

Round 3

First Half

(Tossup 1) **Daniel Jones described these sounds in terms of tongue and lip positioning. The Alekano language is notable for having only unrounded examples of these sounds. A combination of two of these sounds produces a (*) diphthong.** From roughly 1400 to 1700, the long varieties of these sounds experienced a namesake “great shift.” An open vocal tract produces, for ten points, what type of speech sound that is contrasted with a consonant?

ANSWER: vowels

(Bonus 1) Answer the following about global economic ruin for ten points each.

[Part A] In 1990, this country’s most important stock index, the Nikkei [nee-kay], lost half its value. That drop, combined with the real estate bubble collapse, led to this country’s so-called Lost Decade.

ANSWER: Japan

[Part B] Starting in the late 1990s, this African country’s currency experienced hyperinflation that peaked at 79.6 billion percent, and it stopped printing its currency in 2009.

ANSWER: Zimbabwe

[Part C] This German government grappled with hyperinflation from 1918 to 1924 by scrapping its currency, the Mark, and introducing a mortgage and gold-backed currency called the Rentenmark.

ANSWER: Weimar Republic

(Tossup 2) **Symmetry of charge, parity and this quantity must hold in all mathematical theories of quantum mechanics and relativity. A standard established for this quantity was based on the 9 billion periods of radiation of an isotope of (*) cesium.** Taking the derivative of velocity with respect to this quantity yields acceleration, and Einstein posited this quantity as the 4th dimension of space. For ten points, name this quantity that is measured in seconds.

ANSWER: time (accept seconds before read; accept time reversal)

(Bonus 2) Graphite and silicon dioxide are each classified as “giant” molecular compounds, as they exist in lattices of many atoms. For ten points each,

[Part A] This type of bonding, in which electrons are shared, is exhibited by giant molecular compounds.

ANSWER: covalent bonding

[Part B] Giant molecular compounds have very high values for this quantity; graphite’s is over 3600 degrees Celsius.

ANSWER: melting point

[Part C] Graphite is an allotrope of carbon, as is this other giant molecular compound, which rates a 10 on the Mohs scale of hardness.

ANSWER: diamond

(Tossup 3) **This ruler dispatched Charles Blount to quell Tyrone's Rebellion. The Ridolfi plot targeted this ruler but was foiled by her spymaster Francis Walsingham. During one speech, this queen claimed she had the "heart and stomach of a king" while rallying her troops at Tilbury. (*)** Francis Drake was employed by this queen who used her to combat the Spanish Armada. For ten points, name this daughter of Henry VIII, known as the "Virgin Queen."

ANSWER: Elizabeth I (accept The Virgin Queen, Gloriana before "Virgin Queen" is read; accept Good Queen Bess; prompt on Elizabeth)

(Bonus 3) For ten points each, answer the following about "Fathers of" world nations.

[Part A] Ahmad Shah Durrani founded this central Asian country in 1747. Its modern capital is Kabul.

ANSWER: Afghanistan

[Part B] This figure is both the Father of Argentina and of Peru, even though he received help from fellow freedom fighter Simon Bolivar to free Peru.

ANSWER: Jose Francisco de San Martin y Matorras

[Part C] Kwame Nkrumah agitated for the independence of this country as part of the Convention People's Party, and later served as its first prime minister and president.

ANSWER: Ghana

(Tossup 4) **A timpani roll opens this composer's Piano Concerto in A Minor. This composer of 66 Lyric Pieces wrote a flute solo to open a piece depicting the sunrise called "Morning Mood." The music gets (*)** louder and faster as a man escapes a group of trolls in this man's piece "In the Hall of the Mountain King." For ten points, name this Norwegian composer of incidental music to Peer Gynt.

ANSWER: Edvard Hagerup Grieg

(Bonus 4) In one version of this painting, a red-robed angel points to direct the attention of the baby Jesus to a kneeling John the Baptist. For ten points each,

[Part A] Name this pair of paintings, in which the title woman lays her hand on the baby John's back as he adores the Christ child in the wilderness.

ANSWER: The Madonna of the Rocks (accept The Virgin of the Rocks)

[Part B] The Madonna of the Rocks is by this Italian artist, whose Mona Lisa is housed in the Louvre.

ANSWER: Leonardo da Vinci (accept either underlined portion)

[Part C] In another painting by Leonardo, the baby Jesus wrestles with a lamb while Mary and this saint look on.

ANSWER: Saint Anne (accept The Virgin and Child with Saint Anne)

(Tossup 5) **The work that introduced the modern term for these objects follows Manager Harry Domin's conflicts with the League of Humanity, and one of these objects called Radius leads a rebellion to cleanse the earth. The short story "Runaround" introduced the (*)** Three Laws that govern these entities, including the law that they must obey orders given by humans. Karel Capek [cha-pek] wrote about Rossum's Universal ones of these artificial lifeforms. For ten points, name these mechanical beings that populate the works of Isaac Asimov.

ANSWER: robots

(Bonus 5) Nick Carraway speculates that this advertisement was created by "some wild wag of an oculist" who wanted to increase his business by advertising near Queens. For ten points each,

[Part A] Identify this advertisement, in which weathered, blue irises look out of "a pair of enormous yellow spectacles" near the valley of ashes.

ANSWER: eyes of Doctor T.J. Eckleburg (both underlined portions required; prompt on incomplete answers)

[Part B] In *The Great Gatsby*, this man stares wildly at the eyes of Doctor T.J. Eckleburg while declaring that his wife, Myrtle "may fool me, but [...] can't fool God" about her affair with Tom Buchanan.

ANSWER: George Wilson (accept George Wilson; prompt on Wilson)

[Part C] Tom Buchanan has an affair with Myrtle Wilson while he is married to this woman, who falls in love with Gatsby.

ANSWER: Daisy Buchanan

(Tossup 6) **The Battle of Tondibi was fought on this continent and doomed the Songhai Empire. A civilization on this continent created the Great Enclosure as well as a series of soapstone sculptures of birds. Warriors from a civilization on this continent utilized the (*)** Buffalo Horns formation, created by Shaka Zulu. The Boer Wars were also fought on, for ten points, what continent where the regular flooding of the Nile allowed ancient Egypt to flourish?

ANSWER: Africa

(Bonus 6) This woman was labeled "milk snatcher" for her role in reducing school lunches as the Secretary of Education. For ten points each,

[Part A] Name that politician who became the first female Prime Minister of the United Kingdom.

ANSWER: Margaret Thatcher

[Part B] In 1982, Argentina sparked a war with the United Kingdom by invading this archipelago. During the conflict, Argentine forces captured this island chain's capital at Stanley.

ANSWER: Falklands (accept the Falkland Islands; accept Islas Malvinas)

[Part C] Thatcher led this political party which was able to win the 1979 general election after the Labour party suffered the “Winter of Discontent.”

ANSWER: **Conservative** Party

(Tossup 7) **When Acoetes recognized this god’s divinity, he was spared the fate of the other pirates who had tried to kidnap this god. This god’s retinue included the maenads, and he carried the pine cone-topped (*) thyrsus.** This god received his seat on Olympus from Hestia. This god’s mortal mother, Semele, was killed when she accidentally looked upon the divine form of his father, Zeus, who sewed this god into his thigh until his birth. For ten points, name this Greek god of the grape harvest, divine inspiration, and wine.

ANSWER: **Dionysus**

(Bonus 7) Answer some questions about the avatars of Vishnu, for ten points each.

[Part A] As Matsya, one of these animals, Vishnu rescued Manu from a flood. Depictions of Vishnu as Matsya show him as a mermaid-like creature with the tail of this animal.

ANSWER: **fish**

[Part B] The seventh of Vishnu’s primary avatars was this warrior king, who killed the demon Ravana to rescue his wife, Sita. This king names a major Hindu epic.

ANSWER: **Rama**

[Part C] The eighth of Vishnu’s avatars was this dark-skinned prankster, often depicted with a peacock feather and a flute. The Bhagavad Gita is a dialogue between this man and Arjuna.

ANSWER: **Krishna**

(Tossup 8) **According to the Southwest Research Institute, nitrogen ice consistency of this object would be expected if it formed from a billion comets. This object was discovered by Clyde Tombaugh, and pictures from NASA’s New (*) Horizons spacecraft show a prominent heart shape on its surface.** This object forms a binary system with Charon and its status was reclassified in 2006. For ten points, name this dwarf planet, formerly the ninth planet of the solar system.

ANSWER: **Pluto**

(Bonus 8) Answer the following about important signaling chemicals in the body, for ten points each.

[Part A] Name this chemical that regulates the “fight or flight” response. It is also used to treat anaphylaxis.

ANSWER: **adrenaline** (accept **epinephrine**)

[Part B] This neurotransmitter is one of the precursors to adrenaline and it is synthesized by hydroxylating tyrosine. This chemical plays a large role in the pleasure-reward pathways.

ANSWER: **dopamine**

[Part C] Adrenaline is also one of this general class of signaling molecules that are part of the endocrine system. Steroids are one class of these molecules.

ANSWER: **hormones**

Sixty-Second Rounds

The categories are ...

1. Literary Pilgrims Going to the Shrine of Thomas Beckett
2. Estates-General of 1789
3. Noble Gases

Literary Pilgrims Going to the Shrine of Thomas Beckett

In this Middle English poem, the members of a group of pilgrims traveling to the shrine of Thomas Beckett take turns to tell stories while they stay at an inn. Who or what is...

(1) The name of that collection of stories?

ANSWER: The **Canterbury Tales**

(2) The collection's author?

ANSWER: Geoffrey **Chaucer**

(3) The inn where the pilgrims stay while they tell their stories?

ANSWER: **Tabard** Inn

(4) The gap-toothed and frequently-married woman who tells a story about what women want?

ANSWER: The **Wife of Bath**

(5) The supernatural character that three brothers set out to kill in the Pardoner's Tale?

ANSWER: **Death**

(6) The object that John hides in to avoid a fictional flood in the Miller's Tale?

ANSWER: bath**tub**

Estates-General of 1789

The Estates-General was an assembly of the First, Second, and Third Estates of a European country. Name the...

(1) Country where it convened. It underwent a revolution later in 1789.

ANSWER: **France**

(2) King who summoned the Estates-General.

ANSWER: **Louis XVI** [sixteenth] (prompt on Louis)

(3) Town where the Estates-General convened near a royal palace.

ANSWER: **Versailles**

(4) Separate legislature formed by the Third Estate during the Estates-General.

ANSWER: National **Assembly**

(5) Oath taken by members of that legislature after the hall where they met was closed by the king.

ANSWER: **Tennis Court** Oath

(6) Finance minister of the king who supported the Third Estate during the Estates-General.

ANSWER: Jacques **Necker**

Noble Gases

Name the...

(1) Gas that gives a distinct red-orange glow, making it useful for lighting up signs?

ANSWER: **Neon** (accept **Ne**)

(2) Third most prevalent gas in the atmosphere?

ANSWER: **Argon** (accept **Ar**)

(3) Scientist who predicted that heavier noble gases could form fluoride compounds, and who names a scale of electronegativity?

ANSWER: Linus (Carl) **Pauling**

(4) Gas that was the first element discovered in space, found when looking at the chromosphere of the Sun?

ANSWER: **Helium** (accept **He**)

(5) Gas used in fast atom bombardment to create ions for mass spectrometry, named for being "strange"?

ANSWER: **Xenon** (accept **Xe**)

(6) Scientist who won the 1904 Nobel Prize in Chemistry for discovering four of the noble gases?

ANSWER: Sir William **Ramsay**

Second Half

(Tossup 9) **Sums of triangular numbers can be found by drawing a hockey stick-shaped figure in this larger structure, where the triangular numbers can be found along the second diagonal. The sum of the numbers in each (*) row of this structure is a power of 2. This structure begins with a 1, then a row of 1,1, then a row of 1,2,1. For ten points, name this diagram in which each central value is found by adding the two numbers directly above it.**

ANSWER: **Pascal's Triangle** (accept **Yang Hui**, **Tartaglia**, and/or **Khayyam's triangle**)

(Bonus 9) For ten points each, answer the following about angle measurements of 120 degrees.

[Part A] If an isosceles triangle has a 120 degree angle, each of the other two angles has this degree measurement.

ANSWER: **30** degrees

[Part B] A regular polygon with this many sides will have internal angles of 120 degrees.

ANSWER: **6** sides (accept regular **hexagon**)

[Part C] A 120 degree angle is equivalent to this many radians. It's worth noting that three 120 degree angles make up a full circular rotation.

ANSWER: **2 pi over 3** radians

(Tossup 10) **In this novel, Kate is shocked by the declaration that the fifth dimension allows people to travel by tesseract. This novel's protagonist encounters a man with pulsating (*) red eyes in CENTRAL Central Intelligence after her father is trapped by The Black Thing on the planet of Camazotz. Charles Wallace is rescued by the love of this novel's protagonist at the urging of Mrs Whatsit, Mrs Who, and Mrs Which. For ten points, name this novel about Meg Murry, written by Madeleine L'Engle.**

ANSWER: A **Wrinkle in Time**

(Bonus 10) Answer the following about fathers and sons in a Shakespeare tragedy, for ten points each.

[Part A] This is the shared name of a deceased king who visits his son as a ghost to persuade him to get revenge on King Claudius, and of his son, the title Prince of Denmark.

ANSWER: Prince **Hamlet** (accept King **Hamlet**; accept The Tragedy of **Hamlet**, Prince of Denmark)

[Part B] In Hamlet, Laertes returns to Denmark from France to kill Prince Hamlet in revenge for the death of this man, the father of Laertes and Ophelia and adviser to Claudius.

ANSWER: **Polonius**

[Part C] King Hamlet slew the first Norwegian king of this name in battle. His son, the second king of this name, leads an invasion of Denmark to get revenge for his father's death at the end of the play.

ANSWER: King **Fortinbras**

(Tossup 11) **This artist sculpted marble statues of St George and St Mark for a guild in the Orsanmichele [or-san-mee-kay-lay]. The mercenary Erasmo da Narni rides a horse in this man's equestrian statue of (*) Gattamelata.** Cosimo de Medici commissioned a sculpture by this artist in which a man wearing only a hat and boots leans on a sword. The first freestanding male nude sculpture since antiquity was by, for ten points, what artist who sculpted a bronze David?

ANSWER: Donatello (accept Donato di Niccolo di Betto **Bardi**)

(Bonus 11) This family of instruments requires players to adjust their lips, instead of using keys, to change between some notes. For ten points each,

[Part A] Name this family of instruments that includes the French horn and tuba, which use valves to adjust the amount of tubing in use.

ANSWER: brass instruments

[Part B] This brass instrument uses a slide instead of valves to adjust its tubing. A song from The Music Man states that 76 of these instruments "led the big parade."

ANSWER: trombone

[Part C] This large brass instrument, a tuba designed to be easier to carry in a marching band, is named for the composer of marches like The Stars and Stripes Forever.

ANSWER: Sousaphone

(Tossup 12) **During this war, Seymour Hersh came to prominence for interviewing soldiers under Willam Calley and reporting on a massacre he had ordered. The Strategic Hamlet Program was ordered as part of this war, which included the Battle of (*) Khe Sahn.** Henry Kissinger was given a Nobel Peace Prize for a brief ceasefire in this war, which included the My Lai [mee lie] massacre. Agent Orange and napalm were used against civilians during, for ten points, what 1960s and 70s war in Southeast Asia?

ANSWER: Vietnam War

(Bonus 12) This empire took part in the Flower Wars and had its history recorded in the Florentine Codex. For ten points each,

[Part A] Name this empire that controlled much of modern-day Mexico from its capital Tenochtitlan.

ANSWER: Aztec Empire (accept **Triple Alliance** accept **Excan Tlahtoloyan**)

[Part B] This Spanish conquistador conquered the Aztec empire with the aid of his interpreter, La Malinche [ma-leen-chay].

ANSWER: Hernan Cortez

[Part C] During his conquest of the Aztecs, Cortez captured this king. The Spaniards were driven out of Tenochtitlan following this man's death as part of La Noche Triste.

ANSWER: Montezuma II (accept **Moteuczoma**; accept **Motecuhzoma** Xocoyotzin)

(Tossup 13) **In this city, a golden crescent tops an enormous clock in the “Towers of the House of God” building cluster, which includes buildings named (*)** Safa and Marwah. The umrah visits this city, whose Abraj al-Bait overlooks the Masjid al-Haram, the focus of the hajj pilgrimage. For ten points, name this Saudi Arabian home of the Kaaba and birthplace of Muhammad.

ANSWER: **Mecca** (accept **Makkah** al-Mukarramah)

(Bonus 13) The earliest cases of this process occurred naturally as result of dry air and shallow pit graves used to bury the dead in Egypt. For ten points each,

[Part A] Name this preservation process, which developed to involve the use of a hook that liquefied the brain and allowed it to flow out of a corpse’s nose.

ANSWER: **mummification** (accept word forms like turning a corpse into a **mummy**; prompt on answers like “preparing a body for burial”)

[Part B] During mummification, these limestone containers held the organs of the deceased, which were guarded by images of the four sons of Horus.

ANSWER: **canopic jars** (accept **canopic box** or **canopic chest**)

[Part C] One of the many protective amulets placed with mummies were ones shaped like these animals. These amulets have heart, pectoral, and naturalistic variants placed on different portions of the body, and may have represented a connection to the sun.

ANSWER: **scarab** beetles (prompt on “beetle”)

(Tossup 14) **A major shopping complex in this city is found in the Namba district. The Floating Garden Observatory can be found at the top of this city’s Umeda Sky Building. Renzo Piano designed a particularly earthquake-resistant airport in this city. The (*)** Yodo River flows through this city, which is known as its “Nation’s Kitchen.” A 16th century castle attracts tourists to, for ten points, what city in the Kansai region, the third most-populous city of Japan?

ANSWER: **Osaka**

(Bonus 14) This country is bordered to the north by Albania and Macedonia and bordered to the west by the Ionian Sea. For ten points each,

[Part A] Name this country, the southernmost country of the Balkan Peninsula. This country’s highest point is Mt. Olympus, and its capital is Athens.

ANSWER: **Greece**

[Part B] To Greece’s east is this sea, which separates Greece from Turkey. This sea connects to the Sea of Marmara via the Dardanelles, and islands in this sea include Crete and Rhodes.

ANSWER: **Aegean** Sea

[Part C] This city in the Peloponnese region of Greece takes its name from the ancient city-state that once existed in the same spot and lent its name to the most ornate order of columns.

ANSWER: **Corinth** (accept **Corinthian**)

(Tossup 15) **After being spurned by the De Lacey family, a character in this novel uses a locket to frame Justine Moritz for William's death. This novel's protagonist fails to prevent the strangling of his friend Henry Clerval and his wife, (*)** Elizabeth Lavenza. In the Arctic circle, Captain Robert Walton hears the story of this novel's title scientist, who regrets animating a monstrous creature. For ten points, name this novel, subtitled "The Modern Prometheus" and written by Mary Shelley.

ANSWER: **Frankenstein**; or, The Modern Prometheus

(Bonus 15) A Siegfried Sassoon poem about this war describes a soldier's suicide in "winter trenches, cowed and glum." For ten points each,

[Part A] Name this twentieth-century war that inspired Wilfred Owen to write about "an ecstasy of fumbling" during a mustard gas attack in the poem "Dulce et Decorum Est."

ANSWER: **World War I** (accept **WWI**)

[Part B] After the death of his friend at the Second Battle of Ypres, John McCrae wrote this poem that describes flower blowing "between the crosses row on row," where soldiers who "loved and were loved" lie in the title location.

ANSWER: **In Flanders Fields**

[Part C] "In Flanders Fields" describes these flowers growing over buried soldiers on the battlefield, and popularized the use of these flowers to remember fallen soldiers.

ANSWER: red **poppy** (accept remembrance **poppies**)

(Tossup 16) **This process is regulated by the cyclin B-CDK1 complex and it occurs after the G2 checkpoint. During one stage in this process, the shortening of kinetochore microtubules pulls sister chromatids apart. Before that stage of this process, (*)** centromeres align along the middle of the cell at the equatorial plate. Cytokinesis occurs after this process that is divided into prophase, metaphase, anaphase, and telophase. For ten points, name this process of cell division that creates two identical daughter cells.

ANSWER: **mitosis** (anti-prompt on prophase, metaphase, anaphase, or telophase)

(Bonus 16) Give the following about the ozone layer for ten points each.

[Part A] The ozone layer helps protect us from harmful rays from the sun, such as the B type of these rays, which can cause skin cancer and sunburn.

ANSWER: **Ultraviolet** light (accept **UV**-B rays; accept **UV** light)

[Part B] One cause of concern with the ozone layer is the formation of an ozone hole over this continent during the spring due to strong westerly winds.

ANSWER: Antarctica

[Part C] The ozone layer occurs in the lower part of this second layer of the atmosphere, which sits above the troposphere.

ANSWER: stratosphere

Tiebreakers

(Tossup 17) **Paul Broca and Carl Wernicke name important areas of this organ. Pregnant women with Zika virus infections have a greater risk of giving birth to babies with abnormally weak growth of this organ. The corpus collosum of this organ can be severed in patients suffering from (*) epilepsy. This organ contains the hypothalamus, cerebrum and cerebellum. This organ and the spinal cord make up the central nervous system. For ten points, name this organ protected by the skull.**

ANSWER: brain

(Bonus 17) In a 1995 novel, this condition mysteriously affects everyone in a city except the doctor's wife, causing mass chaos. For ten points each,

[Part A] Name this physical condition. In real life, the author of Paradise Lost suffered from this condition, which is alluded to in the poem "When I Consider How My Light is Spent."

ANSWER: blindness (accept equivalents related to being unable to see)

[Part B] This author of "When I Consider How My Light is Spent" and Paradise Lost dictated his later work to assistants.

ANSWER: John Milton

[Part C] The author of Blindness, Jos'e Saramago, is an author from this European country, which breaks off from Spain in his other novel The Stone Raft.

ANSWER: Portugal