

Round 5

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Tossups

(1) **This author begins a novel by claiming that “happy families are all alike” but “unhappy families are unhappy in their own way.” A novel by this man follows Stiva, Dolly, and a woman who has an affair with Count (*) Vronsky. An extremely long novel by this author follows five Russian families during Napoleon’s invasion of 1812. For ten points, name this Russian author of *Anna Karenina* and *War and Peace*.**

ANSWER: Leo Tolstoy (accept Lev Nikoleyevich Tolstoi)

(2) **The geometric mean of two numbers is found by multiplying them, and then performing this operation. Applying this operation to both sides of an equation usually requires a plus-minus sign. The expression “b squared minus four a c” is found within this operation in the (*) quadratic formula. An exponent of one-half is equivalent to performing, for ten points, what operation that, when applied to twenty-five, gives five?**

ANSWER: square root (accept “raising to the one-half power” before “one-half” is read; prompt on “root;” prompt on “radical”)

(3) **A senator from this state proposed the High Performance Computing Act of 1991. A violation of the Butler Act in this state was argued in court by (*) Clarence Darrow and Williams Jennings Bryan, and focused on a man who claimed to have taught evolution in a public school in Dayton, John Scopes. Al Gore has represented, for ten points, what state whose cities include Memphis and Nashville?**

ANSWER: Tennessee (accept Tennessee Valley Authority; Note: David Lilienthal was nicknamed “Mr. TVA”)

(4) **A heterodyne shifts between different ranges of this quantity, whose “cutoff” type marks the boundary between the stopband and passband. For a simple pendulum, this quantity is proportional to the square root of “little g” over (*) length, and it can be calculated as wave speed divided by wavelength. The reciprocal of the period is, for ten points, which quantity measured in hertz, the number of waves that pass a fixed point per unit of time?**

ANSWER: frequency (prompt on “F”)

(5) **In a close-up image of this natural feature, titled *Shojin tozan*, a group of pilgrims in a straw hats use a ladder to ascend this place. *Fine Wind, Clear Morning* is one of the (*) *Thirty-Six Views* of this natural feature created by the woodcut printer Hokusai, which also includes *Thunderstorm Beneath the Summit*. For ten points, name this mountain that appears in the background of *The Great Wave off Kanagawa*, a prominent mountain near Tokyo in Japan.**

ANSWER: Mount Fuji (accept Fuji-yama or Fuji-san)

(6) **This city’s Gerousia governing body included two jointly-ruling kings. This city’s education system, the agoge [ah-goh-gay], was established by (*)** Lycurgus to induct this city’s boys into its army. The helots were a class of slaves in this city, whose king Leonidas was defeated by the Persians at the Battle of Thermopylae. For ten points, name this militaristic Greek city-state that frequently fought with Athens.

ANSWER: Sparta (accept Lacedaemon)

(7) **A character in this play describes “the fairies’ midwife” to mock his friend’s love for Rosaline. A woman in this play jokes that “palm to palm is holy palmers’ kiss” at a masquerade ball. The Queen Mab speech is given in this play by (*)** Mercutio, who is killed by Tybalt in a duel that is fought over the honor of the houses of Montague and Capulet. For ten points, name this Shakespeare play about “a pair of star-cross’d lovers.”

ANSWER: Romeo and Juliet (accept The Tragedy of Romeo and Juliet)

(8) *Description acceptable.* **African spiny mice are the most capable mammals at performing this process, which requires blastema cells. Unlike other annelids, leeches cannot perform this process, which most arthropods can do until their final (*)** molt. Medical researchers have tried to reverse engineer this process that is slow in starfish but rapid in salamanders that have lost limbs. For ten points, name this process that gives a lizard a replacement when it sheds its tail.

ANSWER: regeneration (accept regenerating; accept limb regeneration and appendage regeneration; accept any description of regrowth or the growing of new body parts; prompt on just “growth”)

(9) **In a work about him, this philosopher compares himself to a gadfly because he stings people “in the service of truth,” and defends himself against the charge of corrupting the youth of (*)** Athens in the book *Apology*. This philosopher was convicted of those charges and sentenced to die by drinking hemlock. For ten points, name this ancient Greek philosopher whose thoughts are recorded in dialogues written by his student, Plato.

ANSWER: Socrates

(10) **In the poem *Völuspá*, three of the roots of Yggdrasil [igg-drah-sill] sit over this realm, which contains the home of Heimdallr. Loki transformed into a horse to distract a giant trying to build a wall around this (*)** home of the Aesir. Warriors slain in battle are carried to two of this realm’s mead-halls, Fólkvanr and Valhalla. Bifröst, the rainbow bridge, connects Midgard to, for ten points, what realm of the gods in Norse myth?

ANSWER: Asgardr (anti-prompt on “Valhalla” by asking, “What realm contains Valhalla?”)

(11) **James Bruce ordered the destruction of this city’s Old Summer Palace during the Second Opium War. Ai Wei-wei designed the Bird’s Nest stadium for this city. A 1989 protest in this city became famous for a photo of a man standing in front of a line of (*)** tanks. For ten points, name this city that was the site of the 2008 Summer Olympics; the location of Tiananmen Square and the Forbidden City; and the capital of China.

ANSWER: Beijing (accept Peking; accept Forbidden City before “Old Summer Palace” is read; accept Dadu or Beiping before “Ai Wei-wei” is read)

(12) A theme from this musical work's fourth movement, titled "Thaxted," was used for the British patriotic hymn "I Vow to Thee, My Country." This suite's first and second movements are named after a "Bringer of (*) War" and a "Bringer of Peace." For ten points, name this seven-part suite by Gustav Holst that includes movements named for a particular type of object in our solar system like Neptune, Mars, and Venus.

ANSWER: The Planets (accept Opus 32)

(13) Before amylase enzyme was isolated, this compound was used to turn corn starch into glucose syrup. The "fizz test" for calcium carbonate applies a muri-atic solution of this compound to rocks. Gold will dissolve in a mixture of (*) nitric acid and this compound, called "aqua regia." Water and table salt are the products when this compound reacts with sodium hydroxide. Stomach acid consists of, for ten points, which strong acid with formula HCl [H-C-L]?

ANSWER: hydrochloric acid (accept HCl before it is read; accept hydrochloric alone after "acid" is read)

(14) A novel made up of these written works, *Lady Susan*, is one of the earliest works by Jane Austen. A novel by C.S. Lewis is named for these written works created by the demons Wormwood and (*) Screwtape. A journal of an author's time in the Achterhuis [OCK-tayr-hwees] takes the form of these written works addressed to "Kitty," and relates a budding romance with Peter van Pels. For ten points, name Anne Frank's diary is made up of what written works that are usually sent to another person?

ANSWER: letters (accept epistolary novels; accept synonyms like missives or notes; accept The Screwtape Letters; do not accept or prompt on "diary" or similar answers)

(15) This singer asks "think of me fondly when your hands are on her" in a song that may have been inspired by Joshua Bassett. Since it took inspiration from "Misery Business," this singer of (*) "happier" added a Hayley Williams writing credit to a song that criticizes an ex's behavior as being "like a damn sociopath." For ten points, name this former Disney Channel actress whose explosive 2021 album, *SOUR*, includes the songs "deja vu," "good 4 u," and "drivers license."

ANSWER: Olivia Rodrigo (accept Olivia Isabel Rodrigo)

(16) This Christian holiday may have developed from the Roman holiday of Rosalia. During this holiday, purple decorations are replaced with white. An event witnessed by Mary Magdalene is commemorated at sunrise on this holiday, after a vigil that begins on Holy (*) Saturday. This holiday is fifty days before Pentecost, and follows the season of Lent. For ten points, name this Christian holiday that celebrates the resurrection of Jesus.

ANSWER: Easter Sunday (accept Pascha)

(17) Maurice Wilson planned to crash a plane on top of this mountain, where he died by other means. George Mallory may have summited this mountain before disappearing on it, and legendarily declared that he would climb it (*) "because it's there." Tenzing Norgay coordinated the first successful climb of this mountain in 1953 with Edmund Hillary. For ten points, name this twenty-nine-thousand-foot-high peak in the Himalayan Mountains, the highest mountain on Earth.

ANSWER: Mount Everest (accept Sagarmatha; accept Chomolungma)

(18) **A 2015 study of this region by coda-wave cross-correlation found that it contains spheres with iron crystals aligned at right angles to each other. This region lies under the “D double-prime” layer, and although (*) P-waves are transmitted through it, S-waves are not. Geo-dynamo theory holds that the rotation of this region’s liquid outer zone generates Earth’s magnetic field. For ten points, name this region of Earth consisting of an iron-nickel alloy found below the mantle.**

ANSWER: Earth’s core (accept inner core before “D double-prime” is read)

(19) **This general ordered William Shippen to inoculate all troops against variola, and used fog as cover to evacuate his troops to Manhattan after the Battle of Brooklyn Heights. A force of (*) Hessian mercenaries were routed by this man in a surprise attack after Christmas Day, 1776. For ten points, name this Commander in Chief of the Continental Army and first President of the United States.**

ANSWER: George Washington

(20) **This poem’s speaker imagines “Seraphim whose foot-falls tinkled on the tufted floor” and begs to “quaff this kind nepenthe” [neh-PEN-thee] to forget his dead lover. This poem’s title figure refuses to go out into the (*) “Night’s Plutonian shore,” and instead perches on a “bust of Pallas just above” a “chamber door” to taunt this poem’s speaker about his lost love, Lenore. For ten points, name this poem by Edgar Allan Poe in which the title bird seems to repeat the word “nevermore.”**

ANSWER: The Raven

Bonuses

(1) Name some Winter Olympic sports, for ten points each.

Required elements of the “short program” version of this sport typically include a double or triple jump and a double Axel.

ANSWER: **figure skating** (accept **ice skating**; prompt on “skating;” do not accept “ice dancing”)

In this team sport, invented in Scotland, competitors sweep an ice rink with brooms to guide stones into the “house,” a circular target.

ANSWER: **curling**

In 1988, British athlete Michael Edwards, known as “Eddie the Eagle,” finished in last place in both the “large hill” and “normal hill” events of this sport. Competitors in this sport are ranked on distance traveled from a hill’s K-point.

ANSWER: **ski jumping** (prompt on “skiing;” do not accept or prompt on other types of skiing, like cross-country, downhill, or slalom)

(2) This novel’s protagonist goes skating with Sally Hayes, and becomes angry when he learns that Jane Gallagher is dating his roommate, Stradlater. For ten points each,

Name this novel by J.D. Salinger, in which Holden Caulfield wanders New York after he is expelled from Pencey Prep.

ANSWER: The **Catcher in the Rye**

In *The Catcher in the Rye*, Holden buys a “Little Shirley Beans” record for this girl, his younger sister.

ANSWER: **Phoebe** Caulfield (prompt on “Caulfield”)

Holden takes Phoebe [FEE-bee] to ride the carousel in this park’s zoo. This long, thin New York park is named for running through the middle of Manhattan.

ANSWER: **Central Park** Zoo

(3) Many toilet bowl cleaners carry a warning not to mix them with bleach because deadly chloroform gas will result. Answer these questions about the chemistry of other household cleaning products, for ten points each.

Oven cleaners and drain cleaners that contain lye are examples of the “strong” type of these compounds, which have a pH greater than seven.

ANSWER: **base** (accept **alkaline**)

This term labels soaps like Dawn and Tide, which use surfactants to make grease and fats more soluble in water, and therefore easier to wash away.

ANSWER: **detergents**

Though more common in cooking, this compound, also known as baking soda, can be used to remove odors from laundry and coffee stains from cups.

ANSWER: **sodium bicarbonate** (accept **sodium hydrogen carbonate** and **bicarbonate of soda**; prompt on “bicarbonate”)

(4) Name some symphonies written by Ludwig van Beethoven, for ten points each.

This middle symphony by Beethoven has a “fate knocking at the door” motif with a dramatic “short-short-short-long” pattern.

ANSWER: Symphony Number **Five** in C minor (accept Beethoven’s **fifth** symphony)

Beethoven originally meant to dedicate this symphony to Napoleon. After Napoleon declared himself emperor of France, Beethoven scratched out the dedication and renamed it “Heroic” or “Eroica.”

ANSWER: Symphony Number **Three** in E-flat major (accept Beethoven’s **third** symphony; accept **Eroica** Symphony or Sinfonia **Eroica** before it is read)

Although most Beethoven symphonies have four movements, this symphony has five. Each movement represents a different time of day by depicting a “Merry gathering of country folk” and a “Scene by the brook.”

ANSWER: Symphony Number **Six** in F Major (accept Beethoven’s **sixth** symphony; accept **Pastoral** Symphony or **Pastorale**)

(5) Give the following about the geography of the Iditarod [**“eye”-dih-tah-rod**], for ten points each.

The Iditarod is an annual sled dog race that takes place over hundreds of miles in this US state.

ANSWER: **Alaska**

The Iditarod begins in this most populous Alaskan city which, due to its polar location and size, is home to the surprisingly busy Ted Stevens International Airport.

ANSWER: **Anchorage**

The Iditarod ends in this town on the southern tip of the Seward Peninsula.

ANSWER: **Nome**

(6) In this collection of stories, Filomena, Fiametta, Lauretta, and seven other young nobles tell stories about “The Patient Griselda” and “Federigo’s Falcon” after fleeing Florence. For ten points each,

Identify this collection of short stories by Giovanni Boccaccio named for the ten days of storytelling in which ten young nobles tell each other stories to pass the time.

ANSWER: The **Decameron** (accept **Decamerone**)

The young nobles in *The Decameron* flee to the country to escape this pandemic that devastated Europe in the fourteenth century.

ANSWER: **plague** (accept **Black Plague**; accept **bubonic plague**; accept **Black Death**)

The stories in *The Decameron* can be traced to earlier sources; several are from this collection of Middle Eastern folk stories that includes “Aladdin” and “Ali Baba.”

ANSWER: (The) One **Thousand and One Nights** (accept The **Arabian Nights**; accept (The) One **Thousand and One Arabian Nights**; accept **Alf Laylah wa-Laylah**)

(7) This government adopted the motto, “Work, Family, Fatherland” and was led by Philippe Pétain. For ten points each,

Name this collaborationist puppet government that was established under duress from Germany in July 1940.

ANSWER: Vichy France (accept Vichy government)

This fascist German political party led by Adolf Hitler installed and controlled the Vichy government in France.

ANSWER: Nazi Party (accept National Socialist German Workers’ Party)

This politician and general opposed the Vichy government, instead leading Free France during World War II. He later established the Fifth Republic in France.

ANSWER: Charles de Gaulle (accept Charles André Joseph Marie de Gaulle)

(8) In ancient Egyptian burials, these containers were guarded by representations of the four sons of Horus. For ten points each,

Name these containers that held the lungs, stomach, liver, and intestines of a mummified person.

ANSWER: canopic jars (accept canope; accept canopic chests)

After mummification, the deceased would undergo a ritual called the “Opening of” this body part, which was believed to allow the person to eat and drink in the afterlife.

ANSWER: mouth (accept Opening of the Mouth)

After mummification, the soul of the deceased would be judged by Anubis by having this bodily organ weighed against the Feather of Ma’at to determine whether they could enter the afterlife.

ANSWER: heart

(9) This Northern Democrat opposed John C. Breckinridge for his party’s presidential nomination in 1860. For ten points each,

Name this “Little Giant” from Illinois who defended popular sovereignty in his Freeport Doctrine.

ANSWER: Stephen Douglas (accept Stephen Arnold Douglas)

Stephen Douglas supported the adoption of popular sovereignty to decide whether states should allow slavery, leading to a period of violent armed conflict in this “bleeding” territory.

ANSWER: Kansas Territory (accept Bleeding Kansas)

Douglas articulated the Freeport Doctrine during a series of debates against this Illinois politician, who served as president of the United States from 1861 until his assassination in 1865.

ANSWER: Abraham Lincoln

(10) Answer these questions about the American space program, for ten points each.

Alan Shepard walked on the moon during mission fourteen of this space program. This program put the first astronauts on the moon during its mission eleven.

ANSWER: Apollo program

Alan Shepard was also one of this program's namesake "Seven." As part of this program, Shepard became the first American to travel to space.

ANSWER: Mercury Program (accept Project Mercury)

After the success of Project Mercury, Americans continued to orbit Earth in the first American one of these things, called Skylab. Russia's first modular one of these things was called Mir [meer].

ANSWER: space stations

(11) In May of 2000, four hundred homes in Enschede [EN-shuh-day], Netherlands were destroyed in an explosion at a factory making these things. For ten points each,

Name these usually fun, explosive devices that send colored sparks into the air on the Fourth of July.

ANSWER: fireworks (accept equivalents like firecrackers)

Poorly-stored, confiscated fireworks intensified an ammonium nitrate explosion that leveled buildings and left hundreds of thousands of people homeless in this Lebanese port city in 2020.

ANSWER: Beirut

This city's mayor, Eric Garcetti, has been called upon to make restitutions after fireworks explosives were unsafely detonated in a faulty bomb squad van owned by this city's police department in June of 2021.

ANSWER: Los Angeles (accept LA; accept Los Angeles Police Department or LAPD)

(12) It was once common for high school students to determine this characteristic for themselves in the lab using a lancet and a Coombs antibody test. For ten points each,

Name this human trait whose "O-negative" type is called the universal donor, and whose "AB-positive" is the universal recipient.

ANSWER: blood type (accept blood group; prompt on partial answer)

Blood typing is mandatory to avoid a fatal reaction during this procedure, in which a patient is given new blood intravenously from a donor.

ANSWER: blood transfusion

The positive or negative designation in a person's blood type refers to this factor, usually represented with two letters, which is named for the monkey species in which it was first observed.

ANSWER: Rh factor (accept Rh(D); accept rhesus factor)

(13) In this novel, Lenina Crowne accompanies Bernard Marx to an antiquated “Reservation” where they encounter an abandoned woman named Linda and her son. For ten points each,

Name this novel by Aldous Huxley in which John the Savage is shocked to be thrust into an engineered society of Alphas, Betas, Gammas, Deltas, and Epsilons.

ANSWER: Brave New World

The society in *Brave New World* is fanatically devoted to an assembly-line society inspired by this American car-maker.

ANSWER: Henry Ford

This World Controller, referred to as “His Fordship,” suggests that John the Savage cannot fit into the “Brave New World” because he demands “the right to be unhappy.”

ANSWER: Mustapha Mond (accept either underlined name)

(14) Answer these questions about a group of Hindu deities collectively nicknamed the Tridevi, for ten points each.

The Tridevi are often described as being similar to the Trimurti, except that all three deities have this quality. Lakshmi is a deity with this quality, which sets her apart from her husband,

ANSWER: they are female (accept equivalents like women or goddesses)

This member of the Tridevi is the goddess of wisdom and the wife of Brahma. She is often depicted with four arms, and carries a veena, a type of lute, to represent her love of music.

ANSWER: Saraswati (accept Sarasvati)

The third member of the Tridevi, Parvati, is also known by this name in her aspect as the goddess of destruction. This blue-skinned goddess slays demons and other evil spirits.

ANSWER: Kalika

(15) The Cantor set, an example of these objects, is created by removing the middle third of a line segment, then removing the middle thirds of the two remaining segments, and so on. For ten points each,

Name these mathematical objects that are often represented in art as images that resemble themselves at deep magnification.

ANSWER: fractals

Fractals are named because they can be said to have a non-integer, or fractional, value for this quantity. Area-filling objects like planes have a value of two for this quantity, while space-filling objects like cubes have a value of three.

ANSWER: dimensions

The term “fractal” was invented by this man, who used the coastline of Great Britain as an illustration of infinite repetitions of a form. One of the most famous fractals is a depiction of a set named for this man.

ANSWER: Benoit Mandelbrot (accept Benoit B. Mandelbrot; accept Mandelbrot set)

(16) Give the following about the US entrance into World War I, for ten points each.

This document intended to convince its recipient to distract the Americans in a land war so they wouldn't join World War I. However, this document was intercepted by British Intelligence and used to convince the Americans to enter the war.

ANSWER: Zimmerman telegram (accept Zimmerman Cable; accept Zimmerman note)

The Zimmerman telegram was sent by Germany to this country. The note promised this country that they would regain territory that had been lost to the US in, among other things, the 1848 Treaty of Guadalupe Hidalgo.

ANSWER: Mexico (accept United Mexican States; accept Estados Unidos Mexicanos)

This President of the United States during World War I campaigned in 1916 on the slogan "He kept us out of war!", then asked Congress to approve war following the Zimmerman telegram and a period of unrestricted submarine warfare.

ANSWER: Woodrow Wilson

(17) Answer the following about the work of Caribbean poet Derek Walcott, the author of the poem *Omeros*, for ten points each.

Omeros was inspired by this Homeric epic, in which Hector's body is dragged around the walls of Troy to dishonor him for killing Patroclus in battle.

ANSWER: the Iliad (accept Ilias)

In the *Iliad*, this nearly-invincible hero carries a shield showing a city at peace and at war. This hero and his enemy, Hector, are characterized as fishermen in *Omeros*.

ANSWER: Achilles (accept Achille)

In *Omeros*, Achille and Hector are in love with this housemaid, whose name is a reference to the "face that launched a thousand ships" to begin the Trojan War.

ANSWER: Helen (accept Helen of Troy; accept Helen of Sparta)

(18) A bull stands over a woman mourning her child on the left of this painting. In the center, an impaled horse opens its mouth in pain under an exploding lightbulb. For ten points each,

Name this large, black-and-white painting that depicts the bombing of a Basque city during the Spanish Civil War.

ANSWER: Guernica

Guernica is an anti-war painting by this Spanish artist, who painted *The Old Guitarist* during his somber "Blue Period."

ANSWER: Pablo Picasso (accept Pablo Ruiz y Picasso)

Pablo Picasso and his friend Georges Braque are credited with founding this artistic movement, which focused on creating geometric abstractions of three-dimensional shapes.

ANSWER: Cubism (accept word forms like Cubist)

(19) Give the following about the decolonization of Africa, for ten points each.

Guinea-Bissau, Mozambique, and Angola fought wars of independence against this European country with capital at Lisbon.

ANSWER: **Portugal** (accept **Portugese** Republic)

In the late twentieth century, this former British colony lost power over several of its neighboring territories, such as Namibia and Lesotho [leh-soo-too].

ANSWER: **South Africa** (accept Republic of **South Africa** or **RSA**)

This former French colony's National Liberation Front, or FLN, won its independence in an eight-year war that ended with the Evian Accords.

ANSWER: **Algeria** (accept People's Democratic Republic of **Algeria**)

(20) By substituting this law into the equation for electric flux, Gauss's law can be derived. For ten points each,

Name this law that states the electrostatic force between two particles is directly proportional to the magnitude of their charges and inversely proportional to the square of the distance between them.

ANSWER: **Coulomb**'s law

Coulomb's law also states that if one particle has a positive charge and the other is negative, then they will experience this type of interaction, also observed between the north and south poles of two magnets.

ANSWER: **attraction** (accept descriptions like **they move towards each other**)

As a unit of electric charge, one coulomb is equivalent to one ampere-second. The ampere is the unit of this electric quantity, the flow of charged particles through a conductor. This quantity may be described as alternating or direct.

ANSWER: electric **current** (accept alternating **current** or direct **current**; prompt on "AC" or "DC")