

Round 5

2015 Potatoville Varsity

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Tossups

1. **This group includes the model organism *Arabidopsis thaliana*, which exhibits behavior wherein two male gametes join with a megagametophyte. That process causes the formation of triploid nuclei within this group of organisms, and is called (*) double fertilization.** The ovary walls in these organisms are known as pericarps, and the ovaries themselves develop into fruit. This group is divided into monocots and dicots. For 10 points, name this group of flowering plants, often contrasted with gymnosperms.

Answer: angiosperms (accept magnoliophyta; accept flowering plants before it is read)

2. **This man said "The German empire has been built more truly on coal and iron than on blood and iron," arguing that forcing Germany to give up coalfields to France would cause even more harm than the monetary reparations ordered in the (*) Treaty of Versailles.** This author of *The Economic Consequences of the Peace* is most famous for an economic philosophy in which interest rates are kept low and aggregate demand is kept strong by government intervention. For 10 points, name this British economist, whose *General Theory of Employment, Interest, and Money* was challenged by Chicago school economists like Milton Friedman.

Answer: John Maynard Keynes

3. **This man suffered injuries traveling into the land of Gorre when he crossed a bridge that was a giant sword. By crossing that bridge, this man defeated the illusory lions. He convinced Galehaut to surrender, and was tricked into sleeping with (*) Elaine of Corbenic, the mother of this man's son Galahad.** With Perceval, this man and Galahad went to on an unsuccessful quest for the holy grail. For 10 points, name of this Knight of the Round Table whose grail quest failed due to his affair with Arthur's wife Guinevere.

Answer: Sir Lancelot

4. **During this conflict, a commander died at the Battle of Cantenna. Another commander in this war died at the Battler of the Siler River. After that battle, that commander's soldiers were crucified along Appian Way. Siler River was won by the "richest man in (*) Rome," Marcus Lucius Crassus, as a result of a series of ditches.** This conflict started after a group of people escaped a school run by Lentulus Batiatus. For 10 Points, name this slave rebellion which was led by a namesake former gladiator.

Answer: Spartacus Revolt (accept Third Servile War)

5. **This artist sketched two figures in black in front of some windmills in his *Don Quixote*. He painted his mistress with a cat on her shoulders and a firing squad aiming at naked women in *Dora Maar au Chat* and *Massacre in Korea*. He painted a young boy sitting in front of a wall painted with flowers in (*) *Boy with a Pipe* and depicted a man in blue holding a string instrument in *The Old Guitarist*.** A lightbulb flashes over a crazed horse and mourning mother in a painting by this man depicting the Spanish Civil War. For 10 points, name this co-founder of Cubism, who painted *Guernica*.

Answer: Pablo Ruiz y Picasso

6. This city is home to a Gothic mansion built by Sir Henry Pellatt which is known as Casa Loma. This city has the multicultural Kensington Market and its large Greek population hosts a festival known as the Taste of Danforth. This city can be accessed from Highway 401 using (*) Don Valley Parkway. Don Valley Parkway can be used to visit its busiest attraction, a shopping mall named Eaton Centre. One of the longest streets in the world is Yonge Street which starts in this city which is also home to the Hockey Hall of Fame. For 10 points, Name this city, the Capital of Ontario and the home of the CN tower.

Answer: Toronto, Ontario, Canada

7. This structure's design was inspired by Frank Lloyd Wright's plan for The Illinois. Samsung Construction and Trade built this Adrian Smith-designed building. This building's observation deck *At the Top* features an electric telescope. The bottom 39 floors of this structure are host to an (*) Armani Hotel. The country where this building is located borrowed money from Abu Dhabi, whose ruler names this building. For 10 Points, name this tallest man-made building in the world, located in the United Arab Emirates.

Answer: Burj Khalifa (accept Burj Dubai)

8. The speaker of this poem asks "would it have been worth it, after all" to "have bitten off the matter with a smile" and describes himself as "an attendant lord" after exclaiming "No! I am not Prince Hamlet." In this poem's setting, (*) yellow smoke "slides along the street" and "rubs its muzzle on the window-panes," and the speaker imagines a woman "throwing off a shawl" and saying, "That is not it at all." This poem's opening lines compare the evening "spread out against the sky" to "a patient etherized upon a table" and suggests, "Let us go then, you and I." For 10 points, "women come and go / Talking of Michelangelo" in what poem by T.S. Eliot?

Answer: The Love Song of J Alfred Prufrock

9. The Buyid Dynasty sacked this polity's capital and remained in control for over a century, after which the Buyids were replaced by the Seljuk Turks. Scholars consider the beginning of this empire to be when As-Saffah defeated Marwan II at the Battle of the Great (*) Zab River. One ruler of this dynasty had his court immortalized in *The Thousand and One Nights*, and it fell when Hulagu Khan of the Mongol Empire sacked its capital at Baghdad. For 10 points, give this caliphate once ruled by Harun Al-Rashid that succeeded the Umayyad Caliphate.

Answer: Abbasid Caliphate (accept reasonable synonyms for "Caliphate" such as Abbasid Dynasty)

10. In one of this author's novels, Enoch Emery joins Hazel Motes's "Church without Christ." In another work, the Bible salesman Manley Pointer steals Hulga's fake leg. This author wrote *Wise Blood* and a short story in which Julian's mother is struck after she gives Carver a penny. The Tower is owned by Red Sammy in a short story by this author of (*) "Good Country People" and "Everything That Rises Must Converge," and Baily and the grandmother are murdered by the Misfit and his crew in another of her works. For 10 points, name this Southern Gothic author of "A Good Man is Hard to Find."

Answer: (Mary) Flannery O'Connor

11. This compound can be added to cellulose in cotton to form either a low-grade explosive or photographic paper. In one reaction, amino acids with aromatic rings react with this compound to give a dark yellow color; that reaction is the xanthoproteic test. It's not ethanol, but a mixture with 68% water and 32% this compound is an azeotrope, and it can be created in the (*) Birkeland-Eyde process. A platinum-rhodium catalyst speeds up its production in the Ostwald process, and aqua regia is three parts hydrochloric acid and one part of this compound. Reacting sodium nitrate and sulfuric acid gives sodium sulfate and this acid. For 10 points, identify this strong acid with formula HNO_3 [H-N-O-3].

Answer: nitric acid (accept HNO_3 before it is read)

12. One song on this album begins “Starry nights city lights coming down over me.” Another song sings of “the streets of shame/Where you’ve lost your dreams in the rain.” This album contains the songs “St. Jimmy” and “Are We The Waiting.” Another song on this album mentions “a plastic bag on a monument” and begins “Hear the sound of the falling rain/Coming down like an Armageddon flame.” Another song refers to the title (*) street as “a lonely road/The only one that I have ever known.” The title track of this album asks “can you hear the sound of hysteria?” and welcomes the listener “to a new kind of tension.” For 10 points, name this 2004 album that contains “Boulevard of Broken Dreams”, an album by Green Day.

Answer: American Idiot

13. One of this author’s characters followed clues about the Jewish calendar after the death of a rabbi. This author created Red Scharlach and Detective Lonnrot in his short story “Death and the Compass.” The German spy Yu Tsun reads a novel written by his ancestor that is actually an (*) infinite labyrinth. One of this author's narrators finds a building with an infinite number of hexagonal rooms, which contain an infinite amount of 410 page books. For 10 points, name this author whose collection *Ficciones* contains his short stories “The Library of Babel” and “The Garden of Forking Paths.”

Answer: Jorge Luis Borges

14. This man formed a partnership with one of his future trustees, Henry Flagler. As part of this man’s philanthropy, he created Central Philippine University, and made a donation to the American Baptist Education Society, which was used to create the (*) University of Chicago. This man was attacked in a book by Ida Tarbel. Tarbel titled that book after this man’s source of wealth, a company broken up by the Sherman Antitrust Actm which once controlled 90% of America’s refinery capability. For 10 Points, name this man who founded Standard Oil.

Answer: John D(avison) Rockefeller

15. In this religion, souls were brainwashed on the Hawaii and Canary Islands. As adherents progress from the “pre-clear” to “clear” stage, they move up the “Bridge to Total Freedom.” In this religion, Billions of citizens of the Confederacy were sent to Teegeack via DC-8 spacecraft. (*) E-meters assist in the auditing process in this religion, and can be used to determine Operating Thetan levels. In this religion, 75 million years ago the evil lord Xenu detonated hydrogen bombs in volcanoes to kill the exiles. Based on the self-help book *Dianetics*, for 10 points, name this religion founded by L.Ron Hubbard, whose adherents include Tom Cruise.

Answer: Scientology

16. This function with input of "1 plus x" is equivalent to the infinite series x, minus x squared over 2, plus x cubed over 3, known as the Mercator series. Like the square root of x, this anti-derivative of one over x is not defined for negative inputs; unlike radical functions, its graph features a (*) vertical asymptote. This function has a growth rate slower than any non-constant polynomial. When evaluated at 1, it gives 0; when evaluated at e, it gives 1. For 10 points, name this inverse operation of exponentiation with base-e form, described as "natural."

Answer: (natural) logarithm of x (or ln(x) ["L-N of X"])

17. This composer wrote about the gambler Joe and his girlfriend Vi in his unsuccessful first opera, *Blue Monday*. A tone poem by this composer includes parts for claves [clah-vays] and gourd; that work, based on Ignacio Piñero’s “Échale Salsita” and originally titled *Rumba*, was inspired by a trip to (*) Havana. Another of this composer’s works used taxi horns to depict the bustling title city. One of his pieces, premiered at Aeolian Hall for *An Experiment in Modern Music*, begins with a trill and a long glissando for solo clarinet. For ten points, name this American composer of *An American in Paris* and *Rhapsody in Blue*.

Answer: George Gershwin (accept Jacob Gershovitz)

18. **Birefringence can be induced by this quantity in the Kerr effect. Irradiance is proportional to this quantity squared, due to the Poynting vector being proportional to magnetic field and this quantity. One law sets the divergence of this quantity equal to charge density over permittivity; another formulation of that law sets the (*) flux of this quantity through a surface equal to enclosed charge over permittivity. In addition to being a part of Gauss's Law, this quantity is multiplied by charge to give electric force in a formulation of Coulomb's law. For 10 points, name this quantity, proportional to charge over radius squared, a field that dictates how much force a test charge will experience.**

Answer: electric field (do not accept "magnetic field")

19. **One civil war in this nation was caused when progressives clashed with the Miguelists. Besides the Liberal Wars, another civil war in this nation, the 1383-85 crisis, was ended after the Battle of Aljubarrota. The capital of this country was nearly destroyed in a 1755 earthquake, which forced King Joseph I to flee. This country was ruled by the (*) Aviz Dynasty which came to power after the death of King Ferdinand I. One prince from that dynasty was known for his naval innovation and was given the epithet the Navigator. For 10 Points, name this country that shares the Iberian Peninsula with Spain.**

Answer: Portugal (accept Portuguese Republic or Republica Portuguesa)

20. **One of this author's character is sentenced by his father to "death by drowning!" This author created Georg Bendemann in his short story "The Judgement." A crowd gathers to watch a panther who replaced the title fasting character in this author's (*) "A Hunger Artist." In one of his novels, a land surveyor tries to contact Klammer, and the painter Titorelli sells copies of the same landscape painting to a character who dies "like a dog!" Joseph K. His character Gregor Samsa wakes up to find himself transformed into an insect. For 10 points, name this author who wrote *The Trial* and *The Metamorphosis*.**

Answer: Franz Kafka

Bonuses

1. Mrs. H.T. Miller gives the title girl money for a movie ticket in this author's short story "Miriam." For 10 points each,

[10] Identify this author who wrote about Joel Knox visiting Skully's Landing in his novel *Other Voices, Other Rooms*.

Answer: Truman **Capote**

[10] In this novel by a friend of Truman Capote, Atticus Finch defends Tom Robinson from a false rape accusation. In this novel, Scout is saved from Bob Ewell by Boo Radley.

Answer: **To Kill A Mockingbird**

[10] This author's only novel was *To Kill A Mockingbird*.

Answer: Harper **Lee**

2. Rosina sings the aria "Una voce poco va" in this work. For 10 points each,

[10] Name this opera, in which Count Almaviva disguises himself as the music teacher Don Alonso and as the student Lindoro in his attempts to woo Rosina.

Answer: The **Barber of Seville**

[10] This character is the title *Barber of Seville* and also names related opera by Mozart. In *The Barber of Seville*, he enters singing "Largo al Factotum" and helps Almaviva.

Answer: **Figaro**

[10] This man composed *The Barber of Seville*, as well as an opera in which Gessler forces the title character to shoot an apple off his son's head, *William Tell*.

Answer: Gioachino **Rossini**

3. Characters in this novel travel across the Central Sea. For 10 points each,

[10] Identify this novel in which Otto Lidenbrock, his nephew Axel, and Hans Bjelke go into a volcano in Iceland. They later re-emerge from Mt. Stromboli.

Answer: A **Journey to the Center of the Earth** (Accept: A Journey to the Interior of the Earth or Au Centre de la Terre)

[10] This author wrote *A Journey to the Center of the Earth*. He also wrote about Phileas Fogg in *Around the World in Eighty Days* and about Captain Nemo and the *Nautilus* in *Twenty Thousand Leagues under the Sea*.

Answer: Jules **Verne**

[10] This Verne novel includes characters from *Twenty Thousand Leagues Under the Sea* and *In Search of the Castaways*. In it, Cyrus Smith and Neb escape from Richmond in a hot air balloon and meet Jupiter the orangutan.

Answer: The **Mysterious Island**

4. This deity is a charioteer in the *Bhagavad Gita*. For 10 points each,

[10] Identify this avatar of Vishnu who has blue skin. He is often seen alongside his gopi-consort Radha, and foiled Gandhari's plan by warning Duryodhana.

Answer: **Krishna**

[10] Krishna is the charioteer of this Prince, the protagonist of the *Mahabharata* and *Bhagavad Gita*.

Answer: **Arjuna**

[10] This mother of Arjuna was also the mother of Karna with the solar deity Surya.

Answer: **Kunti** (accept **Paartha** or **Pritha**)

5. In order to marry Wallis Simpson he abdicated the throne. For 10 points each,

[10] Name this former King of the United Kingdom who was succeeded by George VI.

Answer: **Edward VIII**

[10] During World War II, Edward VIII was appointed as governor of this colony. While there, he was praised for handling civil unrest in its capital of Nassau.

Answer: Commonwealth of The **Bahamas**

[10] Edward the VIII was sent to The Bahamas due to his sympathies for this political party. During World War II, this Adolf Hitler-led political party orchestrated The Holocaust.

Answer: **Nazi** Party (accept **Nazis**, **National Socialist** German Workers' Party, **Nationalsozialistische** Deutsche Arbeiterpartei, or **NSDAP**)

6. For 10 points each, identify the following bridges.

[10] This bridge is the second longest suspension bridge in the United States and connects San Francisco to Marin county.

Answer: **Golden Gate** Bridge

[10] Another suspension bridge is this one, which connects Michigan's upper and lower peninsulas. It shares its name with an Island that forbids motor vehicles and produces high quality fudge.

Answer: **Mackinac** Bridge

[10] This suspension bridge, which is also part drawbridge, crosses the River Thames. It is often confused with the London Bridge.

Answer: **Tower** Bridge

7. Futurama was revived by Comedy Central due to its popularity on this channel. For 10 points each,

[10] Name this cable channel, which airs original shows like *Aqua Teen Hunger Force* and *Squidbillies*. Between episodes, this channel shows bumps which have historically shown old people in a pool.

Answer: **Adult Swim**

[10] Adult Swim airs reruns of this Seth MacFarlane comedy about the Griffin family. After Fox banned this show's episode "When you wish upon a Weinstein," Adult Swim aired it instead.

Answer: **Family Guy**

[10] In 2012, Adult Swim revived this anime focused programming block. The programming block, hosted by the robotic T.O.M., also offered video game reviews.

Answer: **Toonami**

8. During this man's presidency, the United States purchased land from France. For 10 points each,

[10] Name this President who sent the Lewis and Clark Expedition to explore the Louisiana Territory. He created the Democratic-Republican party.

Answer: Thomas **Jefferson**

[10] In an attempt to force France and Britain to respect The United States' neutrality, Jefferson sponsored this act. It prohibited American exports, and failed to significantly harm France or Britain.

Answer: **Embargo** Act

[10] In response to the Embargo act, Alexander Anderson drew a cartoon depicting this animal. This animal was labeled Ograbme and stops a sailor attempting to export his goods.

Answer: Snapping **Turtle**

9. Brewster's angle can be found by taking the arctangent of the ratio of this quantity for two materials. For 10 points each,

[10] Identify this value, symbolized n , that is the ratio of the speed of light in a vacuum to the speed of light in a material.

Answer: **index of refraction** (or **refractive index**, do not prompt on partial answers)

[10] Fermat's Theorem of Least Time can be used to derive this equation that relates two indices of refraction and angles of incidence. It states that $n_1 \sin \theta_1 = n_2 \sin \theta_2$.

Answer: **Snell's** law (or Snell-**Descartes** Law)

[10] When light hits a boundary at an angle of incidence that is greater than the critical angle, this phenomenon occurs. Fiber optic cables make use of this effect, and a "frustrated" version is an analogue of quantum tunneling.

Answer: **total internal reflection** (do not prompt on partial answers)

10. This thinker notes that the definition of "Christian" has changed significantly since the days of Augustine and Aquinas, noting that one doesn't even need to believe in Hell to be called a "Christian." For 10 points each,
[10] Name this author, who explained his disbelief in the lecture "Why I Am Not a Christian."

Answer: Bertrand **Russell**

[10] In addition to his philosophy, Bertrand Russell collaborated with Alfred North Whitehead on this three-volume work of mathematics and symbolic logic, which takes its name from a work by Newton.

Answer: **Principia Mathematica** (do not accept "Principia")

[10] Russell wrote *Principia Mathematica* in response to this German's work on symbolic logic as an attempt to resolve the paradoxes in his set theory. This thinker revolutionized logic by introducing a formal, stable definition of quantified variables

Answer: Gottlob **Frege**

11. This man established the United Arab Republic. For 10 points each,

[10] Name this second president of Egypt, who nationalized the Suez Canal. As president, he helped create the Non-Aligned Movement.

Answer: Gamal Abdel **Nasser** Hussein

[10] Before becoming president, Nasser joined this movement with Muhammad Naguib. This movement started the Egyptian Revolution.

Answer: **Free Officers** Movement

[10] The Free Officers Movement overthrew this penultimate king of Egypt. After he abdicated his infant son Fuad II was named king.

Answer: King **Farouk** I of Egypt

12. These shapes are defined parametrically x equals $a \cos t$ y equals $b \sin t$, for a not equal to b . For 10 points each,

[10] Name this conic section, a closed curve with two focal points, each between the center and a major-axis vertex.

Answer: **ellipse**

[10] Ellipses have a value between zero and one for this measurement of how "un-circular" a conic section is.

Answer: **eccentricity**

[10] For an ellipse with major axis length $2a$ and minor axis length $2b$, this is the distance from the center to either focus.

Answer: the square **root of a squared minus b squared** (prompt on c)

13. A man with a top hat holds a cane in this painting that is located at the Art Institute of Chicago. For 10 points each,

[10] Identify this painting in which a woman with an umbrella holds a monkey on a leash.

Answer: A **Sunday Afternoon** on the Island of la Grande Jatte (accept "Isle" in place of "Island" and accept *Un dimanche après-midi à l'Île de la Grande Jatte* – 1884)

[10] This French painter used the pointillism style to paint *A Sunday Afternoon on the Island of la Grande Jatte*.

Answer: Georges **Seurat**

[10] This other Georges Seurat painting depicts a dog on the bottom left laying next to a guy in a hat. On the right side of this painting, a boy wearing a red hat stands in water.

Answer: **Bathers at Asnieres** (accept **Une Baignade, Asnieres**)

14. This poem contains the lines "Some mute inglorious Milton may rest, Some Cromwell guiltless of his country's blood." For 10 points each,

[10] Identify this poem that begins "The curfew tolls the knell of parting day."

Answer: **Elegy Written in a Country Churchyard**

[10] This English author wrote "Elegy Written in a Country Churchyard."

Answer: Thomas **Gray**

[10] Thomas Gray also wrote an "Ode on the Death of" his favorite of this type of animal. Lewis Carroll created a smiling "cheshire" kind of this animal.

Answer: **cats**

15. Tip O'Neill held this position for ten years, and Dennis Hastert held it from 1999 to 2007. For 10 points each,
[10] Identify this position formerly held by Nancy Pelosi, and currently held by John Boehner.

Answer: **Speaker of the House** of Representatives

[10] This former politician greatly expanded the power of the Speaker of the House while serving in the position from 1995 to 1999. He helped come up with the "Contract with America."

Answer: Newt **Gingrich**

[10] While running for President in 2012, Gingrich won Georgia's Republican primary. However, Gingrich did not win any of the nine states that held primaries on this day, named for its large amount of primaries.

Answer: **Super Tuesday**

16. Plates for the thin-layer type of this process are made of silica, and those plates the stationary phase in this technique. For 10 points each,

[10] Name this lab technique that purifies substances by separating compounds on the basis of polarity. A common type performed in classrooms involves putting paper in a water solvent and watching different pigments separate.

Answer: **chromatography**

[10] In a planar chromatography, such as thin layer or paper, this quantity is the distance a compound moves over the distance the solvent moves.

Answer: **retention** factor(or **retardation** factor)

[10] Chromatography in this phase uses columns packed with adsorbing material. Size-exclusion chromatography uses this kind of mobile phase, and a "high performance" chromatography in this phase was invented by Csaba Horvath.

Answer: **liquid** phase chromatography

17. There are seven terraces in the title location of this work. For 10 points each,

[10] Identify this work in which each of the seven terraces is named for one of the seven deadly sins.

Answer: **Purgatorio** (accept **Dante's Purgatorio**. Prompt on "Divine Comedy" Do not accept or prompt on "Inferno" or "Paradiso.")

[10] This Italian poet wrote *Purgatorio* as a part of his *Divine Comedy*, which also includes *Inferno* and *Paradiso*. He is guided by Virgil through the nine circles of Hell in *Inferno*.

Answer: **Dante Alighieri** (Accept either or both names)

[10] This character takes over for Virgil as Dante's guide in *Purgatorio*. Dante was in love with this character.

Answer: **Beatrice Portinari** (accept either or both names)

18. This city was known for its hanging gardens. For 10 points each,

[10] Name this city which was ruled by Nebuchadnezzar II.

Answer: **Babylon**

[10] Another king of Babylon was this man who created a namesake law code. His law code, which advocated an "eye for an eye," was one of the first in recorded history.

Answer: **Hammurabi**

[10] Since Hammurabi's code offered mitigating punishments based on social status, it was especially harsh on these people. These people were less protected under the law as well; if someone broke their bones, only a fine was levied.

Answer: **slaves**

19. This man forces Queen Medb to retreat at The Cattle Raid of Cooley. For 10 points each,

[10] Name this Irish hero who before slaying a guard dog was known as Setanta.

Answer: **Cu Chulainn** (accept: **Cu Chulainn**, **Cuchulainn**, or **Cuhullin**)

[10] The story of Cu Chulainn appears in this cycle.

Answer: **Ulster** Cycle

[10] This island nation's mythology contains the Ulster Cycle. Leprechauns are fairies that appear in this nation's folklore.

Answer: **Ireland**

20. The Z-lines bound one unit of this structure on both sides, and myofibrils are comprised of these structures. For 10 points each:

[10] Name this structure comprised of a cross-linked actin and myosin, a functional unit of muscle. The largest known protein, titin, also exists within this structure.

Answer: **sarcomeres**

[10] Much like hemoglobin does for blood, this protein is responsible for storing oxygen in muscles. Each molecule contains a binding site for only a single oxygen molecule.

Answer: **myoglobin**

[10] Both hemoglobin and myoglobin contain this metal ion as a part of the heme group.

Answer: **iron** [or **Fe**]