

Round 8

First Half

(Tossup 1) **Hummel and Haydn's concertos for this instrument were dedicated to Anton Weidinger. Jeremiah Clarke wrote a "voluntary" for this instrument. This instrument plays the opening rising motifs of both Richard Strauss's *Thus Spake Zarathustra* and Aaron Copland's (*) *Fanfare for the Common Man*. Jazz players of this instrument include Dizzy Gillespie and Miles Davis. For ten points, name this highest brass instrument.**

ANSWER: trumpet

(Bonus 1) A wooden packing case on the right side of this painting bears the names of its title figure and its painter. For ten points each,

[Part A] Name this 1793 painting, in which the title French politician lies slumped over in his bathtub, clutching a piece of paper that names his murderer, Charlotte Corday.

ANSWER: The Death of Marat (accept Le mort de Marat; accept Marat Assassinated or Marat assassiné)

[Part B] The artist of *The Death of Marat* also painted this ancient Greek philosopher, who points upward as he reaches for a cup of hemlock.

ANSWER: (The Death of) Socrates

[Part C] *The Death of Marat* and *The Death of Socrates* were painted by this French Neoclassical painter.

ANSWER: Jacques-Louis David

(Tossup 2) **This government authorized a limited number of "red seal ships" as a way to control trade. During this government, the policy of alternate attendance required feudal lords to spend half of the year in the capital. Matthew (*) Perry forced this government to open its ports with the Treaty of Kanagawa. This government was established in the wake of the Battle of Sekigahara by Ieyasu. The Meiji Restoration ended, for ten points, what final Japanese shogunate?**

ANSWER: Tokugawa Shogunate

(Bonus 2) During this election, William Crawford received just 41 electoral votes despite winning the Democratic-Republican nomination. For ten points each,

[Part A] Name this election decided in the House of Representatives, in which a “corrupt bargain” elevated John Quincy Adams to the presidency.

ANSWER: Election of 1824

[Part B] This hero of the Battle of New Orleans was the chief victim of the Corrupt Bargain. Not satisfied with the results, this man later became President in 1828.

ANSWER: Andrew Jackson

[Part C] The “corrupt bargain” allowed this speaker of the house to become Secretary of State.

ANSWER: Henry Clay

(Tossup 3) **In this novel, Mikolka beats a horse to death in a dream. In part five of this work, the protagonist of this novel claims “I wanted to become a Napoleon” in explaining his actions to the prostitute Sonya. This novel’s protagonist is exiled to (*) Siberia by Porfiry Petrovich for killing Alyona Ivanovna, a pawnbroker. For ten points, name this Russian novel about the student Raskolnikov’s attempt to get away with murder, written by Fyodor Dostoyevsky.**

ANSWER: Crime and Punishment (accept Prestupleniye i nakazaniye)

(Bonus 3) In this novel, an unnamed narrator is reunited with his wife after Earth viruses destroy an invading force. For ten points each,

[Part A] Name this H.G. Wells novel about an invasion of England by grotesque, tentacled Martians.

ANSWER: The War of the Worlds

[Part B] In *The War of the Worlds*, the invading Martians arrive in enormous “fighting machines” that the narrator gives this nickname. These machines release a deadly heat-ray and a poisonous smoke to destroy human resistance.

ANSWER: tripod

[Part C] This Martian plant takes over most of the English countryside before it, like the Martians, is obliterated by Earth disease.

ANSWER: red weed (accept descriptions)

(Tossup 4) **The initiation of these structures is promoted by a larger ratio of auxins compared to cytokinins, and the young form of this structure is called the radicle. Fungi and these structures can form a symbiotic relationship known as mycorrhizae, and the nodules of these structures contain (*) nitrogen-fixing bacteria. These structures use positive gravitropism to grow downwards, and carrots are a vegetable from this part of a plant. For ten points, name these plant structures that typically absorb water and nutrients from the soil.**

ANSWER: roots

(Bonus 4) According to the third law of thermodynamics, a perfect one of these structures experiences zero entropy at zero Kelvin. For ten points each,

[Part A] Name these periodic solid structures that can have hexagonal and face-centered cubic geometries.

ANSWER: crystals

[Part B] This type of ionic compound has a crystal structure. Monosodium glutamate and sodium chloride are two of these compounds commonly used in cooking.

ANSWER: salts

[Part C] This quantity for a crystal can be calculated using the Born-Haber cycle and can be defined as the amount of joules needed to separate one mole of a solid ionic compound into its gaseous ions.

ANSWER: lattice energy (accept lattice enthalpy)

(Tossup 5) **This figure explains that a vision of a horned ram represents the upcoming destruction of the Persian Empire by Alexander the Great, and he communicates to Daniel the statement that there will be “seventy weeks” of years before the coming of Christ. This figure, who is often believed to (*)** blow the horn of God prior to the Resurrection, tells Zacharias that his elderly wife Elisabeth will become pregnant, and then tells Mary that she will conceive a son named Jesus in the Annunciation. For ten points, name this archangel who serves as the messenger of God.

ANSWER: Gabriel

(Bonus 5) This Mother of the Believers was betrothed to her husband after the death of Khadijah. For ten points each,

[Part A] Name this favorite wife of Muhammad, the daughter of Abu Bakr.

ANSWER: Aisha bint Abi Bakr

[Part B] Aisha’s father, Abu Bakr, was the first holder of this title after Muhammad’s death. This title refers to a religious successor of Muhammad who leads an Islamic community or state.

ANSWER: caliph

[Part C] Aisha narrated over 2,000 of these “sayings,” the records of the life and deeds of Muhammad.

ANSWER: hadith

(Tossup 6) **A holder of this position personally authorized the bombing of the *Rainbow Warrior* which was used to protest his country’s nuclear testing. The Evian Accords, which ended the (*)** Algerian War, were negotiated by a holder of this position who later faced the May 1968 student protests. The current holder of this position used the slogan “En Marche!” en route to defeating Marine Le Pen. For ten points, name this position currently held by Emmanuel Macron.

ANSWER: President of France (prompt on partial answers, like “President” or “leader of France”)

(Bonus 6) This dynasty's first emperor was the Hongwu Emperor, and it constructed the Forbidden City under the Yongle Emperor. For ten points each,

[Part A] Name this dynasty that was formed in 1368 after the collapse of the Yuan. It was succeeded by the Qing Dynasty in 1644.

ANSWER: Ming Dynasty

[Part B] The Ming Dynasty was known for their production of this ceramic material, which is why this material is often called "china" in English-speaking countries.

ANSWER: porcelain

[Part C] This Ming Dynasty explorer sailed as far as Mecca under orders from the Yongle Emperor. This man used treasure fleets on his voyages.

ANSWER: Zheng He

(Tossup 7) **This state is home to the World's Largest Muskie, a 140-foot-long fiberglass sculpture in Hayward. Coastal cities in this state include Manitowoc, just north of Sheboygan, while this state's capital lies on Lake (*) Mendota.** In the eastern region of this state, the cities of Appleton and Oshkosh lie on the shores of Lake Winnebago, which is drained by the Fox River on its way to Green Bay. For ten points, name this US state where boaters on Lake Michigan may dock in Milwaukee.

ANSWER: Wisconsin

(Bonus 7) This state's Santa Catalina Island was bought by William Wrigley in the early 20th century; he allowed his Chicago Cubs to use the island for spring training. For ten points each,

[Part A] Name this West Coast state, where Santa Catalina Island can be reached by a short boat ride from Long Beach, south of Los Angeles.

ANSWER: California

[Part B] Santa Catalina is part of an island group known by this name. This term also describes the islands of Jersey and Guernsey, south of England.

ANSWER: Channel Islands

[Part C] Santa Catalina Island is administered within Los Angeles County, *not* this other county to the southeast of L.A. proper. Cities in this county include Anaheim and Irvine.

ANSWER: Orange County

(Tossup 8) **These phenomena create waves known as whelps and bores, which present opportunities for river surfing. Strong variations of up to 16 meters in these phenomena have been measured at Canada's Bay of (*) Fundy.** "Neap" and "Spring" are the terms for the minima and maxima in the cycle of these phenomena. For ten points, name this periodic rise and fall in sea level due to the rotation of the Earth and the gravitational effects of the Sun and Moon.

ANSWER: tides

(Bonus 8) Answer the following about the discovery of this molecule that was tagged with radioactive phosphorous in the Hershey-Chase experiment for ten points each.

[Part A] Name this molecule that was confirmed in that experiment as the carrier of the genetic code. It is made of a sugar backbone and has four nucleotide bases A, T, C, and G.

ANSWER: DNA or (accept deoxyribonucleic acid)

[Part B] Rosalind Franklin's "photograph 51" showed that DNA has this structure. Watson and Crick later published her data in their model of DNA with this shape.

ANSWER: double helix (prompt on helix)

[Part C] This British scientist showed the "transforming principle" of DNA in an experiment where DNA from an heat-killed infectious strain of bacteria allowed a live non-infectious strain to infect mice.

ANSWER: Frederick Griffith

Sixty-Second Rounds

The categories are ...

1. A Streetcar Named Desire
2. Australian Politics
3. Infectious Disease

A STREETCAR NAMED DESIRE

In the Tennessee Williams play *A Streetcar Named Desire*, who or what is...

(1) The vibrant Louisiana city whose French Quarter is the setting of the play?

ANSWER: New Orleans

(2) The play's protagonist, who moves in with her sister at the start of the play?

ANSWER: Blanche DuBois (accept either underlined name)

(3) The protagonist's sister, who has a stormy relationship with her husband, Stanley?

ANSWER: Stella Kowalski (prompt on "Kowalski")

(4) The phrase that the protagonist says she has "always depended on" at the play's end?

ANSWER: the kindness of strangers

(5) The protagonist's boyfriend, who is Stanley's friend?

ANSWER: Harold "Mitch" Mitchell (accept any underlined name)

(6) The ancestral home that the protagonist is forced to sell before the start of the play?

ANSWER: Belle Reve

AUSTRALIAN POLITICS

Name the...

(1) Capital city of Australia, a planned city built as a compromise between Sydney and Melbourne.

ANSWER: Canberra

(2) Head of State of Australia, the current British monarch.

ANSWER: Elizabeth II

(3) Practice that became legal in December 2017 after 62% of respondents in a voluntary postal survey voted yes for it.

ANSWER: same-sex marriage (accept gay marriage and equivalents)

(4) Current Prime Minister of Australia, a member of the Liberal Party.

ANSWER: Malcolm Turnbull

(5) Gaffe-ridden Liberal Prime Minister who lost the Prime Ministership after a leadership challenge in 2015.

ANSWER: Tony Abbott

(6) First and only female Prime Minister of Australia who gave a famous Misogyny Speech in 2012.

ANSWER: Julia Gillard

INFECTIOUS DISEASE

Name the...

(1) Preventative measure used to immunize people from diseases such as the flu or polio.

ANSWER: vaccine (accept word forms like vaccination)

(2) Type of “mad” animal that names a disease caused by prions.

ANSWER: Mad Cow disease

(3) Organs that are affected by pneumonia and tuberculosis.

ANSWER: lungs

(4) Paralytic disease that was studied by Albert Sabin and Jonas Salk.

ANSWER: poliomyelitis

(5) Widely studied rod-shaped bacteria, common in the lower intestine, that commonly causes food poisoning.

ANSWER: E. coli (accept Escherichia coli)

(6) Grape-shaped bacteria whose *aureus* strain can cause toxic shock syndrome and other deadly infections.

ANSWER: Staphylococcus (accept Staph infection)

Second Half

(Tossup 9) **Francis Guthrie first posed this problem in the 19th century, and it was broadened beyond the plane by the Heawood Conjecture, whose formula incorrectly gives 7 as a lower bound for the Klein bottle. Wolfgang (*) Haken and Kenneth Appel solved this problem with a controversially computer-intensive proof in the 1970s. Exclaves are exceptions to the assumptions of, for ten points, what mathematical theorem regarding the artistic choices available to mapmakers?**

ANSWER: **Four color** map theorem (accept descriptive answers mentioning **four colors**; prompt on descriptive answers relating to the coloring of maps that don't mention four as the upper bound of the number of colors necessary to color the map)

(Bonus 9) A rectangle with width 1 and a length of this value can be divided into a square with side lengths 1 and a rectangle with width 1 and length "1 over this value." For ten points each,

[Part A] Name this mathematical constant, approximately equal to 1.618.

ANSWER: **golden ratio** or **golden mean** (accept any combination of the words [golden or divine] with [ratio, mean, section, cut, or proportion])

[Part B] The golden ratio is written as a fully simplified fraction in "a plus root b, all over c" form, with a, b, and c all relatively prime integers. Find the sum of a, b, and c.

ANSWER: **8** (the fraction is 1 plus root 5, all over 2)

[Part C] The golden ratio is also equal to 2 times the cosine of this degree measurement. An interior angle of a regular pentagon can be trisected into angles of this degree measurement.

ANSWER: **36** degrees

(Tossup 10) **This literary character dismisses her brother's explanation of Hot Steams and is questioned by Lula when she goes to First Purchase Church. This character greets Walter Cunningham's father and accidentally breaks up a lynch mob. While wearing a (*) ham costume, this girl is attacked by Bob Ewell because of her father's defense of Tom Robinson, but is saved by Boo Radley. For ten points, name this sister of Jem and daughter of Atticus Finch, the narrator of Harper Lee's *To Kill a Mockingbird*.**

ANSWER: **Jean Louise** "**Scout**" Finch (accept either underlined portion; prompt on "Finch")

(Bonus 10) This man wrote short stories like “The Lady with the Dog,” but he is better known for his plays. For ten points each,

[Part A] Name this Russian playwright of *Three Sisters* and *The Seagull*.

ANSWER: Anton Pavlovich Chekhov

[Part B] This Chekhov play culminates with Lopakhin buying Madame Ranevskaya’s title estate. At the end of this play, axes are heard cutting down the title property.

ANSWER: The Cherry Orchard (accept Vishnevyi sad)

[Part C] Chekhov introduced this concept to the world of theater, saying that if one of these objects is seen on stage, it must be used. In *The Seagull*, Konstantin injures himself with one of these objects.

ANSWER: Chekhov’s gun (accept types of guns such as rifle, pistol, etc)

(Tossup 11) **This location partially titles the first popular book of Ignatius L. Donnelly, which traces the roots of all civilizations to it. A utopian novel by Francis Bacon is named after a “new” incarnation of this place. This place was first introduced in a pair of (*) Platonic dialogues that pitted it as a rival naval power to Athens. For ten points, name this mythical city supposedly found beneath the sea.**

ANSWER: Atlantis (accept Atlantis: The Antediluvian World; accept The New Atlantis)

(Bonus 11) This ethnic group was excluded from a 2012 census in Rakhine State on spurious grounds that they were stateless people from Bangladesh. For ten points each,

[Part A] Name this Muslim minority group that is the subject of a genocidal campaign in Southeast Asia that began in 2016.

ANSWER: Rohingya people

[Part B] The Rohingya people are being persecuted by this country’s government, which is based in Naypyidaw.

ANSWER: Myanmar (accept Burma)

[Part C] This Nobel Peace Prize winner is the leader of Myanmar, but has failed to stop the military from attacking the Rohingya.

ANSWER: Aung San Suu Kyi (prompt on any proper subset of her name)

(Tossup 12) **This figure receives a prophetic dream after praying to Shamash each day during his journey through the Cedar Forest. One of this figure’s companions is tamed by Shamhat, who spends “seven days and seven nights” with that “wild man,” (*) Enkidu. The flood survivor Utnapishtim tries to aid this figure in his quest for immortality. The Library of Ashurbanipal held cuneiform tablets telling the story of, for ten points, what mythological ruler of Uruk, the namesake of a Mesopotamian epic?**

ANSWER: Gilgamesh

(Bonus 12) Two of these sisters, Stheno and Euryale, were immortal, but the third sister in this group was killed by a hero wielding a mirrored shield. For ten points each,

[Part A] Name this group of sisters, including Medusa, who possessed hair made of venomous snakes and faces that could petrify viewers.

ANSWER: Gorgons

[Part B] In battle, Athena wielded this shield, which by some accounts held Medusa's head in its center. According to the Iliad, this shield possessed gold tassels and produced a mighty roar.

ANSWER: Aegis

[Part C] In several versions of the Medusa myth, her death resulted in the birth of this son of Poseidon, who wielded a golden sword.

ANSWER: Chrysaor

(Tossup 13) **This number was first calculated by Josef Loschmidt and experimentally determined by Jean Perrin. Dividing Faraday's constant by the elementary charge yields this number. This number is equal to the gas constant divided by Boltzmann's constant and is defined as the (*)** number of atoms in 12 grams of carbon-12. For ten points, name this constant named for a 19th century Italian scientist, roughly equal to 6.022 times ten to the twenty-third.

ANSWER: Avogadro's constant (or number)

(Bonus 13) For ten points each, give the following about moons in our solar system.

[Part A] The four Galilean moons, which are Europa, Io, Callisto, and Ganymede, orbit this planet. They were the first moons other than Earth's to be discovered.

ANSWER: Jupiter

[Part B] This largest moon of Saturn is the moon with the most prominent atmosphere in our solar system. It is hypothesized that this moon is also home to large hydrocarbon lakes.

ANSWER: Titan

[Part C] Verona Rupes, the largest cliff in the solar system, is found on this fifth largest moon of Uranus, the smallest of its five major moons.

ANSWER: Miranda

(Tossup 14) **On the right of this painting, a container holding three spoons hangs from a rafter. The brightest spot in this work is a dim painting of two people wearing red and blue. In this painting, a woman in a white bonnet (*)** pours coffee from a small kettle into four cups, and a ceiling-mounted oil lamp barely illuminates five people leaning over a platter. For ten points, name this painting by Vincent van Gogh, in which a group of peasants gather around the title earthy food.

ANSWER: The Potato Eaters (accept De Aardappeleters)

(Bonus 14) For ten points each, name these composers who created unfinished symphonies.

[Part A] This Austrian composer's eighth symphony in B minor contains only two full movements and is arguably the most famous of the Unfinished symphonies in the modern repertoire.

ANSWER: Franz Schubert

[Part B] This composer's tenth symphony had only its first and third movements completed at the time of his death. This composer also wrote the *Titan* and *Resurrection* Symphonies.

ANSWER: Gustav Mahler

[Part C] This French composer of *Carmen* never published a final version of his *Roma* symphony.

ANSWER: Georges Bizet [bee-zay]

(Tossup 15) **This playwright wrote about Lord Illingworth's dismissal of Mrs Arbuthnot in *A Woman of No Importance*. In a play by this author, Mrs Erlynne prevents her daughter from having an affair with Lord Darlington. In another play by this author, Miss Prism reveals that she accidentally abandoned a (*) baby at Victoria Station, which allows Gwendolyn Fairfax and Cecily Cardew to marry Jack Worthing and Algernon Moncrieff. For ten points, name this Irish satirical playwright of *Lady Windermere's Fan* and *The Importance of Being Earnest*.**

ANSWER: Oscar Fingal O'Flaherty Wills Wilde

(Bonus 15) This poem's speaker says she comes "out of the huts of history's shame" and "up from a past that's rooted in pain," and says "I am the dream and the hope of the slave." For ten points each,

[Part A] Name this poem that begins, "You may write me down in history / with your bitter, twisted lies" but declares that, like dust, air, and "hopes springing high," the speaker will perform the title action.

ANSWER: Still I Rise

[Part B] "Still I Rise" is by this American poet, who wrote about a creature who "sings / with a fearful trill / of things unknown / but longed for still," and who read "On the Pulse of Morning" at Bill Clinton's inauguration.

ANSWER: Maya Angelou (accept Marguerite Annie Johnson)

[Part C] Maya Angelou wrote a poem about this animal, who "can seldom see through / his bars of rage," and whose "wings are clipped" and "feet are tied," but who nevertheless "sings of freedom."

ANSWER: the caged bird (accept I Know Why the Caged Bird Sings; prompt on "bird;" prompt on descriptions like "a bird in a cage;" do not accept "the free bird")

(Tossup 16) **Paul Jennings bought his freedom from this man. This politician was sued by a Justice of the Peace after failing to deliver appointments to his predecessor's "midnight judges." With Thomas (*) Jefferson, this man wrote the Kentucky and Virginia Resolutions. A case that established judicial review was called against this man by William Marbury. For ten points, name this Democratic-Republican who served as the 4th President of the United States.**

ANSWER: James Madison

(Bonus 16) This city-state subjugated the helots who were terrorized by the Krypteia. For ten points each,

[Part A] Name this militaristic Greek city. During one war, an admiral from this city, Lysander, defeated an Athenian fleet at the Battle of Aegospotami.

ANSWER: Sparta

[Part B] The Battle of Aegospotami was a deciding battle in the Peloponnesian War, a conflict which pitted Sparta against this Athenian-led alliance.

ANSWER: Delian League

[Part C] The ruler of Athens during the Peloponnesian War was this man, who gave a famous funeral oration and ushered in Athens' Golden Age.

ANSWER: Pericles

Tiebreakers

(Tossup 17) **Endel Tulving distinguished between the episodic and semantic forms of this faculty, and Karl Lashley proposed the largely disproved “engram” as a physical storage for this function. The procedural type of this function is linked to unconscious tasks or motor movements, and its (*) working type deals with temporary information. Lack of REM sleep harms consolidation of this faculty and the hippocampus is linked to this function. For ten points, name this function that is lost in amnesia and comes in short-term and long-term forms.**

ANSWER: memory

(Bonus 17) In one play by this author, Nils Krogstad attempts to blackmail Nora Helmer after she forges her father's signature on a loan. For ten points each,

[Part A] Name this author of *A Doll's House*.

ANSWER: Henrik Ibsen

[Part B] Ibsen hails from this country. This country's fairy tales inspired his play *Peer Gynt*, which premiered in what is now its city of Oslo.

ANSWER: Norway

[Part C] The title character of this Ibsen play encourages the writer Eilert Lövborg to “die beautifully” after Eilert loses his “masterpiece.”

ANSWER: Hedda Gabler