian's Wall)

(11) The reigning champions of this league are coached by Becky Hammon, who was previously an assistant in another sports league. For ten points each,

Name this American sports league whose 2022 championship was won by the Las Vegas Aces, led by two-time MVP A’ja Wilson [“Asia” Wilson] and Kelsey Plum.

ANSWER: WNBA (accept Women’s National Basketball Association; accept the Women’s NBA)

The Aces became the second major sports franchise in Las Vegas when they moved out of this Texas city in 2017. Hammon was an assistant coach in the NBA under Gregg Popovich for this city’s Spurs.

ANSWER: San Antonio

A’ja Wilson was named MVP in 2020 and 2022; in between, Jonquel Jones won the award playing for this team, which the Aces defeated in the 2022 Finals. Like the Aces, this team does not share its home market with an NBA team, and it is the only major sports team in its state.

ANSWER: Connecticut Sun (accept either or both names)

(12) Name some completely unrelated poems written by Edgar Allan Poe, for ten points each.

This poem’s speaker mourns his lost love, Lenore, and falls into despair when he hears the title bird repeat “Nevermore.”

ANSWER: The Raven

This poem’s speaker mourns his lost love, the title woman, who lives “in a kingdom by the sea” until she is “chilled and killed” by jealous angels.

ANSWER: Annabel Lee (do not accept or prompt on a partial answer)

This poem’s speaker might mourn his lost love when he hears “the melancholy menace” of the title instruments, which keep “time, time, time, / in a sort of Runic rhyme” with their knells.

ANSWER: The Bells

(13) In the early days of the COVID pandemic, reports of a severe shortage of this commodity led to an executive order requiring processing plants to stay open. For ten points each,

Name this general type of commodity whose affected producers included Cargill, Smithfield, JBS, and Tyson.

ANSWER: **meat** (accept any specific kind of meat, including **beef**, **chicken**, and **pork**; prompt on “food”)

The national market for meat is considered an oligopoly because it’s dominated by a small number of firms. In meat’s case, that’s the “Big Five.” If a market only has one major seller, it’s described by this term instead.

ANSWER: **monopoly**

The market for this product is also dominated by an oligopoly, led by Abbott Nutrition. After two infants died in early 2022, Abbott issued a recall due to bacterial contamination, and a drastic shortage of this product ensued.

ANSWER: baby **formula** (accept infant **formula**; do not prompt on “milk”)

(14) The first of three American wars against these people took place in Spanish-controlled territory, and the second included the Battle of Lake Okeechobee. For ten points each,

Name this Native American tribe, which split from the Creek. After the second war against these people, the US forced many of them to live in the Everglades.

ANSWER: **Seminole** (accept **Seminoles**; accept **Seminole** War(s))

The Seminole Wars took place in this southern US state, which was given to the US by Spain in the Adams-Onis Treaty of 1819.

ANSWER: **Florida**

This 12th US President gained his nickname of “Old Rough and Ready” during a military career that included fighting in the Second Seminole War.

ANSWER: Zachary **Taylor**

(15) A common lesson in beginner’s optics will use a triangular one of these objects to disperse a beam of white light into a rainbow of colors. For ten points each,

Give this term for an object whose angled, transparent sides can refract light.

ANSWER: **prisms**

How much bending a light beam will undergo depends on the medium in which it’s traveling; that idea is quantified by this dimensionless number. This value is roughly 1.33 for water, almost 1 for air, and exactly 1 for a vacuum.

ANSWER: **index of refraction** (accept **n**; prompt on “index”)

Refraction is the result of a change in this quantity as a wave enters a new medium. This quantity, the distance between two crests or two troughs in a wave, is greater for red light than for blue light.

ANSWER: **wavelength**

(16) On the opening night of the 1994 Winter Olympics, a group of thieves left a note thanking the National Gallery in Oslo for having lax security. For ten points each,

The thieves stole a version of this painting, in which a swirling blood-red sky appears above a figure clasping its shocked face in its hands.

ANSWER: The Scream (accept Skrik; accept Der Schrei der Natur)

Several different versions of *The Scream* were painted by this Norwegian artist.

ANSWER: Edvard Munch

Munch's paintings have been common targets of theft. In 1998, a version of this painting, depicting a red-haired woman embracing a man, was stolen from another museum in Oslo. Munch disputed the common supernatural interpretation of this work, claiming that the woman was simply kissing the man on the neck.

ANSWER: Vampire (accept Love and Pain)

(17) In a play by Aristophanes, these animals serve as the chorus while Dionysus rows across a lake toward the underworld. For ten points each,

Name these amphibians whose croaking is imitated by the line "bre-ke-ke-kax ko-ax ko-ax."

ANSWER: frog (accept The Frogs; accept Batrachoi)

Although much of *The Frogs* concerns a verbal battle between two tragic playwrights, *The Frogs* itself is a work in this genre, like most of the surviving plays by Aristophanes.

ANSWER: comedy (accept word forms like comedic plays; accept komoidia)

In *The Frogs*, Dionysus journeys to the underworld to bring Euripides back from the dead, but instead retrieves this tragic playwright of the *Oresteia*.

ANSWER: Aeschylus [ESS-kih-lus]

(18) In the late 19th century, Giovanni Schiaparelli [skap-ah-relli] saw channels on the surface of this planet, and a mis-translation convinced some that there was liquid water running on its surface. For ten points each,

Name this fourth planet from the Sun.

ANSWER: Mars

Schiaparelli's report mutated into the idea that Martians had built these structures on Mars, possibly for irrigation.

ANSWER: canals (accept canali)

Today, we know that Schiaparelli's *canali* were an optical inaccuracy, and scientists continue to look for water on Mars using equipment like this rover, which landed in 2012 and continues to operate today. The *Perseverance* rover joined it on Mars in 2021.

ANSWER: Curiosity

(19) The first of this work's 18 books is the *Adi Parva*, whose stories include the tale of Shakuntala, whose husband Dushyanta fails to recognize her without her wedding ring. For ten points each,

Name this ancient Indian epic poem about the civil war between the Kauravas and Pandavas. At nearly two million words, this work is considered the longest poem ever written.

ANSWER: **Mahabharata** (do not accept or prompt on "Bhagavad Gita")

The most famous section of the *Mahabharata* is the *Bhagavad Gita*, a dialogue between a prince of the Pandavas and this character, the prince's charioteer. In modern Hinduism, this revered eighth avatar of Vishnu is the subject of a mantra that also names Rama and Hare [hah-ray].

ANSWER: **Krishna** (accept Hare **Krishna**)

Krishna advises this third prince of the Pandavas, who is hesitant to fight until Krishna reveals his true nature.

ANSWER: **Arjuna** (accept **Partha**; accept **Dhananjaya**)

(20) The "ABC Powers" mediated a conference between American and Mexican diplomats in 1914. For ten points each,

The "ABC Powers" are Argentina, Brazil, and this South American country whose capital is Santiago.

ANSWER: **Chile** (accept Republic of **Chile**; accept República de **Chile**)

Among the relatively few conflicts between the ABC powers is a border dispute between Chile and Argentina over this cold region of South America south of the Pampas.

ANSWER: **Patagonia**

Before they were the "ABC Powers", Argentina and Brazil joined with Uruguay in the 19th century War of the Triple Alliance against this country, which lost the war decisively.

ANSWER: **Paraguay** (accept Republic of **Paraguay**; accept República del **Paraguay**; accept Tavakuaireta **Paraguái**)