



NSC 2019 - Round 05 - Tossups

1. **The common name for this statement was coined in a 1966 book by George Stigler, who supposedly demonstrated it by shuffling chairs at a dinner party. The paper that formulated this statement illustrated it with such examples as an English windmill and feuding hotels in Florida. Defined property rights and low transaction costs are necessary for the validity of this statement, which was developed to analyze whether (*) radio frequencies should be regulated. As formulated in "The Problem of Social Cost," this statement suggests that property owners will bargain without government intervention to determine liability for damage due to pollution. For 10 points, name this theorem about the resolution of externalities, named for a Chicago School economist.**

ANSWER: Coase theorem [accept Coase's theorem]

<Alston, Social Science - Economics>

2. **An elderly romance novelist finances a character's visits to one of these places that a woman contrasts with a much worse one named Wymark. In between staying at one of these places, a book's narrator starts hemorrhaging after she sleeps with a math professor named Irwin. That same character, a former intern at a magazine called *Ladies' Day*, encounters her friend Joan Gilling at one of these places. Billy (*) Bibbitt sleeps with a prostitute named Candy in one of these places. Time spent at one of these places temporarily lifts the metaphorical title object from Esther Greenwood's head in the only novel by Sylvia Plath. For 10 points, Randle P. McMurphy is forced to get a lobotomy in what type of place, the setting of *One Flew Over the Cuckoo's Nest*?**

ANSWER: insane asylum [or mental institution; or psychiatric hospital; prompt on hospital]

<Bentley, Literature - American>

3. **In early music, the function of these musical elements was performed by passages consisting of a sixth expanding by step in contrary motion to an octave, called a *clausula vera* ("CLOW-soo-lie VAIR-eye"). Two consecutive dissonances, usually at an interval of a major or minor second, exemplify one of these musical elements called a "clash" named for Arcangelo Corelli. The so-called "Amen" progression exemplifies one of these elements which passes through the subdominant, but not the dominant, and is called a (*) "plagal" one. Unexpected, dissonant chords come at the end of "false" or "deceptive" examples of these elements, which intentionally fail to create a sense of finality. For 10 points, name these chord progressions that resolve a musical phrase or piece.**

ANSWER: cadences [accept cadenzas; accept Corelli cadences or plagal cadences or false cadences; prompt on resolutions; prompt on clash before "clash"]

<Alston, Fine Arts - Music>

4. A set of basis functions that are solutions to Laplace's equation are so-named since they were generated by extracting out an r/l factor under this system. Systems in which there is symmetry around a single point and not a whole line, such as models of the geoid, often use a set of orthogonal harmonic functions named for this system. The formula for this system's volume (*) element is the square of the distance times the sine of an angle times three infinitesimals. Weather systems over a planet may be specified using this coordinate system's radial, azimuthal, and zenith components, represented as r , ϕ , and θ respectively. For 10 points, what 3-dimensional coordinate system is formed by adding a third angle to the 2D polar coordinate system?

ANSWER: **spherical** coordinates [accept **sphere** coordinates]

<Jose, Science - Math>

5. Inside this man's luggage, U.S. customs agents found diaper bags containing 24 gold bricks inscribed "To my husband, on our 24th anniversary." A U.S. threat to cut off \$180 million in aid to this leader's government helped convince him to not steal his last election, in a triumph by ambassador Stephen Bosworth and envoy Philip Habib. After this man escaped to Hickam Air Force Base in Hawaii, nearly (*) 3,000 pairs of shoes were found in his wife's closet. The Presidential Commission on Good Government was set up to retrieve the wealth this leader stole after he was overthrown in the 1986 People Power Revolution and replaced by Corazon Aquino ("koh-rah-SOHN ah-KEE-noh"). For 10 points, name this husband of Imelda and kleptocratic dictator of the Philippines.

ANSWER: Ferdinand **Marcos** [accept Ferdinand Emmanuel Edralin **Marcos** Sr.]

<Alston, History - World>

6. Saint Zenobius, the first Bishop of Florence, is often pictured with a cart, owing to his performing a miracle of this type. 2 ("Second") Kings recounts a story where a man put "his eyes on his eyes, and his hands on his hands" to perform this action on a child who subsequently sneezes seven times. Elisha performed this action on the son of the woman of Shunem. After healing the bleeding woman, Jesus says, "Be not afraid, only believe" and performs this action on (*) Jairus' daughter. Another miracle of this sort follows the healing of a blind man as the last of the seven signs in the Gospel of John and is performed on a man from Bethany. For 10 points, name this type of miracle that Jesus performed on Lazarus, causing him to rise from his tomb.

ANSWER: **raising** someone from the **dead** [accept **resurrection** or equivalent]

<Bentley, RMP - Judeo-Christian, Bible>

7. PDB files only contain positions for these substituents if the protein structures were solved using NMR, not X-ray diffraction. United atom force fields usually coarse-grain over these substituents. Steric clash between two of these substituents at flagpole positions destabilizes boat conformers. This group is assigned the lowest possible priority in CIP nomenclature. Primary carbons are bonded to (*) three of these substituents. The formula "2C plus N plus two" gives the maximum number of them in an organic molecule. This group makes up the side chain of glycine. These atoms are typically implicit in organic structures and are represented by white spheres in molecular modelling kits. For 10 points, name these atoms that weigh one dalton.

ANSWER: **hydrogens** [or **hydrogen** atoms; or **H**; do not accept or prompt on hydride]

<Silverman, Science - Chemistry>

8. This novel lends its title to an Ahmed Saadawi book about junk-dealer Hadi set in Baghdad during the American occupation. A mime named Thomas Potter Cook popularized this novel in a stage adaptation where he dressed in a blue body stocking. A recent annotated edition of this novel "for scientists" is introduced by Guillermo del Toro and has an illustration of the (*) Villa Diodati, where the story was conceived during the "Year Without a Summer" alongside John Polidori's "The Vampyre." The iconic version of this novel's anti-hero first appeared in a 1931 Boris Karloff film. A humorous take on this novel has Igor assisting its "young" title character in a Mel Brooks comedy. For 10 points, name this novel about a synthetic monster by Mary Shelley.

ANSWER: Frankenstein; or, *The Modern Prometheus* [accept Frankenstein in Baghdad; accept Young Frankenstein]

<Bentley, Other - Other Academic and General Knowledge>

9. This ruler founded a city where Herophilus soon conducted public dissections at a school he co-founded with Erasistratus. His architect Dinocrates planned a city that replaced Naucratis as a cultural center. A mispronunciation of "paidion" ("PYE-dee-on") led this man to believe an oracle had called him "son of god" at Siwa, according to Quintus Curtius Rufus. He had Batis dragged to death after his siege of Gaza, where he reused engines from a siege of (*) Tyre. Allegedly the son of Zeus-Ammon, he was declared pharaoh after ending the Achaemenid Empire. This man defeated Darius III at the Battles of Issus and Gaugamela. For 10 points, name this Macedonian ruler who lent his name to the Ptolemaic capital city, later home to a legendary library.

ANSWER: Alexander the Great [or Alexander III of Macedon; accept Alexandros in place of "Alexander"]

<Smith, History - European>

10. In this novel, an artist says he was commissioned to illustrate a chair's back by depicting a character that is the combination of the two goddesses Justice and Victory. The protagonist of this novel observes a text called *The Torments Grete Had to Suffer from Her Husband Hans* and other weird books while in an office. This novel's protagonist seeks advice from a now-destitute businessman named Block and the painter (*) Titorelli. On the day before the protagonist's 31st birthday, two men show up and take him to a quarry, where they stab and kill him, ending this novel. Its protagonist is served by the lawyer Herr Huld after he is arrested for an unknown crime. The line "Someone must have been telling lies about Josef K" opens, for 10 points, what novel by Franz Kafka?

ANSWER: *The Trial* [accept *Der Prozess*]

<Singh, Literature - European>

11. The virial theorem can be used to show that the time-averaged kinetic and potential energies for these systems are equal. A crystal made entirely of these systems coupled together has infinite thermal conductivity and zero thermal expansion. Quantum systems of this type have constant energy level spacing and have wavefunctions given by a Gaussian term times a (*) Hermite ("air-MEET") polynomial. Classical systems of this type are described by differential equations in which the second time derivative of the displacement is proportional to the displacement. If friction is present, these systems can be categorized as underdamped, overdamped, or critically damped. For 10 points, name these systems which experience a restoring force proportional to their displacement.

ANSWER: harmonic oscillators [prompt on oscillators; accept simple harmonic oscillators or damped harmonic oscillators or quantum harmonic oscillators]

<Rosenberg, Science - Physics>

12. In one episode of this book, Father Purdon compares himself to a "spiritual accountant." This book contains a story in which the protagonist wonders if quoting Robert Browning would go over the heads of his listeners. That story's climactic scene depicts a woman replying "I think he died for me." This book's story about the aftermath of Tom Kernan's fall down a flight of stairs is titled (*) "Grace." In another story from this book, Mr. Bartell D'Arcy's singing of "The Lass of Aughrim" reminds Gretta of her deceased childhood lover. This book ends with the image of snow falling on the grave of Michael Furey as Gabriel Conroy looks out a window. For 10 points, what book by James Joyce contains a story called "The Dead"?

ANSWER: Dubliners

<Mao, Literature - British>

13. The composer of this opera was convinced to write it by Camille Du Locle ("LOH-cluh") after its commissioner threatened to give Charles Gounod ("goo-NO") or Richard Wagner the job instead. Its premiere was delayed because the ongoing Franco-Prussian War delayed the shipping of costumes designed by Auguste Mariette. Mariette also wrote the story that inspired this opera, which was translated into a libretto by Antonio Ghislanzoni ("ghees-lahn-ZOH-nee") that includes the aria (*) "Ritorna vincitor" ("ree-TOR-nah VEEN-chee-tour"). This opera's premiere at the Khedivial Opera House used 12 live elephants for the "triumphal march" in which the protagonist's captive father Amonasro is paraded. For 10 points, name this Giuseppe Verdi opera in which Radames is executed and the title Ethiopian princess dies alongside him.

ANSWER: Aida

<Alston, Fine Arts - Opera>

14. One leader of these people was known as Buck Watie before taking a new name honoring the second President of the Confederation Congress. The Red Chief of these people was responsible for selecting the War Woman, while their White Chief made laws. A member of this tribe named Junaluska stopped a tomahawk-wielding enemy to save the life of the US commander at Horseshoe Bend. Elias Boudinot's (*) *Phoenix* newspaper catered to these people until the discovery of gold near Dahlonega. These people prevailed in a Supreme Court case against Samuel Austin Worcester ("wooster") but were soon subjected to the Treaty of New Echota under Andrew Jackson. For 10 points, name this Native American tribe who were forced from Georgia along the Trail of Tears.

ANSWER: Cherokee [accept Tsalagi; prompt on Native Americans or Indians]

<Bentley, History - American>

15. Two of these people with "architecturally structured, rigorously formed" figures are shown on a pink road in a series by Ernst Kirchner ("KEERSH-nur") which uses jagged, brightly colored forms to depict these people in Berlin. One of these people called "The Golden Helmet" is depicted in a painting by Henri de Toulouse-Lautrec, who created 11 lithographs and over 50 prints depicting them. In response to Henri Matisse's *The Joy of Life*, another artist depicted several people with this occupation around a triangular (*) table with a slice of melon and grapes. That proto-Cubist painting depicts five people with this job, two of whom have African masks for faces. For 10 points, give this job of the nude women depicted in Picasso's *Les Femmes d'Alger* ("luh deh-mwah-ZELL dah-vee-NYON").

ANSWER: prostitutes [accept courtesans or streetwalkers or whores; accept models before "pink road" but do not accept or prompt after; prompt on women before "this occupation"; do not accept or prompt on "dancer"]

<Alston, Fine Arts - Painting>

16. A witness codenamed Dua incorrectly claims that members of this non-governmental organization have a secret handshake and make up 40% of all overseas US military personnel. In 2018, this organization reduced a weekly obligation to two hours and made Gerrit W. Gong one of its first non-Caucasian senior leaders. Although not a member of this organization, the Turkish media has accused Andrew Brunson of being part of a "gang" of members of this faith. An ex-CIA officer of this faith founded (*) Stand Up Republic and received 21% of the presidential vote in his home state in 2016. Evan McMullin is a member of this faith, as is a former Republican presidential nominee elected to the Senate in 2018. For 10 points, name this faith of Utah's Mitt Romney.

ANSWER: Mormon [or the Mormon church; or Elders in the Mormon church; or members of the Church of Jesus of Latter-Day Saints; or members of the LDS church; prompt on Christian]

<Bentley, Current Events - U.S.>

17. Interdicts placed on individuals engaged in this activity were resolved by the Mixed Commission Courts set up by Great Britain, the Netherlands, Spain, and Portugal. Engaging in this activity, which was declared to be a form of piracy by the Webster-Ashburton Treaty, was the main reason that people visited the island of Gorée ("goh-RAY"). By the terms of the Treaty of Utrecht, Britain was given an exclusive right, or (*) *asiento* ("ah-SYEN-toh"), on this activity in the Spanish empire. In 1807, Britain established a naval squadron to hunt down people engaged in this activity after a law declaring it illegal was passed thanks to lobbying by William Wilberforce. The Middle Passage was one route of, for 10 points, what traffic of involuntary servants?

ANSWER: the slave trade [accept answers that refer to selling slaves or transporting slaves across the ocean; accept African slave trade; prompt on slavery or human trafficking; prompt on Middle Passage before mentioned]

<Alston, History - Cross, Historiography, and Miscellaneous>

18. Two answers required. A simile compares one of these characters striking the other to the evening star passing through a still night sky. In a speech, one of these two characters explains to the other that there can be no covenants between men and lions because they continually hate each other. One of these two men recalls an episode in which ships were set on fire while removing the other's armor. (*) Athena appears as the shade of Deiphobus ("day-FOH-bus") to convince one of these two men to not flee the "swift-footed" other one. The body of one of these men is properly buried after being ransomed by his father, following an episode in which the other of them drags that body around behind a chariot. For 10 points, name these two warriors, a son of Priam and the Greek hero who kills him.

ANSWER: Achilles [or Akhilleus] AND Hector [do not accept or prompt on partial answers]

<Alston, RMP - Greco-Roman Mythology>

19. A Bay Area biotech startup named for the city of Memphis commercializes this substance. An oxygen-carrying protein isolated from *Glycine max* is brewed in yeast and then added to simulate the Maillard reaction that occurs when this material is heated. Controversially, this substance is still produced with FBS to culture myosatellite stem cells inside a scaffold until they form fibers. Sergey Brin funded a version of this substance which cost 300,000 dollars per (*) pound and is purely synthetic. When this material is cultured in the lab, it's called "clean" since it reduces carbon emissions. Leghemoglobin is added to imitate this substance by Impossible Foods to make their products "bleed." For 10 points, name this substance whose taste is approximated using soy protein.

ANSWER: cultured meat [or plant-based meat; or similar answers; or fake meat or similar answers; or beef; or chicken; or any other specific kind of meat; accept the Impossible burger or more specific answers that are meats; prompt on muscle tissue; do not accept or prompt on "fish"]

<Silverman, Science - Engineering and Miscellaneous>

20. A poet with this surname is known for "no title" poems, such as one about a fifty-stringed instrument. Another poet with this surname was said to have written mostly on horseback, and was excluded from an anthology titled *Three Hundred Poems* of a certain time period. A translation of another writer of this surname laments "at sixteen you departed, you went ... by the river of swirling eddies"; the image of frost on the ground appears in his "Quiet (*) Night Thought." "The River Merchant's Wife: A Letter" is an adaptation of that writer with this surname, who proclaimed that he, his shadow, and the title heavenly body make them "three men" in "Drinking Alone by Moonlight." For 10 points, a Chinese poet named "Bai" or "Po" had what surname?

ANSWER: Li [accept Li Shangyin, Li Shangyin, Li Bai, or Li Po; accept "Three Lis"; accept RiHaku]
<Smith, Literature - World and Miscellaneous>

21. Cell culture incubators are typically named for the fact that they maintain a high pressure of this gas. The amount of this gas dissolved in a liquid is measured by titration with bromothymol blue. *Synechococcus* evolved microcompartments to concentrate this gas. Stromatolites likely reduced the concentration of this gas in the early atmosphere. Since addition of this gas to (*) RuBP is catalyzed by a highly inefficient enzyme, some organisms concentrate it in bundle-sheath cells. Increasing the partial pressure of this gas in the blood leads to acidosis. Yeast ferment glucose to ethanol and this gas, but in aerobic situations, a mole of it is formed per mole of pyruvate in the Krebs cycle. For 10 points, name this gas produced during cellular respiration.

ANSWER: carbon dioxide [or CO₂]
<Silverman, Science - Biology>



NSC 2019 - Round 05 - Bonuses

1. An event in which a gene's function on one chromosome disappears is known as the loss of this phenomenon. For 10 points each:

[10] Name this property of a locus containing two different alleles for a gene. It is typically notated with one uppercase and one lowercase letter for that gene.

ANSWER: **heterozygous** [accept word forms like **heterozygosity**]

[10] Loss of heterozygosity is most frequently cited as a cause of this disease. Knudson's ("kuh-NOOD-son'z") hypothesis posits that this disease often occurs with loss of heterozygosity, followed by a point mutation in genes like Rb.

ANSWER: **cancer** [or any specific types of cancer; or **retinoblastoma**]

[10] The two-hits in Knudson's hypothesis are mutations in these two classes of genes. When one of them mutates, cells stop undergoing apoptosis, while the other tends to promote apoptosis.

ANSWER: **proto-oncogenes** and **tumor suppressor genes** [accept **proto-oncogenes** and **antioncogenes**; do not accept or prompt on just "oncogene"]

<Silverman, Science - Biology>

2. Stanislaw Sosabowski ("soh-sah-BOV-skee") was blamed for the failure of an operation in this country after he didn't parachute his forces into battle due to heavy fog. For ten points each:

[10] Name this country, the site of the failed Operation Market Garden, which aimed to capture nine bridges that would be used for an Allied invasion of Germany.

ANSWER: The **Netherlands** [accept **Nederlands**; prompt on **Holland**]

[10] In 1940, the Netherlands was invaded by Germany on the same day as this neighboring country, the site of the Ardennes Forest.

ANSWER: **Belgium** [accept Kingdom of **Belgium** or Royaume de **Belgique** or Königreich **Belgien** or Koninkrijk **België**]

[10] The Netherlands was ruled by this monarch during both World Wars. This monarch reportedly told Kaiser Wilhelm II that Dutch dikes were 10 feet high after the Kaiser bragged about his seven foot tall soldiers.

ANSWER: Queen **Wilhelmina** [accept **Wilhelmina** Helena Pauline Maria]

<Singh, History - European>

3. For 10 points each, answer the following about authors who assumed fictional personas in their writings.
[10] This author created several fake identities to create his works, such as *Mensagem*. His translator, Richard Zenith, claims he once trolled a dinner party by showing up as his heteronym Ricardo Reis, and insisting his creator had died.

ANSWER: Fernando **Pessoa** [or Fernando António Nogueira **Pessoa**]

[10] This author assumed the identity of "Vivian Darkbloom" to write a preface to his novel in which Humbert Humbert sexually abuses the title girl, *Lolita*.

ANSWER: Vladimir **Nabokov** [or Vladimir Vladimirovich **Nabokov**; prompt on Vladimir **Sirin**]

[10] A fictional version of this French author is suggested to have created "that great scroll" on which everything is written, which appears in his novel *Jacques the Fatalist*.

ANSWER: Denis **Diderot**

<Jose, Literature - European>

4. One of the earliest of the *spiels* or plays written for this holiday was composed in Yiddish by Gumprecht of Szczebrzeszyn ("stub-zesch-shen"). For 10 points each:

[10] Name this Jewish holiday where children also dress up as characters from the *megillah*. The Book of Esther is read during this holiday.

ANSWER: **Purim** [accept Festival of **Lots**]

[10] Another Purim tradition is to hiss and shake rattles when the name of this villain of the Book of Esther is mentioned.

ANSWER: **Haman** [accept **Haman** the Agagite or **Haman** the evil]

[10] In Mantua, Esther Plays were sometimes performed before Christian audiences. The Gonzaga court commissioned a Jewish troupe to re-enact this figure's saving of the city of Bethulia, related in a namesake deuterocanonical book of the Bible.

ANSWER: **Judith** [accept **Yehudit**; accept Book of **Judith**]

<Bentley, RMP - Judeo-Christian, Bible>

5. The artist Ugo da Carpi attempted to patent a process for applying this technique to printmaking. For 10 points each:

[10] Give this art term that comes from the Italian words for "light" and "shadow." A Baroque Italian artist used it for his paintings of *The Supper at Emmaus* ("eh-MAY-us").

ANSWER: **chiaroscuro** ("KYAH-roh-SKOO-roh")

[10] This Italian artist, a notorious brawler and criminal, used *chiaroscuro* in those versions of *The Supper at Emmaus*, as well as in his *The Calling of Saint Matthew*.

ANSWER: **Caravaggio** [accept Michelangelo **Merisi** da Caravaggio]

[10] Another master of the chiaroscuro print, Andrea Andreani ("ahn-dray-AH-nee"), produced a 12-foot-wide print of this artist's nine-panel series *The Triumphs of Caesar*. This artist also made several works for the Ducal Palace in Mantua.

ANSWER: Andrea **Mantegna** ("man-TAIN-yah")

<Bentley, Fine Arts - Painting>

6. These two characters got their name from a poem by John Byrom, which satirized the rivalry of G.F. Handel and Giovanni Bononcini. For 10 points each:

[10] Name these oafish identical characters who act out a nursery rhyme where they agree to have a battle over the fact that one spoiled the other's rattle.

ANSWER: **Tweedledum** AND **Tweedledee** [accept answers in either order]

[10] Tweedledum and Tweedledee appear in this novel by Lewis Carroll. The *dramatis personae* in early editions of this novel claims Tweedledum and Tweedledee are the White King and Queen's rooks.

ANSWER: **Through the Looking Glass, and What Alice Found There**

[10] This illustrator worked with Carroll to produce images of Tweedledum and Tweedledee; he also created engraved images for *Alice's Adventures in Wonderland*.

ANSWER: John **Tenniel**

<Dees, Literature - British>

7. This man, Ronald Graham, and Oren Patashnik wrote the textbook *Concrete Mathematics*. For 10 points each:

[10] Name this author, who wrote a multi-volume textbook that extensively uses the MIX language to present its algorithms, *The Art of Computer Programming*.

ANSWER: Donald **Knuth**

[10] Knuth introduced this typesetting program, which is often used to author papers featuring mathematical equations. Leslie Lamport made a namesake extension to this program that is more user-friendly.

ANSWER: **Tex** ("tekk") [accept answers that sound like "TEX"; accept **LaTex** ("Lay-tek") or answers that sound like "latex"]

[10] Donald Knuth, Vaughan Pratt, and James Morris name an algorithm that efficiently performs this task.

ANSWER: **string searching** [accept answers indicating **searching** within **text** or **searching** within **strings** or **string matching** or finding a **substring**]

<Jose, Science - Computer Science>

8. Identify the following about some of California's iconic roads, for 10 points each:

[10] The scenic Pacific Coast Highway passes through Point Mugu State Park in this county northwest of Los Angeles County. This county shares its name with a shop-lined boulevard in the San Fernando Valley filled with vampires in Tom Petty's "Free Fallin'."

ANSWER: **Ventura** County [accept **Ventura** Boulevard]

[10] This California city's storied cable cars bring passengers to the top of Lombard Street, often called the "crookedest street in America."

ANSWER: **San Francisco**

[10] The 28-mile-long Silverado Trail in this region is renowned for its beauty. A castle imported brick by brick from Italy, *Castello di Amorosa*, is at one of the several wineries in this region.

ANSWER: **Napa** Valley [or **Napa** County]

<Jose, Geography - United States>

9. These objects replaced a pair of silver ones from L. Frank Baum's original novel and were used to show off the Technicolor process. For 10 points each:

[10] Give both the color and type of clothing of these objects. In *The Wizard of Oz* they are worn by Dorothy, who taps them together to return to Kansas.

ANSWER: **red shoes** [accept **slippers** in place of "shoes"; accept **ruby** in place of "red"]

[10] These two British men directed and produced a 1948 adaptation of a Hans Christian Andersen story titled *The Red Shoes*. Their other films include *Black Narcissus*.

ANSWER: Michael **Powell** AND Emeric **Pressburger** [accept **Powell & Pressburger**; accept The **Archers**]

[10] Jodie Foster wore a pair of red wedges in her portrayal of the teenager Iris in this film. In one of its iconic scenes, Robert de Niro's character looks into a mirror and asks "You talkin' to me?"

ANSWER: **Taxi Driver** (by Martin Scorsese.)

<Alston, Fine Arts - Film>

10. In 1607 there were only 550 European men living here, and its main port had silted over. For 10 points each:

[10] Name this modern-day country where Spanish treasure was hauled overland. Vasco Núñez de Balboa crossed its namesake isthmus to spot the Pacific Ocean.

ANSWER: **Panama** [or Republic of **Panama**]

[10] Some of the only formal institutions in Panama were five of these establishments, which dominated the economy of colonial Lima. *Donadas* tended to be people of high social class who lived in these places.

ANSWER: **convents** [or **nunnery**; prompt on **monastery** or **abbey** or **priory**]

[10] For the most part, Panama did not develop this system of drawing tribute from native populations which was popular in the rest of Spanish America before the passage of the New Laws.

ANSWER: **encomienda**

<Bentley, History - World>

11. In this author's novel *Here I Am*, an earthquake sets the stage for an Arab invasion of Israel. For 10 points each:

[10] Name this contemporary author. He documented a fictional version of himself traveling to Ukraine in his debut novel, *Everything Is Illuminated*.

ANSWER: Jonathan Safran **Foer**

[10] Foer's novel *Extremely Loud & Incredibly Close* is narrated by a boy named Oskar, whose father was killed in this year. Amy Waldman's novel *The Submission* concerns a Muslim architect who wins a contest to design a memorial for an incident in this year.

ANSWER: **2001**

[10] This man responded to the 9/11 attacks with the comic *In the Shadow of No Towers*. His graphic novel about the Holocaust, *Maus*, won the Pulitzer Prize in 1992.

ANSWER: Art **Spiegelman** [or Itzhak Avraham ben **Zeev**]

<Bentley, Literature - American>

12. Identify the following about pioneering African American prosecutor Eunice Carter, for 10 points each.

[10] Carter worked closely with Thomas E. Dewey when Dewey was still a Manhattan special prosecutor.

Dewey would later be defeated by this man in the close presidential election of 1948.

ANSWER: Harry S. **Truman**

[10] Carter helped prosecute this mobster, an early associate of Meyer Lansky who was the first head of the Genovese family. He later supposedly helped in the Allied invasion of Sicily.

ANSWER: Lucky **Luciano** [or Charles **Luciano**; or Salvatore **Lucania**; or Charlie **Luciano**]

[10] Carter was appointed to the Committee on Conditions in Harlem by this mayor who presided over the 1939 New York World's Fair and once destroyed a pinball machine with a sledgehammer.

ANSWER: Fiorello **LaGuardia** [or Fiorello Henry **La Guardia**; or Fiorello Enrico **La Guardia**]

<Bentley, History - American>

13. The principal axes of rotation are the unit eigenvectors of this construct. For 10 points each:

[10] Name this construct. Multiplying the angular velocity vector by this construct transforms it to the angular momentum vector.

ANSWER: moment of **inertia tensor** [or moment of **inertia matrix**, prompt on **moment of inertia**]

[10] The inertia tensor is a matrix representation of the moment of inertia, which is the rotational analog of this quantity. Its SI unit is the kilogram.

ANSWER: **mass**

[10] The inertia tensor is a valid representation when considering the dynamics of bodies with this property, meaning that they are not deformed when subject to a force. Euler names a set of equations that describe the rotations of bodies with this property.

ANSWER: **rigidity** [accept **rigid** bodies]

<French, Science - Physics>

14. This character gives millet dumplings to a dog, a pheasant, and a monkey to secure their assistance in assaulting bands of *oni* that were terrorizing the countryside. For 10 points each:

[10] Name this folk hero who grew into a warrior after an elderly couple found him inside a giant peach that fell from the sky.

ANSWER: **Momotaro**

[10] The peach that fell from heaven originally landed in one of these geographical features. Five of them, including the Acheron ("AK-er-on") and the Lethe ("LEE-thee"), encircled the underworld in Greek myth.

ANSWER: **rivers** [prompt on **waterways**; do not accept or prompt on "ocean(s)" or "lake(s)"]

[10] In Japanese folklore, rivers were also home to these amphibious *yokai* who carry water in a depression on their heads. They are fond of wrestling and cucumbers.

ANSWER: **kappa**

<Jose, RMP - World Mythology>

15. The first one of these procedures was run by the World War I psychologist W. H. R. Rivers, who was studying the effects of caffeine on patients. For 10 points each:

[10] Name this kind of experiment in which *both* the researcher *and* the participant are unaware of certain parameters that govern it.

ANSWER: **double-blind** experiment [prompt on **blind**-experiment]

[10] A double-blind experiment will often use a drug candidate and this kind of dummy drug, which has no biological effects. However, there may still be a psychological effect from taking one of these.

ANSWER: **placebo** [accept **placebo** effect]

[10] A researcher may run a double-blind experiment to eliminate bias and thus remove the "confounding" or "lurking" type of these things.

ANSWER: **variables** [or independent **variables** or dependent **variables** or lurking **variables** or confounding **variables**]

<Jose, Social Science - Psychology>

16. A character in this story becomes close with a pet monkey when she saves the monkey from being whipped for stealing a tangerine. For 10 points each:

[10] Name this story, in which a lord burns alive the daughter of a painter so that the painter can complete his masterpiece, the title artwork.

ANSWER: "**Hell Screen**" [accept "**Jigokuhen**"]

[10] "Hell Screen" is by this Japanese author, whose other short stories include "In a Grove" and "Rashōmon."

ANSWER: Ryūnosuke **Akutagawa** [accept in either order]

[10] Akutagawa's other works include "A Report on a Journey" to this city that he visited. J. G. Ballard's time growing up in this city under the Japanese occupation inspired the autobiographical *Empire of the Sun*.

ANSWER: **Shanghai**

<Morrison, Literature - World and Miscellaneous>

17. Many objects move as a result of radiation pressure. For 10 points each:

[10] The tails of these "dirty snowballs" are caused by the radiation pressure of starlight imparting kinetic energy to its icy surface.

ANSWER: **comets**

[10] This bizarre decrease in an object's velocity was caused by anisotropic radiation pressure as a certain spacecraft made it further and further away from the Solar System. It was called an anomaly since it could not originally be explained.

ANSWER: **Pioneer** anomaly [or **Pioneer** effect]

[10] These theoretical objects would move via large mirrors collecting photons that exert a radiation pressure on the vehicle. In 1976 the Jet Propulsion Laboratory proposed building this kind of vehicle to rendezvous with Halley's Comet.

ANSWER: **solar sails** [accept **light sails** or **photon** sails]

<Jose, Science - Astronomy>

18. In this program, children who were "racially pure" were abducted and given to "Aryan" families to be raised. For 10 points each:

[10] Give the German name of this Nazi program, many of whose records were destroyed before the end of the war. It means "Fount of Life."

ANSWER: **Lebensborn**

[10] During this country's Dirty War, children were secretly taken by the state and raised by families that supported the right-wing dictatorship of Jorge Videla.

ANSWER: **Argentina** [or **Argentine** Republic]

[10] Large numbers of children from this ethnic group were abducted after massacres carried out by forces loyal to Efraín Ríos Montt in Guatemala. Rigoberta Menchú, a member of this indigenous group, won the Nobel Peace Prize in 1992.

ANSWER: **Maya** [accept **K'iche'** Maya; prompt on indigenous peoples or Native Americans or Indians]

<Bentley, History - Cross, Historiography, and Miscellaneous>

19. A 1973 manifesto named for this movement asserts "No deity will save us; we must save ourselves," and critiques the optimism that paved the way to World War II. For 10 points each:

[10] Name this movement. It once referred to Renaissance philosophies that put man at the center of the world.

ANSWER: **humanism** [accept **humanist** or **Humanist Manifesto**]

[10] This philosopher asserted that "existentialism is a humanism" in one of his works. His book *Being and Nothingness* discusses a form of self-deception he termed "bad faith."

ANSWER: Jean-Paul **Sartre** [or Jean-Paul Charles Aymard **Sartre**]

[10] This other philosopher distanced himself from existentialism in a reply to Jean-Paul Sartre that was published as his *Letter on Humanism*. His other works include an analysis of Friedrich Holderlin's poem *The Ister*.

ANSWER: Martin **Heidegger**

<Jose, RMP - Philosophy>

20. This composer preferred to be called a "phonometrician" rather than a composer. For 10 points each:

[10] Name this French composer of three short, atmospheric piano pieces whose name evokes ancient Greek exercises in the nude.

ANSWER: Erik **Satie** [or Éric Alfred Leslie **Satie**; accept Virginie **Lebeau** or François **de Paule**] (The pieces are titled *Gymnopédies*.)

[10] Satie was a key influence on a group of this many French composers that included Darius Milhaud ("mee-YO"). The ordinal form of this number designates the interval from C to A on a piano.

ANSWER: **six** [accept Les **Six** or **sixth**]

[10] Satie's *Gymnopédies*, as well as his "furniture music," are key influences on this genre of slow, repetitive music intended to generate an "unobtrusive" sense of calm. This sort of music titles a Brian Eno album meant to be looped as "music for airports."

ANSWER: **ambient** music [prompt on background music; do not accept or prompt on "elevator music"]

<Smith, Fine Arts - Music>

21. One variety of these phenomena may create formations of thick, viscous, liquids known as "mud pots." For 10 points each:

[10] Name these cracks in the Earth's crust that emit gases and vapors. They take their name from a diminutive Latin word for "smoke."

ANSWER: **fumaroles**

[10] These springs which periodically eject pressurized water are often classified as a type of fumarole. One in Yellowstone National Park has been called "Old Faithful" due to its regular eruptions.

ANSWER: **geysers**

[10] Another kind of fumarole, called white smoker chimneys, ejects the molten material that comprises this mineral, the principal ore of zinc. Several sources list "black jack" as an amusing alternate name for this ore.

ANSWER: **sphalerite** [prompt on zincblende]

<Jose, Science - Earth>