Round 13
2015 Potatoville Varsity

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Tossups

1. **One of this god's cults were centered at the "Place of Pillars." This god gave his daughter seven thousand jars of red beer to calm her down. That daughter, Sekhmet, was known as their deity's "eye." This owner of Mandjet and Mesektet engages in a nightly battle with** (*) Apep, which he takes his barge back from. Some myths had him combined with Atum or Amun, and he is often depicted with a golden disk. For 10 points, name this deity whose center of worship was at Heliopolis, the Egyptian sun god.
Answer: **Ra** (accept Amun-**Ra** or Atum-**Ra**)

2. **In the background of this painting, two paintings by Rubens are next to a man in black standing on a flight of stairs. Also in the background is a mirror that shows the reflections of two of the artist's patrons. This painting depicts the** (*) Alcazar palace of Philip IV [the fourth]. The painter himself is depicted on the left, painting the central scene. On the bottom right, a dwarf has his leg on a brown dog, to the right of the title figures. For 10 points, name this painting of Infanta Margarita, a work by Diego Velazquez.
Answer**: Las Meninas** (accept The **Maids of Honor** or The **Ladies in Waiting**)

3. **This author wrote of "The tomb in Palestine...the grave of Jesus, where he lay" in a poem that begins "Complacencies of the peignoir", "Sunday Morning." In another poem, he asked Ramon Fernandez to tell "me if you know...when the singing ended." The line "She sang beyond the genius of the sea" begins his poem "The Idea of Order at Key West." "A man and woman are one" and "Among snowy mountains/the only moving was the** (*) eye" of the title bird of another of his poems. He included the line, "In kitchen cups concupiscent curds" in a poem that begins "Call the roller of big cigars." For 10 points, name this author of "The Emperor of Ice Cream" and "Thirteen Ways of Looking at a Blackbird."
Answer: Wallace **Stevens**

4. **It's not gadolinium, but brain tumors can be treated with a form of neutron capture therapy that utilizes this element. A superhard material called heterodiamond consists of carbon, nitrogen, and this element. The three-dimensional conformations of clusters that contain this element and hydrogen are described by** (*) Wade's rules. A silicate of this element makes up Pyrex glass, and its trifluoride is an example of a compound in which it violates the octet rule with six valence electrons. It is the first element on the periodic table with an electron in the 2p orbital. For 10 points, identify this metalloid with atomic number 5 and symbol B.
Answer: **boron**

5. **Babinet's principle equates two complementary examples of this phenomenon, one type of which is understood by performing a Fresnel-Kirchhoff integral. The Bessel function of the first kind appears in an intensity expression for a result of the Fraunhofer type of this phenomenon through a circular aperture, called the** (*) Airy disk. Electrons underwent this process in the Davisson-Germer experiment. Bragg's Law quantifies it for x-rays in a crystal, and the Rayleigh criterion gives a limit on resolution due to this phenomenon. This phenomenon causes interference fringes in the double slit experiment. For 10 points, name this phenomenon in which waves bend in response to an obstacle.
Answer: **diffraction**

6. **This world leader called upon the UN for a "redistribution of wealth" as his adopted name stems from an impoverished Saint from Assisi. The** (*) *Advocate* named this person their Person of the Year in 2013 after his comments on gay members of his community was not "[his] to judge." In 2014, this spiritual leader played a role in kindling U.S.-Cuba diplomatic relations. He oversees the Vatican and is the leader of the Catholic Church. For 10 points, name this progressive Jesuit pope from South America.
Answer: Pope **Francis**

7. **Some people who performed this action were forced to carry permits due to the Geary Act. The Page Act prohibited convicts from performing this action. Theodore Roosevelt made a "Gentleman's Agreement" with Japan regarding this action. The** (*) Johnson-Reed act limited the number of people who could perform this action to 2% of their current population. The Chinese Exclusion Act prohibited ethnic Chinese workers from doing this action. Some people who performed this action were processed at Ellis Island. For 10 points, name this action of moving to a North American country.
Answer: **Immigrating** to the **United States** of America (accept obvious equivalents; prompt on "immigration")

8. **The multiplex variant of this process was first used to detect deletions in the dystrophin gene. An SYBR fluorescent green probe is used in the real-time variety of this process. The methylation-specific type of this process detects CpG islands, and this technique requires dNTPs. One enzyme in this technique with proofreading ability is the *Pfu* enzyme, which is superior to** (*) *Taq* polymerase. In this process invented by Kary Mullis, denaturation, annealing, and elongation steps repeat to create more copies of the sequence being studied. For 10 points, identify this technique used to amplify short pieces of DNA.
Answer: **P**olymerase **C**hain **R**eaction

9. **The entrance to this building contains numerous black and white tiles and is called The Marble Courtyard. This building contains seven rooms named for Roman gods the center of which, named after Apollo, served has a** (*) throne room. Another room in this building required hiring Venetian workers and is called The Hall of Mirrors. This building contains numerous apartments and is located adjacent to Marie Antoinette's estate For 10 Points, name this French Palace built by Louis XIV.
Answer: Palace of **Versailles**

10. **This work's narrator feels that "the air grew denser, perfumed from an unseen censer" as he tries to convince himself to "quaff this kind nepenthe [neh-pen-thee] and forget" his ex-lover. The narrator of this work calls his houseguest a "prophet" and "thing of evil" when it answers whether there is a** (*) balm in Gilead, and he demands that the title visitor "get thee back into the tempest and the Night's Plutonian shore" after it perches "upon a bust of Pallas just above [his] chamber door" and seems to taunt him about the "lost Lenore." For 10 points, name this Edgar Allan Poe poem about a title bird.
Answer: The **Raven**

11. **Leonard Casey created one of these things at Hutt River to avoid Australian wheat quotas. Giorgio Carbone claims that the town of Seborga became one of these things due to a mistake at the Congress of Vienna. Matthew Shiell was allegedly given permission by the British government to create one of these things on the island of Redonda, Alexander Achenbach attacked one of these locations claiming the he was the rightful ruler. That one of these locations is at** (*) HM Fort Roughs and is known as The Principality of Sealand. For 10 Points, name these countries known for their extremely small size.
Answer: **Micronations** (accept **Model Country** or **New Country Project**)

12. **The fourth section of this book outlines the four causes of the "Confederacy of deceivers." That section of this book is The Kingdom of Darkness. The section "Of Commonwealth" of this book describes the twelve rights of rulers, and states that a (*)** monarchy is better than democracy. This book describes the "war of all against all" in the first section, "Of Man." In that section of this book, it describes life as "solitary, poor, nasty, brutish and short." For ten points, name this philosophical book by Thomas Hobbes that was named after a biblical sea monster.
Answer: **Leviathan**

13. **Individuals in this position have continued the Golden Quadrilateral Highway projects and lead the offensive during the Kargil War. Holders of this position must belong to the Lok Sabha or Rajya Sabha. Operation Blue Star saw the assassination of person by this title, which saw the appointment of her son to replace her. That politician's name was (*)** Rajiv who succeeded his mother, Indira Gandhi in this position. The most recent holder of this position ran a "social media" campaign and is from the Bharatiya Janata Party. For 10 points, name this chief of government position first held by Jawaharlal Nehru and currently held by Narendra Modi.
Answer: **P**rime **M**inister of **India**

14. **In inner product spaces, this statement can be generalized as Parseval's identity. De Gua's Theorem is a general form of this theorem in three dimensions, and it can be derived from Heron's formula. The use of trapezoid helped (*)** James Garfield come up with a proof of this theorem, and another general version of it is the law of cosines. Euclid proved this theorem by dividing a square into a left and right rectangle. With its namesake "triples", for 10 points, name this theorem that states that the sum of the squares of the length of two legs of a right triangle equals the square of the hypotenuse's length.
Answer: **Pythagorean Theorem**

15. **This composer borrowed the main theme from his abandoned *Rob Roy* symphony for a work that included a "March of the Pilgrims" and finishes with a "Brigands' Orgy." That work, which faced a change of soloist after Niccolo Paganini refused to perform due to its lack of showpiece viola sections, was (*)** *Harold in Italy*. "Dream, passion" is a movement in this composer's work dedicated to Harriet Smithson, though that work more notably includes the opium-induced "Dream of a Witches' Sabbath" and a "March to the Scaffold," as well as a recurring *idee fixe* theme. For 10 points, name this French composer of *Symphonie Fantastique*.
Answer: Hector **Berlioz**

16. **This author described the "broad-leaved Myrtle" and the "white-flowered Jasmin" and "My pensive Sara!" in his poem "The Eolian Harp." He wrote a poem describing a dice game between Death and Life-in-Death. He also wrote a poem describing a "sumptuous house" on the river (*)** Alph that turned into a "stately pleasure dome." His character the Wedding Guest hears about the title character's misfortune after shooting an albatross. For 10 points, name this author who collaborated with William Wordsworth on Lyrical Ballads, and who wrote "Kubla Khan" and "The Rime of the Ancient Mariner."

Answer: Samuel Taylor **Coleridge**

17. **This brand participated in James Cameron's Challenger Deep Sea Challenge and was able to maintain function at high pressures and waterproof capabilities with its oyster case. Michael Bublé encourages Santa Claus to slip one of these items under the tree while an (*)** Iggy Azalea song with this title says that one of these objects "don't tick tock" alluding to its sweeping second hand. Datejust, Daytona and Yacht-Master are models of this brand which sponsors events such as the Australian Open and Wimbledon. For 10 points, name this Swiss watch maker with a crown logo.
Answer: **Rolex** SA

18. **The protagonist of this novel wins a multiple day game of monopoly against Martini and others. In this novel, Sandy is friends with the prostitute Candy Star, who is discovered in (*)** Billy Bibbit's bed. The narrator believes that modern society is run "the Combine." The protagonist of this novel is smothered by Chief Bromden, after Nurse Ratched smothered Randle McMurphy. For 10 points, name this novel about an Oregon mental institute, written by Ken Kesey.

Answer: <u>One Flew Over the Cuckoo's Nest</u>

19. **Valentinian the third's sister Honoria sent this man a ring, which caused this man to invade. This man defeated Arnegisclus during the Battle of the Utus. Theodosius the second unsuccessfully tried to appease this ruler before this ruler invaded Theodosius's empire. Following the Battle of Chalons, this man retreated after being convinced by Pope Leo the first. This man gained complete power after he murdered his older brother (*)** Bleda. During the night this man married Ildico, he died of a nosebleed. For 10 points, name this "Scourge of God", a leader of the Huns.

Answer: <u>Atilla</u> the Hun

20. **The ground state of the harmonic oscillator has energy equal to h-bar times omega times this constant. Each degree of freedom contributes this constant times kT of energy to a system by the equipartition theorem. Full width at this coefficient of the maximum is a common measure of uncertainty. The period of a pendulum is proportional to (*)** this power of its length. The moment of inertia of a disc and a solid cylinder is mr^2 times this coefficient. An object falling from rest travels a distance of acceleration times time squared times this number, and kinetic energy is mv^2 times this number. For 10 points, name this number, the probability of picking the right answer on a question with two choices.

Answer: <u>1/2</u> [or <u>0.5</u>]

Bonuses

1. This character "is very good at integral and differential calculus." For 10 points each,
[10] Identify this character, who also knows "the croaking chorus from *The Frogs* of Aristophanes" and "information vegetable, animal, and mineral," as described in a song from an 1879 opera.
Answer: **Major General** **Stanley** (Accept either underlined portion. Accept I Am the Very Model of a Modern Major-General)
[10] The Major General's Song appears in this comic opera. In it, Frederic believes that he must remain as one of the title characters do to a loophole of his birthday falling on February 29th.
Answer: The **Pirates of Penzance**
[10] *The Pirates of Penzance* was written by this musical pair, who also collaborated on *The Mikado* and *H.M.S. Pinafore*.
Answer: Sir William Schwenck **Gilbert** and Arthur **Sullivan** (Accept names in either order. Prompt if just one name is given.)

2. For 10 points each, answer some questions about American folk heroes.
[10] Thiis "most powerful man working the rails" challenged a steam-power drill in a race through a mountain. After beating the drill by digging two seven foot holes, he rose his hammers and dropped dead.
Answer: John **Henry**
[10] Another folk hero was this man who travelled west planting fruit trees wherever he went.
Answer: Johnny **Appleseed** (or John **Chapman**)
[10] This rider of Widow-Maker once shot all the stars out of the sky, except for the one that became the Flag of Texas.
Answer: **Pecos Bill**

3. This group of metals are highly reactive because they have one valence electron. For 10 points each,
[10] Name this group of metals that are found in Group IA ["one-A"] and whose members include lithium and sodium.
Answer: **alkali** metals [do not accept "alkaline earth metals"]
[10] This British scientist discovered multiple alkali metals by isolating them from known compounds using electrolysis. His other chemical discoveries include magnesium, boron and barium.
Answer: Sir Humphry **Davy**
[10] This alkali earth metal was used to create the first Bose-Einstein condensate. Kirchhoff and Bunsen discovered this element along with cesium, and its 1+ ion is isoelectronic with krypton.
Answer: **rubidium**

4. A result of this institution is the focus on "swing-states" during the Presidential elections. For ten points each,
[10] Identify this institution that elects the President and the Vice President of the United States every four years. There are 538 votes in it.
Answer: The U.S. **Electoral College**
[10] This amendment to the United States Constitution gave three votes to the District of Columbia in the electoral college.
Answer: **23**rd amendment
[10 This amendment to the U.S. Constitution required that Electors vote separately on the President and the Vice President.
Answer: **12**th amendment

5. This poem begins "To him in the love of Nature holds." For 10 points each,
[10] Identify this poem whose says to "approach thy grave/Like one who wraps the drapery of his couch." The speaker of this "meditation on death" says to lie "down to pleasant dreams."
Answer: **Thanatopsis**
[10] "Thanatopsis" was written by this American author.
Answer: William Cullen **Bryant**
[10] This Bryant poem begins "Whither, 'midst dew falling." The speaker of this poem asks "Far, through their rosy depths, dost thou pursue/Thy solitary way?"
Answer: **To a Waterfowl**

6. NO PENCIL AND PAPER NECESSARY. Your math teacher, laughing maniacally, asks you to find the real solutions of f(x)=2x^29-7x+6 [f of x equals 2 x to the 29th power minus 7 x plus 6]. For 10 points each,

[10] This theorem says that if any of the solutions can be written as fractions, they must have a factor of 6 as their numerator and a factor of 2 as their denominator.

Answer: **Rational Root** Theorem (accept "zeroes," "solutions," or any other mathematical synonym of "solution" in place of root; do not prompt on partial answers)

[10] You know there must be at least one real solution, because any polynomial of odd degree is guaranteed to have at least one of these graphical points, found at the ordered pair (c,0) [c comma zero] for some real number c.

Answer: **x-intercept**(s)

[10] A bound named for this French mathematician guarantees that all x-intercepts of f(x) [f of x] will be within M units of the origin, where M equals one plus the largest non-leading coefficient over the leading coefficient.

Answer: Augustin-Louis **Cauchy** [koh-shee] (accept **Cauchy's Bound**)

7. No one in this event was actually burned at the stake. For 10 points each,

[10] Name this event in which several Massachusetts women were executed for allegedly wielding magic.

Answer :**Salem Witch Trial**

[10] Many of the women in the Salem Witch Trial were convicted due to this kind of evidence. This kind of evidence is based on what witnesses see during dreams or visions.

Answer: **Spectral Evidence**

[10] During the Salem Witch Trial, many of the accused women were subject to this judicial practice. This judicial practice required the accused to perform dangerous tasks such as dipping their hand in boiling water.

Answer: **Trial by Ordeal**

8. In this novel, the gypsy Melquiades visits Macondo every year in March. For 10 points each,

[10] Identify this magic realist novel about seven generations of the Buendia family.

Answer: **One Hundred Years of Solitude** (accept **Cien Anos de Soledad**)

[10] This Colombian author wrote *One Hundred Years of Solitude*. He also wrote about the brothers of Angela Vicario's murder of Santiago Nasar in *Chronicle of a Death Foretold*.

Answer: Gabriel **Garcia Marquez** (prompt on partial last name)

[10] Father Gonzaga appears in this Gabriel Garcia Marquez short story. Elisenda charges admission to see the title character of this short story.

Answer: A **Very Old Man With Enormous Wings**

9. This composer imitated Joseph Haydn when composing his *Classical Symphony*, which includes a Gavotte movement. For 10 points each,

[10] Identify this Russian composer who wrote "Dance of the Knights" for his ballet *Romeo and Juliet*.

Answer: Sergei **Prokofiev**

[10] Prokofiev also composed a work where this character's grandfather is represented by a bassoon, while he is represented by string instruments. This character titles that Prokofiev work about this character "and the Wolf."

Answer: **Peter** (Accept: **Peter and the Wolf**)

[10] In *Peter and the Wolf*, the duck is represented by this double-reed instrument. Orchestras commonly tune to this instrument.

Answer: **Oboe**

10. Locations that experience 24-hours of daylight or nighttime can develop disruptions in this cycle. For 10 points each,
[10] Give this term that refers to a cycle that is based on a body's internal clock. In the brain, the suprachiasmatic nucleus controls these cycles.
Answer: **sleep-wake** cycles (or **circadian rhythm**s)
[10] This hormone which regulates sleep is secreted by the pineal gland. It is naturally found in higher levels during the night, and it is a derivative of tryptophan.
Answer: **melatonin**
[10] Dreams occur during this type of sleep, which, along with light and deep sleep, makes up a sleep cycle. It is indicated by rapid, small signals on a polysomnogram.
Answer: **R**apid **E**ye **M**ovement sleep (or **R**apid **E**ye **M**otion sleep)

11. This author collected headlines, article fragments, and song lyrics in sections known as "Newsreels." For 10 points each,
[10] Identify this author of *The 42nd Parallel*, *1919*, and *The Big Money*.
Answer: John Roderigo **Dos Passos**
[10] *The 42nd Parallel*, *1919*, and *The Big Money* are collected in a trilogy named after this country. This country. John Dos Passos, and his friend Ernest Hemingway, were from this country.
Answer: **United States** of America (accept equivalents, and accept: **U.S.A** Trilogy)
[10] These sections of the *U.S.A.* trilogy are written in the "stream of consciousness" style. They chronicle Dos Passos's development into a writer.
Answer: The **Camera Eye**

12. In 2014, a report came out about this organization's use of torture. For 10 points each,
[10] Identify this government spy organization whose headquarters are located in Langley, Virginia.
Answer: **CIA** (or **Central Intelligence Agency**)
[10] This former Vice President defended his former chief of staff, Scooter Libby, after leaks about the CIA lied Scooter Libby had lied to federal investigators.
Answer: Dick **Cheney**
[10] This politician was director of central intelligence in 1976 and 1977. Preceding that, he served as Ambassador to the United Nations for three years.
Answer: George H.W. **Bush**

13. This deity is that father of Polyphemus. For 10 points each,
[10] Name this Greek god who lost a competition with Athena after his spring failed to impress the people of Athens.
Answer: **Poseidon**
[10] After being raped by Poseidon this warrior requested to be turned into a man so that it could never happen again. After being transformed this warrior helped hunt for the Calydonian Boar.
Answer **Caeneus**(Accept **Caenis**)
[10] Caenis was a member of this mythological tribe. This tribe, which takes its name from their founder, fought the Centaurs after the Centaurs attempted to rape a bride.
Answer: **Lapiths**

14. According to trainers, this event was spurred on by food poisoning rather than a stomach virus, and it ended with Scottie Pippen holding up Michael Jordan. For 10 points each,
[10] Name this event, in which an incredibly sick Jordan scored 38 points to win Game 5 of the 1997 NBA Finals.
Answer: The **Flu Game**
[10] The Flu Game was the turning point in this team's fifth of 6 NBA titles won with Pippen and Jordan. In 2008, this team drafted Derrick Rose.
Answer: **Chicago Bulls** (accept either name)
[10] The Bulls defeated this team, led by Karl Malone and John Stockton, in both the 1997 and 1998 NBA Finals.
Answer: **Utah Jazz** (accept either name)

15. The War of Mantuan Succession was fought by France and the Holy Roman Empire as a part of this larger conflict. For 10 points each,
[10] Name this conflict which started with the Second Defenestration of Prague. This war, which was fought over religious tensions, featured battles at White Mountain and Lutzen.
Answer: **Thirty Years** War
[10] France also fought in the War of Austrian Succession which was ended by this treaty. This treaty, named for the Holy Roman city it was signed in it, essentially maintained prewar conditions.
Answer: Treaty of **Aix-la-Chapelle**(Accept Treaty of **Aachen**)
[10]
Answer: **Charles V**

16. A figure on the top right of this painting is seen waving a flag. For 10 points each,
[10] Identify this painting that depicts a pile of dead bodies on a makeshift boat in the wreckage of the title ship.
Answer: The **Raft of the Medusa**
[10] This French artist painted *The Raft of the Medusa*.
Answer: Theodore **Gericault**
[10] This Gericault painting depicts a Napoleonic soldier swinging his sword while on a horse.
Answer: The **Charging Chasseur**

17. This dynasty's first ruler was Michael I [the first]. For 10 points each,
[10] Name this dynasty, the last in its country, which was overthrown by the Bolsheviks. Its last ruler, Nicholas II, was executed along with his family in 1917.
Answer: **Romanov**
[10] This youngest daughter of the Nicholas II [the second] was rumored to have survived the execution. However, this theory was proven false in 2007 when the last Romanov body was found.
Answer: **Anastasia** Romanov
[10] The Romanovs were the last monarchs of this country. After they were overthrown, this country turned Communist.
Answer: **Russia** (do not accept USSR or Soviet Union)

18. For 10 points each, answer some questions about the Doppler effect,
[10] The siren of a fire truck sounds higher in pitch when it's approaching you than when it's receding due to a shift in this property of a wave. It is the inverse of wavelength.
Answer: **frequency**
[10] This extension of the Doppler effect describes a decrease in wavelength for electromagnetic radiation. Light from the Andromeda Galaxy undergoes this phenomenon because it's moving *towards* us.
Answer: **blueshift**
[10] Special relativity predicts the transverse Doppler effect, which was confirmed in this experiment. In it, the experimenters accelerated canal rays through a potential and observed the effect in the longitudinal direction.
Answer: **Ives-Stilwell** experiment

19. This character is engaged to Haemon. For 10 points each,
[10] Identify this sister of Ismene.Creon sentences this character to be sealed in a cave after she attempts to bury Polynices.
Answer: **Antigone**
[10] This father of Antigone killed his own father Laius. This character gouged his eyes out after he realized that he married his mother Jocasta.
Answer: **Oedipus** Rex
[10] This Greek playwright wrote *Antigone* and *Oedipus Rex*.
Answer: **Sophocles**

20. This thinker coined a term for the fear of success, the "Jonah Complex," and wrote the book *Eupsychian Management*. For 10 points each,

[10] Identify this thinker who wrote *A Theory of Human Motivation*, in which he posited his theory of a hierarchy of needs.

Answer: Abraham **Maslow**

[10] At the top of Maslow's hierarchy of needs is this stage, above Physiological, Safety, Love/belonging, and Esteem.

Answer: **Self-actualization**

[10] One of the people that Maslow studied was this female American sociologist/social worker. Along with Ellen Gates Starr, she co-founded Hull House.

Answer: Jane **Addams**