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PACE NSC 2017 - Round 06 - Tossups

1. This philosopher advocated the concept of *pathei mathos*, or understanding from suffering. He considered himself a reincarnation of Hermes and believed heavenly souls were trapped in a "body tomb". This thinker discovered the musical intervals of lyre strings and posited that heavenly bodies produced imperceptible tones based on their orbital periods. His followers abstained from eating both (*) beans and flesh. One of his disciples threw himself into Mount Etna and was named Empedocles. He and his followers at Croton supposedly came up with a proof involving the square of a hypotenuse. For 10 points, name this pre-Socratic philosopher and namesake of a theorem regarding right triangles.

ANSWER: Pythagoras of Samos <Bentley>

2. A model first developed to describe this phenomenon predicts that the fraction of low energy states equals the negative hyperbolic tangent of beta times the splitting energy. This phenomenon only occurs if the density of states at the Fermi level times the Stoner exchange parameter is greater than one. Heisenberg modified a model of this phenomenon that simply defines points in a lattice to be spin-up or spin-down. A graph of this phenomenon has intercepts labelled coercivity and remanence and forms a (*) hysteresis loop with steps for gaussing and degaussing. Below the Curie temperature, this phenomenon occurs when domains align in the absence of an external field. For 10 points, name this form of permanent magnetism observed in cobalt, nickel, and iron.

ANSWER: ferromagnetism [or word forms; prompt on magnetism] <Silverman>

3. A building in this city contains an installation called *Fiori di Como* that consists of more than 2,000 Dale Chihuly-blown glass flowers. Another building in this city focuses 39 xenon lamps to create the world's strongest beam of light. A Yale field trip to this city inspired a book by Izenour, Scott Brown, and Venturi titled for *Learning from this city*. The nearby unincorporated towns of Winchester and Paradise actually contain most of the landmarks associated with this city, including its (*) McCarran International Airport. A 20-foot statue of Julius Caesar stands in front of a faux-Roman building in this city, where Bugsy Siegel helped develop the Flamingo Hotel. For 10 points, name this city whose namesake "Strip" contains the Bellagio, the Luxor, Caesar's Palace, and many other hotel-casinos.

ANSWER: Las Vegas, Nevada [accept Paradise, Nevada until read] <Kothari>

4. During World War II, Billy Williams campaigned against the violent practice of "khedding" these things and is the hero of James Howard Williams's book *Bandoola*. Afonso de Albuquerque may have delivered one of these things called "Hanno" to Manuel I of Portugal, who subsequently gifted it to Pope Leo X. A mahout (muh-HOWT) and an archer were employed in conjunction with them in the Seleucid army. King (*) Porus used these units and chariots against Alexander's army at the Battle of Hydaspes. Units of this type fought at the Battle of Trebia and the Battle of Metaurus River. Eighty of these animals were frightened by loud horn blasts, allowing Scipio Africanus's victory in the Battle of Zama. For 10 points, name these exotic animals which were brought across the Alps by Hannibal.

ANSWER: elephants [or war elephants; prompt on animals] <Bentley>

5. The italicized ending of a poem about one of these places describes a youth who "gain'd from Heav'n 'twas all he wish'd a friend." An author who, like Thomas Parnell and Edward Young, belonged to a school named for this sort of place, imagined a "kindred spirit" asking a "hoary-headed swain" about a man who used to sit under a "nodding beech" in one of them. That poem imagines a "village-Hampden," a (*) "mute inglorious Milton," and "some Cromwell guiltless of his country's blood" in one of these places. Residents of a place of this type lived "Far from the madding crowd's ignoble strife" in a poem set in one that opens "The curfew tolls the knell of parting day." For 10 points, Thomas Gray authored an "Elegy Written in a Country" place of what sort?

ANSWER: a churchyard [or a graveyard; or obvious equivalents of a cemetery; prompt on a church's grounds] <Brownstein>

6. Gerard and Margaret are revealed to be this author's parents at the end of Charles Reade's *The Cloister and the Hearth*. The main character of a work by this author is a child of Plutus who claims that there are two types of madness, one of which is divinely inspired, and introduces attendants such as Kolakia, Misoponia, and Hedone. The title character tries to use the key to his money-chest to open the gates of heaven in a dialogue between (*) St. Peter and a violent pope by this author, *Julius Exklusus*. This author of *Handbook of a Christian Knight* wrote a letter to his friend Thomas More that is usually appended to his satire in which the title character orates on the corruption of the Catholic Church. For 10 points, name this Dutch humanist author who wrote *In Praise of Folly*.

ANSWER: Desiderius Erasmus <Brownstein>

7. In a parable about two people who perform this action, a self-righteous man compares himself to a nearby tax collector. After hearing a verse from First Thessalonians about performing this action, the narrator of the text *The Way of a Pilgrim* embarks on a journey throughout Russia. A parable about this action features an unjust judge who only gives a persistent widow justice because she keeps bothering him. A form of this action has a Biblical basis in Elizabeth's exclamation, (*) "Blessed are you among women, and blessed is the fruit of your womb!" That form of this action, which calls its addressee "full of grace," is named after Mary. For 10 points, Jesus began demonstrating how to perform what action when he said, "Our Father who art in heaven?"

ANSWER: prayer [accept word forms like praying; accept Lord's Prayer; anti-prompt on Hail Mary] <Cheng>

8. A composer who worked in this city served as the inspiration for the teacher Aloysius in Johann Joseph Fux's (FOOKS's) *Gradus ad Parnassum* and was the subject of a 1917 Hans Pfitzner opera. The first movement of a 1928 composition partly titled for this city calls for three *buccine* (BOOT-chee-nay) to play fanfares. During a trip to this city, Mozart was able to memorize and later transcribe a composition whose ornamentation had been closely guarded, the (*) *Miserere* by Gregorio Allegri. A phonograph recording of a nightingale appears in the third movement of a musical depiction of this city, which is also the namesake of a school of composers including Giovanni da Palestrina. Ottorino Respighi wrote symphonic poems depicting the festivals, fountains, and pines of, for 10 points, which Italian city?

ANSWER: **Rome** [or **Roma**; accept the **Roman** school] <Carson>

9. Jacobus Kapteyn was the first to use "statistical" data from this concept, and not "secular" data to gauge the layout of stars in the sky. A catalogue of stars' proper motion and values for this quantity was made using data from the Hipparcos satellite. This phenomenon gives its name to a trigonometric method in which distance to a faraway object is inferred using measurements of objects taken at intervals of six months, and then calculating the (*) angle subtended by that object. A unit of measurement named for this phenomenon is approximately equal to 3.26 light-years. This term refers to the phenomenon of an object appearing to move when viewing it from two different lines of sight. For 10 points, name this phenomenon that gives its name to part of the "parsec" unit.

ANSWER: **parallax** [accept stellar **parallax** or statistical **parallax** or solar **parallax**] <Jose>

10. A tobacco boycott in favor of this cause led to a period of street fighting called the "Five Days." Forces opposing this cause withdrew to a fortified area known as the Quadrilateral after a battle where Henry Dunant ran makeshift hospitals. A leader abandoned this cause via the Treaty of Villafranca after supporting it by the Pact of Plombieres. Patrice de MacMahon's dukedom was named after a battle fought over this cause at (*) Magenta. This was the goal espoused by the "charcoal burner" secret societies. Napoleon III backed this goal thanks to Count Cavour, who supported a campaign in favor of this goal that the Red Shirts undertook against the Kingdom of the Two Sicilies. For 10 points, name this cause of Giuseppe Garibaldi and Victor Emmanuel II, who became king in Rome after its success.

ANSWER: **unification of Italy** [or **Risorgimento**; or equivalents of **independence of Italy**] <Brownstein>

11. This genre titles many Sterling Brown poems, such as one about Memphis, one about a riverbank, and one about rent day. A smiling woman in "in yards of pearls, emerging like a favorite scenic view" appears in Robert Hayden's "Homage to the Empress of" this genre. A poem about this genre is set "by the pale dull pallor of an old gas light" and concludes after "The stars went out and so did the moon" with a character sleeping like "a (*) rock or a man that's dead." In that poem, this genre is produced by a man on a "rickety stool" "down on Lenox Avenue" who sings "Ain't got nobody in all this world" while "droning a drowsy syncopated tune." For 10 points, Langston Hughes wrote about the "Weary" sort of what musical genre?

ANSWER: **blues** music [prompt on answers like **music** or **song**] <Brownstein>

12. The point group corresponding to this molecular geometry has eight C3 elements, but no C4 or C5 elements. Addition-eliminations to ketones form an anionic intermediate with this geometry. Coordination complexes with this geometry split the d orbitals so that three are high-energy. Umbrella inversions during SN2 reactions occur on atoms with this geometry. Every atom in (*) diamond has this geometry. The cosine of its bond angle is negative one-third. Van 't Hoff discovered that atoms with this geometry are asymmetric and form enantiomers. This geometry, which is represented using wedges and dashed lines, occurs at any saturated carbon atom with sp3 hybridization and 109 degree bond angles. For 10 points, name this molecular geometry found in methane.

ANSWER: **tetrahedral** geometry [or **tetrahedron**] <Silverman>

13. A former Christian in this novel is fired from building a doghouse when he tells the owner that God will explain blueprints to her. A xylophone virtuoso in this novel tries to make herself ugly to stop being an erotic symbol according to an index of P. Castle's manuscript. In this novel, Hazel lists people who are Hoosiers, which the narrator gives as an example of a (*) granfalloon or false karass. Asa Breed describes the military's struggles with mud to this novel's narrator for his research on Dr. Hoenikker. In this novel, Bokomonists press their bare feet together as a religious ritual, and Papa Monzano commits suicide by ingesting ice-nine. For 10 points, name this novel by Kurt Vonnegut.

ANSWER: Cat's Cradle <Grames>

14. While running for President, a man in this position released an unprecedented 12 years of his tax returns. While in this position, that man remarked he "had the greatest brainwashing that anybody can get" referring to a trip to Vietnam. Another man in this position was the plaintiff in a 1974 Supreme Court case that struck down a planned busing scheme by ruling that de facto segregation was legal; that case involved the (*) Bradley family. It was held during all of the 1970s by William Milliken and during most of the 1960s by Mitt Romney's father, George, who requested federal troops to put down the 1967 12th Street riot in his state. For 10 points, name this state position currently held by Rick Snyder, who is still dealing with the fallout from the Flint water scandal.

ANSWER: Governor of Michigan [prompt on partial answers] <Cheyne>

15. One artist from this country depicted a musician squeezing lemon juice into the eye of a supposedly blind fellow beggar in *The Musician's Brawl* and made several candlelit scenes of Mary Magdalene. Another artist from this country showed the title Biblical monarch descending towards a boat in one of his signature seaport landscapes, *The Embarkation of the Queen of Sheba*. A possible depiction of the origin of painting showing a shepherd tracing a shadow on a (*) tomb displaying the title inscription was painted by a Classical artist from this country, who also depicted four figures linking hands beneath Apollo's chariot in his *A Dance to the Music of Time*. For 10 points, native son Nicolas Poussin's (poo-SANN's) *Et in Arcadia Ego* can be found in what country's Louvre museum?

ANSWER: France [accept the Kingdom of France or Royaume de France] [The other artists are, respectively, Georges de la Tour and Claude Lorrain.] <Bentley>

16. 300 years after the Biblical flood, this place was supposedly settled by a descendant of Noah named Partholon. That claim is found in the *Book of Invasions*, a pseudo-history that claims Cichol Gricenchos (KICK-ole grih-KEN-kohs) fought the first battle in this country. A "plain of pillars" in this country was the site of a battle between the descendants of Nemed, led by Sreng, and a group whose king received a replacement (*) silver arm after the battle. A later battle at the same site in this country pitted Balor of the Evil Eye and his Fomorian army against an army initially led by Nuada. The battles of Magh Tuireadh (MY TEER-ugh) took place on this island, which was settled by members of the Tuatha de Danann (too-AH-hah day DAH-nahn) including the Dagda and Lugh (LOUGH). For 10 points, name this Celtic country in the British Isles.

ANSWER: Ireland [or Éire; or Airlann] <Jose>

17. A real one of these objects, a photograph of one, and a dictionary definition of the word for them was the subject *One and Three [of these things]* by Joseph Kosuth and Sol LeWitt. Argentine architect Antonio Bonet contributed to a collapsible one of these objects called the BKF or Butterfly. Bart van der Leek suggested adding color to one of these that uses a joint consisting of three orthogonal battens and was designed by Gerrit Rietveld. One of them used on the original (*) *Star Trek* set was designed to combat the "slum of legs" by Eero Saarinen. Herman Miller produces both the "Aeron" one and a wood-and-leather one designed by the Eames brothers that is paired with an ottoman. For 10 points, Saarinen's "tulip" is what type of furniture often found around a table?

ANSWER: chairs [or lounge chair; or office chair; accept hammers until "BKF" is read] <Bentley>

18. Because tagua nuts resemble this substance, the palms on which they are found are named for it. A diptych made of this substance named for Cardinal Barberini depicts the conquest of Emperor Justinian; other examples of art made from it include the *Venus of Brassempouy* (brass-om-POO-ee). In the *Aeneid*, true dreams go through a "gate of (*) horn" while false dreams emerge from a gate made of this substance. The critic Charles Augustin Sainte-Beuve popularized the image of elitist or unworldly writers living in a "tower" of this substance. In April 2016, Uhuru Kenyatta burned over 100 tons of this material as part of a plan to curb poaching. Traditionally, ebony and this substance were used to make piano keys. For 10 points, name this material often made from elephant tusks.

ANSWER: ivory <Jose>

19. The successors of this kingdom's first ruler, Tudiya, were known as the "kings who lived in tents". This kingdom was revitalized after the Bronze Age Collapse by a law-giving king who repelled a Mushki invasion and who shares his name with a later king who defeated the northern Urartu people under Sarduri II. During the reign of Adad Nirari I, this kingdom started its policy of mass deportation of conquered (*) Mitanni people. Its middle period ended with the reign of Tiglath Pileser I. At modern day Kouyunjik, a copy of the Enuma Elis was found at a library built by its last great king. Tukulti-Ninurta I brought the rival Babylonian king back to its capital of Assur. For 10 points, name this militant Mesopotamian civilization where Sennacherib ruled from Nineveh.

ANSWER: Assyria [or Assyrian Empire; Neo-Assyrian Empire; or Old Assyrian Empire; or Middle Assyrian Empire] <Bentley>

20. The extent to which this phenomenon is observed is given by " e to the negative d , times \sinh (sinh) d " according to a function named for Haldane. A high logarithm of the odds score suggests this effect is present. GWA studies have gradually replaced a method that observes this phenomenon to map quantitative trait or disease loci. This effect names the general "disequilibrium" in which the frequency of haplotype pAB doesn't (*) equal pA times pB. The extent of this phenomenon decreases as the number of map units, or centimorgans, increases, because it makes recombination more likely. Mendel's law of independent assortment explicitly ignores this effect. For 10 points, name this effect in which genes close to each other on a chromosome are often inherited together.

ANSWER: gene linkage [or word forms; prompt on genetic recombination] <Silverman>

21. This man names the first part of the apocryphal Gospel of Nicodemus, whose second part is the basis of the Harrowing of Hell. This man's wife, who was sometimes identified with Saint Procula, had a disturbing dream that prompted her to urge him to have nothing to do with a certain man. A comment about a sign prompted this man to declare, "What I have written, I have written." After another man stated that he came to bear witness to the truth, this man retorted, "What is (*) truth?" This man's custom to release a prisoner during Passover caused a crowd to demand him to release an insurrectionist named Barabbas. For 10 points, name this Roman official who, in the Gospel of Matthew, washed his hands and declared his innocence before delivering Jesus to be crucified.

ANSWER: Pontius **Pilate** [prompt on Pontius] <Cheng>



PACE NSC 2017 - Round 06 - Bonuses

1. This mathematical function solves the general population growth model " dP/dt ", such that the population growth rate, is proportional to P , the current population size. For 10 points each:

[10] Name this mathematical function used to model unlimited population growth.

ANSWER: **exponential** growth [or **e to the x** ; or **e to the t**]

[10] In pure exponential growth, the proportionality constant is usually represented by this lowercase letter. As a result, this letter names "strategist" species that have lots of offspring with very little parental investment, as opposed to K-selecting species.

ANSWER: **r**-selecting species

[10] Logistic models are more appropriate to describe limited population growth. According to the Verhulst logistic model, dP/dt equals rP times what dimensionless function of P and the carrying capacity K ?

ANSWER: **one minus** quantity **P -over- K** [or mathematical equivalents] <Grames>

2. Answer the following about *The Canterbury Tales*, for 10 points each.

[10] The tales were written by this English poet, who himself appears to tell the deliberately awful Tale of Sir Thopas.

ANSWER: **Geoffrey Chaucer** [accept either name]

[10] The first tale is narrated by this character, the father of the Squire. His story concerns the love for Emilie between Arcite and Palamon.

ANSWER: The **Knight**

[10] The Knight interrupts the tale of this other character, who describes the downfall of great men, such as Adam, Lucifer, and Julius Caesar.

ANSWER: The **Monk** <Jose>

3. Pope Clement VII commissioned this building, which includes a vestibule with a magnificent set of stairs divided into three flights that leads into the main structure. For 10 points each:

[10] Name this repository, which was built as the third story over several monasteries. Its architect designed it while working on the Medici Palace.

ANSWER: **Laurentian Library** [or **Biblioteca Medicea Laurenziana**]

[10] The Laurentian Library was designed by this architect and artist, whose sculptures include the marble *Pieta*.

ANSWER: **Michelangelo** [or Michelangelo di Lodovico **Buonarroti** Simoni]

[10] Michelangelo also used a staircase for the *cordonata* in his design to remodel the Piazza del Campidoglio in this city. Its other buildings include the Castel Sant'Angelo, sometimes called the Mausoleum of Hadrian.

ANSWER: **Rome** [or **Roma**] <Jose>

4. After seeing Jesus's crucifixion, this man returned thirty pieces of silver to the chief priests and declared, "I have sinned by betraying innocent blood." For 10 points each:

[10] Name this apostle who betrayed Jesus by identifying him with a kiss in the garden of Gethsemane (geth-SEH-muh-nee).

ANSWER: **Judas** Iscariot

[10] The chief priests used the thirty silver pieces to buy a type of field named after this profession, at which strangers were buried. According to the Gospel of Matthew, that purchase of a field named after this profession fulfilled a prophecy of Jeremiah.

ANSWER: **potter's** [accept **Potter's** Field]

[10] After a woman from this village named Mary anointed Jesus with perfume in the Gospel of John, Judas asked why the perfume wasn't sold to raise 300 *denarii* (deh-NAR-ee) for the poor instead. That woman from this village was the sister of Martha and Lazarus.

ANSWER: **Bethany** <Cheng>

5. The first museum to house this monument was built during the rule of Benito Mussolini. For 10 points each:

[10] Identify this monument originally located in the Field of Mars and dedicated to the goddess Pax. This monument is celebrated for the relief sculptures on its walls, and it was buried by the Tiber for much of its history.

ANSWER: **Ara Pacis** [accept, but DO NOT REVEAL, **Altar of** Augustan **Peace** or **Ara Pacis** Augustae]

[10] The Ara Pacis was built by the Senate to celebrate the return of this first Roman Emperor from Gaul in 13 BCE.

ANSWER: **Augustus** [or Gaius **Octavius**; or **Octavian**; or **Octavianus**; or Gaius Julius Caesar **Octavianus**; or Gaius Julius Caesar **Divi Filius**; or Caesar Divi Filius **Augustus**]

[10] Most scholars agree that Gaius is looking up at this woman in the Agrippa Group on the South Wall of the Ara Pacis. This wife of Augustus supposedly killed many rivals to the throne so that her son Tiberius could reign.

ANSWER: **Livia** Drusilla [or **Julia** Augusta] <Bentley>

6. In one poem, a voice addresses the speaker after he cries "Ah, God, take me from this place!" in one of these places. For 10 points each:

[10] Name this sort of place that provides the setting for another poem by that author, in which the speaker encounters a "creature, naked, bestial," who "held his heart in his hands, / And ate of it."

ANSWER: a **desert**

[10] "I walked in a desert" and "In the desert" are poems by this American author, whose parable-like poetry is collected in *The Black Riders*. The line "None of them knew the color of the sky" opens his story about a shipwreck.

ANSWER: Stephen **Crane**

[10] A poem of sorts about "Five an' twenty dead men" is sung by a wounded soldier in this Stephen Crane novel about Henry Fleming's experience in the Civil War.

ANSWER: *The **Red Badge of Courage*** <Brownstein>

7. The branch of math named after these constructs is also called metamathematics since it analyzes the logical form of many mathematical theories. For 10 points each:

[10] Name these constructs that can be classified as "formal" or "informal" depending on whether they are rigorously grounded in axioms and rules of inference.

ANSWER: **proofs**

[10] Proofs are typically introduced to mathematics students in this field. Students in this field use techniques like the SAS postulate and compass-straightedge construction to prove theorems.

ANSWER: **geometry**

[10] Possibly the most important result in proof theory is this theorem asserting that in a formal system meeting certain requirements, there exist statements that cannot be proven or disproven in that system's language. An extension of this theorem states that a consistent formal system with the aforementioned requirements cannot prove its own consistency.

ANSWER: **Gödel's incompleteness** theorem [accept **Gödel's first incompleteness** theorem; prompt on partial answer] <Aggarwal>

8. Answer the following about the developer of the rotten kid theorem, Chicago economist Gary Becker, for 10 points each.

[10] While a student at Chicago, Becker studied under this libertarian monetarist economist, who served as an advisor to Ronald Reagan and wrote *Capitalism and Freedom*.

ANSWER: Milton **Friedman**

[10] Becker theorized that competition among interest groups in democracies results in taxes and subsidies that create this economic situation, a decrease in consumer utility caused when an economy is unable to achieve equilibrium. It can be graphically represented as a triangle on supply and demand diagrams.

ANSWER: **deadweight loss** [accept **excess burden** or **allocative inefficiency**]

[10] Becker wrote a 1964 book titled for this particular subset of one of the primary factors of production, usually defined as the total of skills, knowledge, and experience possessed by a laborer or labor population.

ANSWER: **human capital** [prompt on partial answer] <Carson>

9. This woman's career began with a letter to the editor she wrote rebuking an article titled "What Girls Are Good For". For 10 points each:

[10] Identify this woman who, as a reporter for the *New York World*, went undercover in a mental institution for a series published with the title *Ten Days in a Mad-House*.

ANSWER: Nellie **Bly** [or Elizabeth Cochran **Seaman**; or Elizabeth Jane **Cochran**]

[10] This term, popularized in a Theodore Roosevelt speech, is often used to describe Nellie Bly and other investigative journalists in the Progressive era such as Ida Tarbell.

ANSWER: **muckrakers**

[10] This other muckraker used his position as managing editor of *McClure's Magazine* to write a series of articles attacking urban corruption later collected as *The Shame of the Cities*.

ANSWER: Lincoln **Steffens** [or Lincoln Joseph **Steffens**] <Bentley>

10. Newton C. Minow called this medium a "vast wasteland" while chairman of the FCC. For 10 points each:
[10] Name this medium whose rapidly moving images were criticized as a form of "soma" by Neil Postman in his seminal book *Amusing Ourselves to Death*. Postman contrasted this medium's shallowness with the rational argument promoted by print media.

ANSWER: **television** [or **TV**; do not accept or prompt on "movies" or other equivalents]

[10] In *Amusing Ourselves to Death*, Postman employs the phrase "the medium is the metaphor," a reference to this Canadian media theorist's aphorism "the medium is the message." This philosopher also wrote about the impact of television on cognitive organization in *The Gutenberg Galaxy*.

ANSWER: Marshall **McLuhan** [or Herbert Marshall **McLuhan**]

[10] This French philosopher referenced in Chapter 5, "The Peek-a-Boo World," pointed out the hidden assumptions behind the messages of television in works like *Mythologies*. He semiotically analyzed Honoré de Balzac's "Sarrasine" in his literary criticism *S/Z*.

ANSWER: Roland (Gérard) **Barthes** <Aggarwal>

11. In Knudson's two-hit hypothesis, both copies of these genes are inactivated. For 10 points each:

[10] Name these genes in which loss-of-function causes cancer, as contrasted with a proto-oncogene, in which gain-of-function leads to cancer.

ANSWER: **tumor suppressor** gene [or **TSGs**; or **tumor suppressors**]

[10] The most common class of tumor suppressor genes, including p53, p27, and p16, are named for their molecular weights measured in these specific units. These units are used to quantify the ladder on an SDS-PAGE gel.

ANSWER: **kilodaltons** [or **kD**; or **kDa**; or **kilograms per mole**; do not accept or prompt on "daltons" or "D"]

[10] The first tumor suppressor gene to be characterized was a protein named for the fact that it causes cancer of this organ in children. This tissue at the back of the eye contains photoreceptors called rods and cones.

ANSWER: **retina** <Silverman>

12. Answer the following about the theme of mirrors in the stories of Jorge Luis Borges, for 10 points each.

[10] The idea that "Mirrors and copulation are abominable, for they multiply the number of mankind" is referenced in this Borges story, which ends with the third title entity, a secret society, transforming Earth into the second title fictional world.

ANSWER: "**Tlön, Uqbar, Orbius Tertius**"

[10] The narrator sees all of the mirrors in the universe without being reflected in any while looking at this Borges story's title location, a point in Carlos Daneri's cellar at which all other places can be seen.

ANSWER: "The **Aleph**" [or "El **Aleph**"]

[10] The epigraph of Borges's story "The Circular Ruins," which reads "And if he left off dreaming about you...?", is taken from *Through the Looking Glass*, the second novel about this English girl who falls down a rabbit hole.

ANSWER: **Alice** <Brownstein>

13. Two of these people, a man and his wife, humbly kneel in prayer front of a door in the left panel of the Merode Altarpiece. For 10 points each:

[10] Identify this type of figure in the art world, frequently depicted on the periphery of altarpieces.

ANSWER: **donors** [or **patrons**]

[10] Enrico degli Scrovegni appears holding a replica of the Arena Chapel in the *Last Judgment* scene that this artist made for that building. This student of Cimabue also designed a painted crucifix for Santa Maria Novella in Florence.

ANSWER: **Giotto** [or Giotto di **Bondone**]

[10] Members of the Lenzi or possibly Berti families kneel at the base of the *Holy Trinity*, another work in Santa Maria Novella by this artist. Elsewhere in Florence, this artist painted *The Expulsion from the Garden of Eden* for the Brancacci Chapel, a building which also features his best known painting.

ANSWER: **Masaccio** [or **Tommaso** di Ser Giovanni di Simone] <Bentley>

14. Raoul, the vicomte de Bragelonne (**brah-GLUN**), is eventually adopted by this character, who is told that his alias "is not a man's name" but "the name of a mountain" by a commissary interrogating him at the behest of Monsieur Bonacieux (**boh-nah-syoo**). For 10 points each:

[10] Name this character who is eventually revealed to be the Count de la Fère (**fehr**), the former husband of Milady de Winter.

ANSWER: **Athos**, Count de la Fère

[10] Athos and his companions Porthos and Aramis first befriend the younger D'Artagnan (**dar-tahn-yan**) in this 1844 novel by Alexandre Dumas.

ANSWER: *The **Three Musketeers*** [or *Les **Trois Mousquetaires***]

[10] Like Milady de Winter, this villain in *The Three Musketeers* is an agent of Cardinal Richelieu. He steals D'Artagnan's letter of recommendation early in the novel and is later revealed to be the primary kidnapper of Constance Bonacieux.

ANSWER: Comte de **Rochefort** [or the **man from Meung**] <Carson>

15. In February 2016, a CNN chyron accidentally suggested that a Southern Hemisphere island nation, rather than this one, was in the process of building a fence at the Slovenian border. For 10 points each:

[10] Name this country governed by a "grand coalition" consisting of the People's Party and the Social Democratic Party. Its chancellor, Christian Kern, has offices in Ballhausplatz 2 in Vienna.

ANSWER: Republic of **Austria** [or Republik **Österreich**]

[10] In Austria's 2016 presidential election, this candidate for the far-right Freedom Party received a plurality of votes in the initial round but was defeated by Greens candidate Alexander van der Bellen in the second runoff.

ANSWER: Norbert Gerwald **Hofer**

[10] Hofer's campaign advocated breaking off talks that could lead to this process, which is also opposed by Germany and Cyprus. It became substantially less likely in the wake of the crackdown following the 2016 coup carried out by the supposedly Gülenist (**gyoo-LEN-ist**) Peace at Home Council.

ANSWER: accession of **Turkey** to the **European Union** [accept anything that indicates the Republic of **Turkey** or **Turkiye** Cumhuriyeti potentially joining the **European Union** or **EU**] <Jose>

16. The 1713 *asiento* granted Great Britain the right to carry out this practice in Latin America. For 10 points each:

[10] Identify this practice, made illegal in the British Empire through a namesake 1807 act. As part of this practice, millions of people were sent over the hellish "Middle Passage" to the New World.

ANSWER: African **slave trade**

[10] An astonishing two million slaves passed through this city, many disembarking at Valongo Wharf. From this capital city, the Golden Law was proclaimed in 1888.

ANSWER: **Rio** de Janeiro

[10] Under kings such as Tegbesu and Agonglo, this African kingdom profited from the slave trade. King Gezu broke this kingdom free from Oyo dominance and was served by female bodyguards called Amazons.

ANSWER: **Dahomey** [or **Danxome**; or **Danhome**; or **Fon**] <Bentley>

17. This composer notated a trill on E and F-sharp whose speed is "increased by imperceptible gradations" in a piece whose melody line is often transcribed for flute. For 10 points each:

[10] Name this Baroque composer whose works include "The Nightingale in Love" and "The Soul in Pain." He codified Baroque keyboard ornamentation and fingering in a 1716 treatise.

ANSWER: François **Couperin** le Grand

[10] Most of Couperin's (**coop-RANN**'s) surviving works, including "The Nightingale in Love" and "The Mysterious Barricades," are collected in four books of pieces for this Baroque keyboard instrument whose strings are plucked by a small quill.

ANSWER: **harpsichord**

[10] Couperin reconciled the Italian and French Baroque styles in a piece depicting this French composer frolicking with Arcangelo Corelli on Mount Parnassus. This composer of *Armide* died after accidentally stabbing his own foot with a heavy baton.

ANSWER: Jean-Baptiste **Lully** [or Giovanni Battista **Lulli**] <Kothari>

18. The guru Shukracharya helped this character acquire a huge number of celestial and legendary weapons, including the Vaishnavastra and the Pashupatastra. For 10 points each:

[10] Name this legendary warrior, a prince of Lanka who was given a new name after defeating and imprisoning the rider of Airavata.

ANSWER: **Indrajit** [or **Meghanada**]

[10] Indrajit was the son of this ten-headed Rakshasa, a devotee of Shiva who serves as the major antagonist of the *Ramayana*, in which he kidnaps Rama's wife Sita.

ANSWER: **Ravana** [or **Ravanan**]

[10] In exchange for not killing Indra, Indrajit was given a boon by this four-faced god, who served as the "creator" in the Hindu Trimurti.

ANSWER: **Brahma** [do not accept or prompt on "Brahman"] <Carson>

19. This force arises from the increasing magnitude of pressure forces acting on a body as depth increases. For 10 points each:

[10] Identify this force that is opposed to gravity. The Plimsoll Mark is used to identify when this force is not enough to compensate for overloading.

ANSWER: **buoyant** force [or **buoyancy**]

[10] This Greek mathematician's namesake principle states that a submerged object is subject to an upwards buoyant force equal to the weight of the displaced fluid. This man supposedly used the principle to prove that a king's crown wasn't made of solid gold.

ANSWER: **Archimedes** of Syracuse

[10] A higher value for the Brunt–Väisälä frequency, also known as the buoyancy frequency, corresponds to a greater ambient form of this property in a system. A vertical piece of equipment on an airplane governs the yaw or directional form of this property for the plane.

ANSWER: **stability** <Bentley>

20. An early incident of a message being "hacked" was when a magician named Nevil Maskelyne spelled out "rats" in Morse code to prove that this man's classified broadcast to Cornwall was not secure. For 10 points each:

[10] Identify this inventor who founded the Wireless Telegraph & Signal Company, later named for him, to market his patents in wireless telegraphy.

ANSWER: Guglielmo **Marconi** [or Guglielmo Marconi, 1st Marquis of **Marconi**]

[10] Jack Phillips and Harold Bride were employed by the Marconi Company as radio operators on this ship, which struck an iceberg and sunk on its maiden voyage on April 15, 1912.

ANSWER: RMS **Titanic**

[10] This Chancellor of Exchequer was accused of insider trading in shares of the Marconi Company two years after he attacked German aggression in the Agadir crisis during his Mansion House speech.

ANSWER: David **Lloyd George**, 1st Earl Lloyd-George of Dwyfor <Bentley>

21. People attending public executions would often buy works of this type, which consisted of a woodcut and a description of the person being hanged. For 10 points each:

[10] Identify these large, single-sided publications. Peddlers hawked ballads in this format until the rise of newspapers.

ANSWER: **broadside**s [or **broadsheet**s]

[10] The Dunlap broadside was a relatively poorly printed version of this document. The latter part of this document blames King George III for all sorts of problems, and its more famous preamble references "life, liberty and the pursuit of happiness".

ANSWER: **Declaration of Independence**

[10] Pamphlets, unlike broadsides, continued to be popular into the 20th century. This 1919 Supreme Court case convicted a man who gave out an anti-war pamphlet written in Yiddish. Oliver Wendell Holmes reversed his opinion from *Schenck* to dissent in this case.

ANSWER: **Abrams** v. *United States* [or Jacob **Abrams**, et al. v. *United States*] <Bentley>