

Finals

First Half

(Tossup 1) **In this country, Archbishop Joseph Serge Miot was killed during a natural disaster that destroyed the United Nations Stabilization Mission's building. The town of Leogane [lay-oh-gahn] was near the epicenter of an earthquake that destroyed this country's Presidential Palace, forcing President Rene Preval to headquarter at (*) Toussaint L'Overture Airport. For ten points, name this country that was devastated by a 2010 earthquake that left thousands homeless in Port-Au-Prince.**

ANSWER: Haiti

(Bonus 1) Carl Gustaf Rehnskiold was taken prisoner at this battle and held for nearly a decade, while his king, Charles XII, fled to the Ottoman Empire and hid there for several years. For ten points each,

[Part A] Name this 1709 battle, a major victory for Peter the Great that marked Russia's dominance of a defeated Scandinavian neighbor.

ANSWER: Battle of Poltava

[Part B] The Battle of Poltava took place during this early 18th century war, a major Russian victory.

ANSWER: Great Northern War

[Part C] This empire was led by Charles XII during the Great Northern War. This country signed treaties ending the war with Prussia and Hanover in its capital of Stockholm.

ANSWER: Sweden (accept Swedish Empire)

(Tossup 2) **Particles in these systems can be filtered out by aggregating them through flocculation. Bluish light sometimes occurs in these systems due to the Tyndall effect. Particles in these systems do not (*) settle and cannot be separated through ordinary filtering techniques. Milk is an example of this type of mixture, as it is an emulsion; other examples include aerosols and gels. For ten points, name this type of mixture in which small particles are evenly dispersed through a second substance, like a liquid within a gas.**

ANSWER: colloids (prompt on (homogeneous) mixture before mentioned)

(Bonus 2) Many interconnected chains describing the flow of energy from one organism to another can form one of these diagrams. For ten points each,

[Part A] Name these diagrams that show all of the energy transfers in an ecological community. They often are linked with arrows denoting which organism eats which one.

ANSWER: food web

[Part B] These organisms are at the bottom of food chains as they generate their own food and energy, often through photosynthesis.

ANSWER: Primary producers (accept autotrophs)

[Part C] This is the term for heterotrophs that get nutrients from consuming decomposing organic matter. They are different from fungi because they ingest material and do not use chemosynthesis.

ANSWER: detritivores

(Tossup 3) **This man studied social networks by sending instructional letters to people in Plains states and tracking the forwarding of the letter to a target in Boston. Another (*)** experiment conducted by this man involved an actor who claimed to have a heart condition. The Small World experiment was carried out by, for ten points, what American psychologist who, at Yale University, performed a famous electric shock obedience experiment?

ANSWER: Stanley Milgram

(Bonus 3) This work ends with a series of example cases of women who have built careers and lives outside the home, offering ideas that its author later promoted as the first president of the National Organization for Women. For ten points each,

[Part A] Name this 1963 study of the challenges faced by unfulfilled American housewives, an idea described as the “problem that has no name.”

ANSWER: The Feminine Mystique

[Part B] *The Feminine Mystique* was written by this leading feminist activist.

ANSWER: Betty Friedan

[Part C] *The Feminine Mystique* was inspired by Friedan’s survey of friends and colleagues from Smith College, which was a member of this group of women’s colleges in Pennsylvania, New York, and Massachusetts. Radcliffe, Bryn Mawr, and Barnard are other members of this group, whose name references the Pleiades of Greek myth.

ANSWER: the Seven Sisters

(Tossup 4) **The title character of a novel by this author is awarded a prize for her work *The Oak Tree*. That “Biography” was inspired by the life of the author’s lover, Vita Sackville-West, and follows the life of an Elizabethan courtier through the twentieth century. This author of (*) *Orlando* wrote about a woman remembers kissing Sally Seton, and who rejects Peter Walsh’s proposal. For ten points, name this member of the Bloomsbury Group who wrote *Mrs Dalloway*.**

ANSWER: (Adeline) Virginia Stephen Woolf

(Bonus 4) In this novel, Judge Jaffrey dies in an armchair owned by his ancestor, a colonial Colonel who stole the land of Matthew Maule to build the title grand house. For ten points each, This fictional family is descended from a Colonel whose mysterious death may have been the result of a curse cast by Matthew Maul. For ten points each,

[Part A] Name this novel, in which Hepzibah, Phoebe, and Clifford leave eventually leave the title cursed home to start a new life free of their family’s curse.

ANSWER: The House of the Seven Gables

[Part B] Hepzibah, Phoebe, Clifford, and Jaffrey are members of this literary family, who live in the House of the Seven Gables.

ANSWER: Pyncheon

[Part C] This American author wrote *The House of the Seven Gables*, and wrote short stories about Puritan New England that were collected in *Twice-Told Tales*.

ANSWER: Nathaniel Hawthorne

(Tossup 5) **A reddish crescent that may represent an overturned bowl sits on the floor in the center foreground of this painting near a bunch of grapes and two pieces of fruit, which rest near the foot of a figure whose other leg ends in pink triangles. This painting inspired Georges (*) Braque to visit this painting’s creator and work with him to develop the principles of Cubism. Three of the faces in this painting were inspired by the patterns of African masks, and appear on the faces of people in a brothel on the title street in Barcelona. For ten points, name this painting of five geometrically-rendered, nude prostitutes, created by Pablo Picasso.**

ANSWER: Les Demoiselles d’Avignon (accept The Young Ladies of Avignon; accept The Young Women of Avignon; accept The Brothel of Avignon before “brothel” is read)

(Bonus 5) In one work, this artist depicted a bell above a magic square on the side of a building. For ten points each,

[Part A] Name this German artist of *Melencolia I* ["one"]. His other works include *Knight, Death, and the Devil*.

ANSWER: Albrecht Dürer

[Part B] *Melencolia I* is a copperplate engraving by Dürer and, like many of his works, was created to produce prints of Dürer's art. Other prints of Dürer's art were made from his work in this artistic medium, with which he made his *Apocalypse* series.

ANSWER: woodcuts

[Part C] One of Durer's woodcuts shows an inaccurate form of one of these animals, accompanied by a brief description by an unknown artist who saw one of these animals arrive in Lisbon from India.

ANSWER: Rhinoceros

(Tossup 6) **In this story, Mahatma Vidur helps a family escape from a house made of flammable materials called Lakshagraha by sending a miner to dig a tunnel. Another character in this epic poem, Yudhistira, loses his kingdom to Duryodhana in a dice game and is forced to go into exile with his brothers for 13 years. The (*) Kurukshetra War between the Pandavas and Kauravas is featured in, for ten points, which long Hindu epic, in which Arjuna and Krishna are sworn friends?**

ANSWER: Mahabharata

(Bonus 6) After Phrixus sacrificed a golden ram to Poseidon, he hung this artifact on a tree. For ten points each,

[Part A] Name this healing artifact that was guarded by a dragon whose teeth, when planted, could summon soldiers.

ANSWER: Golden Fleece

[Part B] Zeus assisted this adventurer and his Argonauts on their quest for the Golden Fleece.

ANSWER: Jason

[Part C] On the quest for the Golden Fleece, Jason managed to leave the Thermodon River before this tribe of warriors was able to ready themselves for battle. One of the leaders of this tribe of people was Queen Penthesilea.

ANSWER: Amazons

(Tossup 7) **The Embden-Meyerhof-Parnas pathway is the most common form of this process, which takes place in the cytosol. For oxidation, complex sugars like fructose and galactose are converted to intermediates of this process. (*)** NAD^+ carries electrons away during fermentation so that this anaerobic process can continue. This process produces four ATP molecules, but two are used in the energy investment phase. For ten points, name this first phase of cellular respiration when glucose is converted to pyruvate.

ANSWER: glycolysis

(Bonus 7) For ten points each, answer some questions about the orbit of Mercury.

[Part A] Mercury has a three-to-two spin-orbit resonance, meaning that it rotates three times for every two revolutions it makes around the Sun. Give the spin-orbit resonance for our Moon around Earth.

ANSWER: one-to-one

[Part B] For an observer on Earth, Mercury typically orbits west-to-east through the stars at night, but will occasionally experience this type of motion, in which it appears to travel east-to-west.

ANSWER: apparent retrograde motion

[Part C] Mercury undergoes apparent retrograde motion when it is near this point in its orbit, at which it is closest to the sun.

ANSWER: perihelion

(Tossup 8) **This work's protagonist protests Kurt Waldheim in a section titled "The Croissant." The protagonist deals drugs and has a tumultuous relationship with Markus while living with Frau Doctor Heller in Vienna in this work. Farzad dies after jumping off a building to escape the police in "The Story of a Return," this work's second volume. (*)** Reza marries this work's protagonist, who recognizes a bracelet on the corpse of her childhood friend, Neda, after a bomb strikes her neighborhood in Tehran. For ten points, name this nonfiction graphic novel by Marjane "Marji" Satrapi, in which she describes her life in Iran during the Islamic Revolution.

ANSWER: Persepolis

(Bonus 8) In a work by this poet, a painter is ordered to “make them forget there’s such a thing as flesh.
/ Your business is to paint the souls of men.” For ten points each,

[Part A] Name this poet of *Fra Lippo Lippi*, whose wife, Elizabeth Barrett, wrote the collection *Sonnets from the Portuguese*.

ANSWER: Robert **Browning**

[Part B] In this poem, Robert Browning wrote about another painter, Fra Pandolf, whose portrait of the title woman is kept behind a curtain. This poem’s title woman had a heart “too soon made glad.”

ANSWER: **My Last Duchess**

[Part C] Like her husband, Elizabeth Barrett Browning wrote narrative poems like this one, in which the title woman takes in Marian and her illegitimate son after Marian is rejected by Romney.

ANSWER: **Aurora Leigh**

Sixty-Second Rounds

The categories are ...

1. Catch-22
2. Barriers
3. Acids and Indicators

CATCH-22

In the novel *Catch-22*, soldiers try to get sent home from war by behaving irrationally, only to be told that trying to avoid duty is a sign that they're sane enough to stay in Italy. Who or what is...

(1) The war during which the novel is set?

ANSWER: **World War II**

(2) The novel's author?

ANSWER: Joseph **Heller**

(3) The novel's protagonist?

ANSWER: Captain John **Yossarian**

(4) The mess officer who purchases cotton and eggs for M&M Enterprises to try to make money from the war?

ANSWER: First Lieutenant **Milo Minderbinder** (accept either underlined name)

(5) The squadron commander who looks like Henry Fonda, and who was promoted only because of his odd name?

ANSWER: Major **Major** Major **Major** (accept either underlined name)

(6) The young soldier who dies in the protagonist's arms, inspiring his desire to escape?

ANSWER: **Snowden**

BARRIERS

Name the...

(1) Massive structure that defended the Ming Dynasty from Mongol raids.

ANSWER: **Great Wall** of China

(2) International border where Donald Trump has proposed building a transparent wall.

ANSWER: border between U.S. and **Mexico** (accept equivalent descriptions)

(3) Roman emperor who visited England and built a wall there to defend against the Picts.

ANSWER: **Hadrian** (accept Publius Aelius **Hadrianus** Augustus)

(4) Flightless bird that Australia waged an unsuccessful war against, before constructing massive fences.

ANSWER: **emus**

(5) Series of French fortifications constructed after the First World War to prevent a future German assault.

ANSWER: **Maginot** Line

(6) Defensive line on the Karelian isthmus that consisted of concrete bunkers and dragon's teeth.

ANSWER: **Mannerheim** Line

ACIDS AND INDICATORS

What compound...

(1) Has chemical formula HCl and can be found in stomach acid?

ANSWER: hydrochloric acid (accept hydrogen chloride)

(2) Is formed in the Monsanto process and serves as the active ingredient in vinegar?

ANSWER: acetic acid (accept CH₃CO₂H; accept C₂H₄O₂)

(3) Is a water-soluble mixture of different dyes that is put on a small strip of paper to test acidity?

ANSWER: litmus (paper)

(4) Forms from carbon dioxide and water and decomposes in soft drinks to give it a characteristic fizz?

ANSWER: carbonic acid (accept H₂CO₃)

(5) Turns pink in basic solutions, making it a good indicator in titration?

ANSWER: phenolphthalein ([fee-nol-thay-leen], but be lenient)

(6) Is also known as Vitamin B9, is essential for the body to make DNA and RNA, and is highly recommend as a supplement to pregnant women?

ANSWER: folic acid (accept folate; accept folacin)

Second Half

(Tossup 9) **A war in what is now this state was ended by the Treaty of Moultrie Creek and included the executions of Robert Ambrister and Alexander Arbuthnot. In this modern-day state, three former slaves' refusal to surrender to Edmund (*) Gaines led to the Battle of the Negro Fort. In this state's city of Pensacola, the Seminoles were forced onto a reservation. Andrew Jackson fought in, for ten points, what state where Spanish explorers established St. Augustine?**

ANSWER: Florida

(Bonus 9) The Opium Wars were fought as a result of this company smuggling the drug into China. For ten points each,

[Part A] Name this company, which had a charter to trade in the Eastern hemisphere. The Tea Act of 1773 forced American colonists to purchase this company's tea.

ANSWER: British East India Company (accept BEIC; prompt on "East India (Company)")

[Part B] After this battle, the British East India Company became a major power on the Indian subcontinent. During this 1757 battle, Robert Clive defeated the Nawab of Bengal and the French.

ANSWER: Battle of Plassey

[Part C] The British Raj consisted of land directly administered by the Crown, as well as these states. The royal families of these states were allowed self-government in exchange for subsidiary alliances.

ANSWER: princely states (accept native states)

(Tossup 10) **Alternative names for this structure include Asbru. This structure ends at Himinbjorg, the home of its guardian, who wields the Gjallarhorn. This structure is destroyed by invading fire giants from Muspelheim during (*) Ragnarok. Rather than use this structure, Thor wades through Körmt and Örmt, a pair of rivers. Midgard and Asgard are linked by, for ten points, what rainbow bridge guarded by Heimdall in Norse mythology?**

ANSWER: Bifrost

(Bonus 10) Mary, the mother of Jesus, has many titles in Christianity. Answer the following about titles of Mary, for ten points each.

[Part A] One of Mary's titles is Our Lady of this event in the lives of her parents, Joachim and Anne. Pope Pius IX decreed in the *Ineffabilis Deus* that Mary was born after this event, which made Mary free from original sin.

ANSWER: Our Lady of Immaculate Conception

[Part B] Another title of Mary refers to the seven events of this type in her life, including the crucifixion of Jesus and the loss of Jesus in the Temple.

ANSWER: Our Lady of Sorrows (accept Our Lady of the Seven Sorrows; accept Our Lady of Dolors or Our Lady of the Seven Dolors)

[Part C] Mary is also referred to as the Queen of this place. Pope Pius XII declared that "Mary is Queen by grace" and "by divine relationship" to her son, with whom she reigns in this location.

ANSWER: Queen of Heaven

(Tossup 11) **For a function, finding this value can be done by integrating the square root of 1 plus the square of the derivative of the function. Rectification will find this quantity, a task that can be done practically with a piece of string. Finding this quantity cannot be done for a coastline, as (*)** Benoit Mandelbrot noted in his studies on fractals. When considering a 30-degree sector of a circle of radius 1, this value is pi over 6 units. For ten points, give this term for the distance covered by a curved path, such as a portion of a circle.

ANSWER: arc length

(Bonus 11) In 2014, Maryam Mirzakhani became the first woman to win this award, which is restricted to scholars under age 40. For ten points each,

[Part A] Name this prestigious award, granted every four years to stellar young mathematicians and often described as the Nobel Prize of Math.

ANSWER: Fields Medal

[Part B] A 2006 Fields Medal was declined by Russian mathematician Grigori Perelman, who solved the Poincaré conjecture, one of this set of seven math problems that were given \$1 million "bounties" in 2000. The other six of these problems remain unsolved.

ANSWER: Millennium (Prize) Problems (prompt on Clay problems)

[Part C] Another 2006 Fields Medal honoree was Terence Tao, who earned his doctorate from this Ivy League university in New Jersey at age 21. John Nash of game theory fame taught at this university.

ANSWER: Princeton University

(Tossup 12) **This leader's invasion of Greece was stifled by a counteroffensive that culminated with the Capture of Klisura Pass. After being captured, this leader's body was hung upside down from an Esso station and stoned. This leader of the Salo Republic forced (*) Victor Emmanuel III to enforce martial law by leading the March on Rome. For ten points, name this dictator known as "Il Duce" who led Italy during World War II.**

ANSWER: Benito Mussolini

(Bonus 12) Images of Bandit's Roost in this work helped expose the struggles of life as a poor immigrant in New York. For ten points each,

[Part A] Name this work of muckraking photojournalism, published in 1889 by Jacob Riis.

ANSWER: How the Other Half Lives

[Part B] *How the Other Half Lives* documents life in tenement buildings, which served this purpose in impoverished neighborhoods of New York City.

ANSWER: housing (accept apartments and other equivalents)

[Part C] After the publication of *How the Other Half Lives*, Jacob Riis developed a friendship with this man, who became NYC Police Commissioner in 1895 and continued to praise Riis' work after he became President.

ANSWER: Theodore (or Teddy) Roosevelt

(Tossup 13) **Dorcas is killed by his married lover Joe Trace in this author's novel titled *Jazz*. Another novel by this author ends with the protagonist jumping toward Guitar Bains. That novel's central character's breastfeeding habits lead him to be nicknamed (*) "Milkman" Dead. In another work by this author, Sethe believes that a visitor to her home is a daughter that she had killed to remove her from a life of slavery. For ten points, name this African-American author who wrote *Song of Solomon* and *Beloved*.**

ANSWER: Toni Morrison (accept Chloe Anthony Wofford)

(Bonus 13) This author developed one of his characters, Peter, in *Homelife*, a 2004 prequel to a 1958 play set in Central Park. For ten points each,

[Part A] Name this American playwright of *The Zoo Story*.

ANSWER: Edward Albee

[Part B] Albee's plays, like *The Zoo Story*, *The Sandbox*, and *Seascape*, exemplify this genre of theater, which often features nonsense dialogue and characters facing ridiculous situations.

ANSWER: Theater of the Absurd (accept Absurdism or other word forms)

[Part C] This Irish playwright won a Nobel Prize in part for *Waiting for Godot*, a landmark of absurdist theater.

ANSWER: Samuel Beckett

(Tossup 14) **Note: Two answers required. The border between these two states passes through Lolo National Forest. Snowshoe Peak is the highest point in Kootenai National Forest, found in the Cabinet Mountain range shared between these two states. Interstate 90 passes west through (*)** Missoula in one of these states roughly three hours before it reaches Coeur d'Alene in the other, then just minutes before I-90 enters its westernmost state. The Bitterroot Mountains lie along the border of, for ten points, what two western states whose capitals are Boise and Helena?

ANSWER: Idaho and Montana (accept in either order)

(Bonus 14) For ten points each, name the following US National Parks.

[Part A] The sole national park in Arkansas is this geothermally-active zone where you can visit Bathhouse Row.

ANSWER: Hot Springs National Park

[Part B] One of two parks not located within the borders of a U.S. state, this park covers almost two-thirds of the island of St. John and features scuba diving in its numerous coral reefs.

ANSWER: Virgin Islands National Park

[Part C] While hiking the Appalachian Trail, you may get a great view of Clingmans Dome in this national park, located on the Tennessee-North Carolina border.

ANSWER: Great Smoky Mountains National Park (do not accept or prompt on partial answer)

(Tossup 15) **Over 400 works of this type have been written for a group founded by David Harrington and named for the god Kronos. Bedrich Smetana's first work in this form depicts his growing deafness and is titled "From My Life." A *lieder* and one of these works by Franz Schubert are both based on the poem (*) *Death and the Maiden*. The *Emperor* is an example of these non-symphonic works by Joseph Haydn, who was often called the "father" of this form. For ten points, name this genre played by a namesake ensemble of a cello, a viola, and two violins.**

ANSWER: string quartet

(Bonus 15) This man's only opera, *Pelléas et Mélisande*, was followed by never finished sketches of operas based on Edgar Allan Poe works. For ten points each,

[Part A] Name this French composer of "Clair de Lune."

ANSWER: (Achille-)Claude Debussy

[Part B] This Debussy piece, inspired by a poem by Stéphane Mallarmé, opens with a soft, chromatic flute solo.

ANSWER: Prelude to the Afternoon of a Faun (accept Prélude à l'après-midi d'un faune)

[Part C] Debussy's "Clair de Lune" is the third movement of this piano suite.

ANSWER: Suite bergamasque

(Tossup 16) **At high temperatures, this mineral transforms into tridymite and then into cristobalite. This mineral is at the bottom of Bowen's Reaction Series, and onyx and amethyst are two varieties of it. After underground nuclear bomb testing, the (*) "shocked" variety of this mineral was discovered. This mineral, which is useful as a natural piezoelectric material, has a Mohs hardness of 7. For ten points, name this silicate mineral with formula SiO_2 , the second most abundant on the Earth's surface.**

ANSWER: quartz (prompt on "silicate" before mentioned; prompt on "silicon dioxide" or " SiO_2 " before mentioned)

(Bonus 16) According to special relativity, time can bend as a result of this force. For ten points each,

[Part A] Name this force. The acceleration due to this force on Earth is 9.8 meters per second squared.

ANSWER: gravity (accept word forms, like gravitational force)

[Part B] Einstein developed this thought experiment as an application of time dilation. It involves two siblings who experience time at different rates because one travels in a high-speed rocket.

ANSWER: twin paradox

[Part C] In special relativity, interactions take place in this 4 dimensional space named after a German mathematician. Lorentz transformations occur in this space.

ANSWER: Minkowski space(time)

Tiebreakers

(Tossup 17) **Plasma B cells are known to have a large number of these organelles for secretion of antibodies. Proteins sent to the lysosome from this organelle are tagged with mannose-6-phosphate. In anterograde transport, proteins tagged with COPII [cop-2] go from the (*) ER to this organelle. The folds in this organelle are called cisternae, and it has a cis face and a trans face. For ten points, name this organelle identified by an Italian scientist that modifies and packages molecules in vesicles for transport.**

ANSWER: Golgi apparatus

(Bonus 17) A poem by this author compares a woman to a “night / Of cloudless climes and starry skies.” For ten points each,

[Part A] Name this English Romantic poet of “She Walks in Beauty.”

ANSWER: Lord George Gordon **Byron**

[Part B] This satirical poem by Lord Byron follows the travels of an easily seduced character who, in works by other writers, is a legendary womanizer.

ANSWER: **Don Juan** ([don JOO-on], but be lenient)

[Part C] In the eleventh canto of *Don Juan* [don JOO-on], Byron notes that this English poet of “Ode to a Nightingale” was “kill’d off by one critique / Just as he really promis’d something great.”

ANSWER: John **Keats**