

TOSSUPS

1. These structures may be analyzed using Havlena-Odeh plots that linearize their material balance equations. Frederic Lahee (LAY-hee) created the standard classification scheme for these structures, which are the subject of decline curve analysis. Computer models of these structures make use of techniques such as history matching, stratigraphic grid transfer, and geostatistical inversion. The “Huff and Puff” method of cyclic steam injection or carbon dioxide flooding is a tertiary recovery technique to increase the extraction efficiency of these structures, which include components like “Christmas trees” and “nodding donkeys.” One of these structures may experience “kick” due to hydrostatic pressure imbalance in the mud column, which will lead to blowout if formation fluids reach the surface. For 10 points, name these artificial structures created by drilling into the earth in search of hydrocarbons to use as fuel.

ANSWER: **oil wells** [or **oil reservoirs**; or **oil fields**; or **oil rigs**; or **oil platforms**; accept **petroleum** for “oil”]

2. In Huey Long’s *My First Days in the White House*, Long promised to make this man his Secretary of War. This man received the nickname “Old Duckboard” after raiding a wharf to give his troops something to sleep on. This man saw some of his earliest service as a garrison commander in the Philippines, leading an offensive against rebels in Noveleta. This man was arrested after he parroted gossip about Mussolini running over a small child in his car. He received two Medals of Honor, one for his service in the taking of Veracruz, which he later tried to return, and another for his taking of Fort Riviere from the Cacos (kah-kohs). This man ran for the Senate in Pennsylvania, during which campaign he decried the treatment of the Bonus Army. Perhaps his most famous military service came during the Banana Wars, which inspired him to write *War is a Racket*. After his retirement, he alleged that Gerald McGuire, with the financial backing of J. P. Morgan, prepared a coup attempt to overthrow FDR and install a fascist regime. For 10 points, name this Marine Corps General who exposed the Business Plot.

ANSWER: Major General Smedley Darlington **Butler**

3. When a man in this novel asks the time, he is told it’s “half past sick by the cock,” recalling an encounter with a prostitute during which he had seen a picture of Canada, where he owns an island and considers building a farm. Because he is thinking about making a Faustus film, another character in this novel borrows a collection of Elizabethan plays, which he later opens to random Faustus passages. Characters in this novel discuss the phrase “peeled one,” referring to a man who later robs a dead Indian when the bus they’re riding stops. In this novel, the protagonist’s body is thrown into a ravine along with a pariah dog after a cable left in the protagonist’s pocket by his journalist half-brother causes him to be shot by the police; that shot startles a horse with the number seven branded on its leg, which then tramples the protagonist’s ex-wife, Yvonne Constable. A small Mexican town is the setting of, for 10 points, what novel about the last day of alcoholic British consul Geoffrey Firmin, a work by Malcolm Lowry?

ANSWER: **Under the Volcano**

4. This man becomes trapped between two gates when his horse is cut in half by a portcullis, but a maid helps him escape by giving him a ring that grants invisibility. That maid later rubs ointment all over this man’s body to cure his insanity, which befalls him after he breaks a promise to his wife to spend no more than a year away from her. This man has an identically named half-brother whose epithet is “the Bastard,” as well as a twin sister named Morfydd (MOHR-fith). While playing a game of *gwyddbwyll* (GWITH-bush), this man orders his ravens to attack the servants of King Arthur in *The Dream of Rhonabwy* (HRON-ah-bwee). This man avenges Esclados’ defeat of his cousin Calogrenant after summoning a storm in the forest of Brocéliande (bro-SAY-lee-ahnd) by pouring water onto a stone. For 10 points, name this son of Urien who marries the Lady of the Fountain and gains the epithet “Knight of the Lion” in a romance by Chrétien de Troyes.

ANSWER: **Yvain** (ee-VAIN) [or **Ywain**; or **Owain**; or **Owein**; or **Iwein**]

5. Japanese economic anthropologist Naoki Kasuga argued that a type of these phenomena did not presuppose a “parts-and-whole image.” Auguste Comte argued that science went from mathematics to a position where these entities are reduced to natural law. Another thinker stated that it was “patently obvious” that education is one of these things and that when these things are due to cooperation, their nature is no different than when they are not. H.L.A. Hart argued that the title concept is one of these entities in *The Concept of Law*. Marcel Mauss coined the “total” form of these things in *The Gift* while another thinker divided them into “material” and “nonmaterial” types. Emile Durkheim said in his “fundamental rule” that “One must consider these phenomena as things.” For 10 points, name these entities described as things that are outside the individual yet still capable of exercising social control, a term coined in *The Rules of Sociological Method*.

ANSWER: **social facts**

6. Niobium is typically separated from tantalum by complexing it with this element. Ruppert’s reagent can be used to add a functional group containing carbon and this element to carbonyls. One of the most commonly studied ionic liquids includes a weakly-coordinating anion consisting of this element and boron. An anti-metabolite cancer drug that inhibits thy-mid-yl-ate synthase consists of this element bonded to the five position of uracil. A molecule with this an atom of this element at its center exhibits the strongest known hydrogen bonds. The isotope of this element with atomic weight nineteen is NMR-active. The strongest super-acid consists of antimony and this element, which causes the strongest inductive effect when added to the alpha position of acetic acid. For 10 points, name this most electronegative element and lightest halogen.

ANSWER: **fluorine** [or **F**]

7. An American branch of a religious group from this country won a 2006 RFRA case that was initiated when U.S. customs agents seized thirty gallons of ayahuasca tea shipped to Santa Fe. That group was founded by Mestre Gabriel and is known as the Union of Plants or UDV. Riots broke out in this country in 1995 when a bishop kicked a statue of a saint on TV. That bishop worked for an Edir Macedo-founded Pentecostalist church in this country called the Universal Church of the Kingdom of God. This country has the largest population of Seventh Day Adventists in the world. Adherents of another religion from this country call themselves “povo do santo” or “people of the saint”, worship various Yoruba, Fon, and Bantu gods, and have priests that perform ritual dances to please Orixas (oh-ree-SHAHs). For 10 points, name this country home to Candomble (kahn-dohm-blay), which celebrates Carnival under a large statue of Christ the Redeemer.

ANSWER: Federative Republic of **Brazil** [or Republica Federativa do **Brasil**]

8. This ruler shares a name with a Scottish clan with common ancestry by way of Einar. This man's successor was conceived with his mistress Poppa of Bayeux, who was captured after this ruler defeated her father Berengar II. That successor was excommunicated after for his assaults on the estates of Arnulf of Flanders. This man's grandson commissioned a biography of him, written by the monk Dudo of Saint-Quentin. An apocryphal story describes how one of his men toppled the King of France during a ceremony. This man was succeeded by his son, William Longsword. This ruler frequently clashed with Charles the Simple, but after an unsuccessful siege of Chartres, signed a truce in the treaty of Saint-Clair-sue-Epte. For 10 points, name this Viking, the first Scandinavian ruler of Normandy, an ancestor of William the Conqueror.

ANSWER: **Rollo** [accept **Robert I**, Duke of Normandy]

9. In Jan Mabuse’s (yahh mah-boos’s) depiction of this scene, nine angels representing the nine orders of angels are arrayed in the top right, above two dogs taken from engravings by Durer and Schongauer (“shone”-gow-er). In a triptych of this scene by Hieronymus Bosch, a half-naked man who may be Balaam or the Antichrist wears a reliquary dangling between his legs, and two armies charge at one another in the background. A depiction of Palla Strozzi carrying a falcon headlines a gold-covered exemplar of the International Gothic style depicting this scene, by Gentile (jen-TEE-lay) da Fabriano. Sandro Botticelli’s depiction of this scene unusually depicts a Roman ruin over which a wooden hut is built, and includes portraits of Lorenzo and Piero de Medici paying homage to Mary. For 10 points, name this Biblical scene that typically shows the presentation of gold, frankincense, and myrrh to the infant Jesus.

ANSWER: **Adoration of the Magi** [or **Adoration of the Kings**; prompt on the **Nativity**; do not accept “Adoration of the Shepherds”]

10. A servant's suicide causes a member of this family to falsely accuse another of attempted rape, resulting in the patriarch of this family almost beating his son to death. A member of this family gives herself a nickname meaning "stranger under the plantains" upon founding a private poetry club. An elderly comic relief character rescues a girl in this family from being sold as a concubine; that character, Granny Liu, visits this family's grandiose Daguanyuan (DAH-gwahn-Y"WAHN) garden, built to celebrate imperial patronage. The most famous member of this family struggles in a love triangle between the graceful Xue Baochai (SHWAY bao-"CHAI") and fragile Lin Daiyu, and was born with a piece of jade in his mouth, since he is a reincarnated stone. For 10 points, name this family, including the clueless Baoyu, whose rise and fall is documented by Cao Xueqin (TSAO shway-CHEEN) in the novel *Dream of the Red Chamber*.
ANSWER: **Jia** (YAH) family

11. In this poem, a transition between two radically different refrains occurs with the line "The ant's a centaur in his dragon world." That passage from this poem concludes, "Here error is all in the not done, all in the diffidence that faltered." In this poem, a vision of "the city of Dioce ("die"-OH-chay) whose terraces are the color of stars" follows a description of the aftermath of an execution that observes how "maggots...eat the dead bullock." This poem's passage beginning "Zeus lies in Ceres' bosom" includes a refrain often taken to address the poet himself: "pull down thy vanity." The most acclaimed part of this poem begins by describing the treatment of the corpse of Mussolini, whom its author idolized, and was begun while its author was imprisoned in Pisa. For 10 points, name this giant poem assembled across four decades by Ezra Pound.
ANSWER: *The **Cantos*** [accept *The **Pisan Cantos***]

12. In an essay from *The Interpretation of Cultures*, Clifford Geertz distinguished the "interest theory" of this concept from its "strain theory" while analyzing it "as a Cultural System." This construct is likened to a "camera obscura" in which "men and their circumstances appear upside-down," according to an essay titled for this construct, which promises that men will one day "hunt in the morning, fish in the afternoon...criticise after dinner" without being "hunter, fisherman...or critic." Louis Althusser claimed that this construct "interpellates individuals as subjects" and operates through a namesake "state apparatus." Post-structuralist accounts of this concept leave out the upper square of Lacan's "graph of desire" according to Slavoj Zizek, who characterized it as a Kantian "sublime object." Marx and Engels attacked the Young Hegelian tradition in a set of essays on the "German" one. For 10 points, identify this term for a system of socio-political doctrines, such as Marxism or Fascism.
ANSWER: **ideology** [or *The German **Ideology***; accept **ideological** state apparatus; prompt on false consciousness]

13. One of these animals presented to King George II was called the Indian Monster and was reportedly fed hard boiled eggs. The charango instrument of South America is sometimes made from these animals. The first person to raise these animals commercially was a German basketmaker who used them to make his products. In the United States, these members of the order *Cingulata* were called Hoover Hogs when eaten during the Great Depression. The rate of car accidents caused by these animals has increased, in part due to their recent pattern of northern migration, and in part due to their tendency to jump into the air when startled. Different varieties of these animals include the pink fairy one, the screaming hairy one, and the nine-banded one, which is a carrier of leprosy. For 10 points, name these New World mammals, some species of which can roll into a ball to protect themselves.
ANSWER: **armadillos** [accept **chlamyphoridae**, or **dasyopus**, or **dasyopodidae** prompt on cingulata before mentioned]

14. In this city, a democratic government under Giuseppe Galletti won popularity by abolishing the *macinato* tax. Residing in this city, Margaret Fuller solicited American contributions for its government and attempted to win American diplomatic recognition with her paramour Lewis Cass, Jr. The evacuation of soldiers from this city was agreed to in the September Convention, which ruined the government of Marco Minghetti. In this city, the stabbing of Pellegrino Rossi set liberal protests into motion that resulted in an 1849 popular "Republic" whose constitution was the first to abolish capital punishment. Attempts to capture this city failed at the Battle of Aspromonte and the Battle of Mentana. Napoleon III guaranteed this city's regime militarily until the Franco-Prussian War, when it was captured by Raffaele Cadorna. Giuseppe Garibaldi repeatedly tried and failed to capture this city, once using the slogan "[this city] or death." For 10 points, name this city that joined unified Italy in 1870, leading Pope Pius IX to call himself a "prisoner in the Vatican."

ANSWER: **Rome** [or **Roma**]

15. Janis Joplin's version of this standard, which she recorded with Big Brother and the Holding Company and played at Woodstock, added 41 repetitions of the word "no" near its end. Sidney Bechet's (beh-SHAY's) soprano saxophone version of this song became his signature and launched Blue Note Records. Musicologists debate this song's connection to the folk song "Sometimes I Feel Like a Motherless Child." Billie Holiday, recording with Artie Shaw, added a blues inflection to this song's lyric "One of these mornings you're going to rise up singing, then you'll spread your wings and you'll take to the sky." In its original appearance, this song is a lullaby sung by the fisherman's wife Clara to her child on Catfish Row. For 10 points, name this DuBose Heyward and George Gershwin collaboration, the opening song from *Porgy and Bess*, which concerns a season when "the livin' is easy, fish are jumpin', and the cotton is high."

ANSWER: "**Summertime**"

16. After citizens of this kingdom saved the crew of the *R. J. Robertson*, Wilhelm I ordered the construction of the German Emperor's Tributary Monument. Bernard Bettelheim refused to leave a temple in this kingdom which he came to as part of the Loochoo Naval Mission. This kingdom was founded after a king of the Chuzan, Sho Hashi, successfully conquered the Nanzan. After sailors from this, at the time, vassal were massacred by the Paiwan, Japan invaded the offending territory. Tei Do, a commander for this kingdom, was executed after failing to surrender to invading Satsuma forces. Matthew Perry opened a coaling station in this kingdom at Naha. In 1945, the former central palace of this kingdom, Shuri Castle, was destroyed during the allied invasion of Okinawa. For 10 points, name this kingdom which ruled much of the island chain that stretches between Kyushu and Taiwan.

ANSWER: **Ryukyu** Kingdom [accept **Loochoo** Kingdom before mention]

17. If X is the two-by-two block matrix "zero, identity, negative identity, zero," then this type of function has a Jacobian J that satisfies the equation " J times X times J -transpose" equals " X ," which is known as the symplectic condition. The active view of a system's time evolution considers a continuous succession of the infinitesimal type of these functions. The defining equation for these functions is typically written as " K equals H plus partial G partial t ," where K and H are Hamiltonians and G is a generating function that may be any of four types depending on which displacements and conjugate momenta are used as independent variables. The volume of phase space and the value of the Poisson bracket are invariant with respect to these functions. For 10 points, identify this two-word term from classical mechanics for a change of coordinates that preserves the form of Hamilton's equations.

ANSWER: **canonical transformations** [accept **mapping** or **change of coordinates** for "transformation"; prompt on **coordinate transformations** or **contact transformations** or **symplectomorphisms**; do not accept "point transformations"]

18. Herbert von Karajan's (KAH-rah-yahn's) canonical 1969 Deutsche Grammophon recording of this piece with the Berlin Philharmonic paired it with Tchaikovsky's *Variations on a Rococo Theme*. A G minor section in the middle of this piece's second movement quotes the composer's song "Leave Me Alone," a favorite of the composer's sister-in-law. This piece was inspired by the premiere of a piece in the same genre by Victor Herbert, its composer's colleague during his stint as director of the National Conservatory of Music. This piece's composer refused to add to the finale a 59-bar cadenza written by its dedicatee, Hanus Wihan (HAH-noos VEE-hahn). This B minor piece, its composer's last concerto after his concertos for piano and violin, was contemporaneous with its composer's "American" String Quartet. For 10 points, name this concerto by the composer of the Symphony "From the New World" that was recorded twice by Yo-Yo Ma.

ANSWER: Antonin **Dvorak's Cello Concerto** in B Minor [or **Dvorak's Opus 104**; or **B. 191**; prompt on cello concerto]

19. A complex of HPDP and this molecule is used to detect protein S-nitro-syl-ation in its namesake "switch" assay. In Hi-C, five-prime overhangs are labeled with a fourteen-d.C.T.P nucleotide analog containing this molecule. SELEX ("sell"-ex) uses primers attached to this molecule to immobilize the resulting nucleic acids. This molecule is used as a co-factor by an enzyme that converts acetyl-CoA to mal-on-yl-CoA in the first step of fatty acid synthesis, and an enzyme that converts pyruvate to ox-alo-acetate in the first step of gluco-neo-genesis. The structure of this cofactor is distinguished by a ureido (yur-"eye"-doh) ring fused to a tetra-hydro-thio-phene ring and it is utilized exclusively by carb-oxyl-ase enzymes. The association of this molecule with a protein found in egg whites has a dissociation constant of ten to the minus fourteen molar. For 10 points, name this B vitamin that binds extremely tightly to avi-din and strept-avi-din.

ANSWER: **biotin** [or vitamin **B7**; or vitamin **H**]

20. An illiterate peasant asks this character to read an advertisement for Bovril that had been dropped alongside other leaflets from an airplane over the Cova da Iria. This character reads a book he had forgotten to return to the library of a ship called *The Highland Brigade*, but never progresses past a scene in which a body sprawled over the squares of the King and Queen's pawns is found by a chess player. This man treks to a mass faith healing in Fatima hoping to run into a girl with a paralyzed hand. This man, who reads Herbert Quain's *The God of the Labyrinth*, ultimately abandons both the lame virgin Marcenda and the hotel chambermaid Lydia to follow the ghost of his real-life heteronym, Fernando Pessoa (peh-SOH-uh). For 10 points, name this title character of a novel by Jose Saramago about the year of his death.

ANSWER: Ricardo **Reis** [or **Ricardo** Reis]

TB. A Tony Horwitz book includes a story about this man bringing his own cow to war because he could not stand any other milk. He nearly resigned his commission to join the filibusterer William Walker as second-in-command, but a flattering letter from Winfield Scott persuaded him to change his mind. This man's brother-in-law, John Slidell, helped him get appointed superintendent of West Point, but he was forced to resign five days into the job because of his state's secession. Near the end of the Civil War, he was given command of the Department of the West, but clashed with John Bell Hood, failed to stall Sherman, and was replaced with Joseph Johnston. Harry Williams's biography of this man, *Napoleon in Gray*, is a reference to his nickname "Little Napoleon." He took command of the Army of the Mississippi after Albert Sidney Johnston's death at Shiloh. For 10 points, name this general who initiated the Civil War with his siege of Fort Sumter and who won at First Bull Run.

ANSWER: P.G.T. **Beauregard** [or Pierre Gustave Toutant-**Beauregard**]

BONUSES

1. A girl is entranced by a red and white one of these objects sent to her father by his friend John Bell, who wrote a piece on him for the *Britannica*. For 10 points each:

[10] Name these curious objects whose namesake also titles a business in Darling Harbour run by Dennis Hasset and his one-time “French professor” visitor in a certain novel.

ANSWER: **Prince Rupert's drops** [or **Prince Rupert drops**; prompt on Dutch tears]

[10] Prince Rupert's drops are tear-shaped beads of this material that can survive hammer blows but explode when their tails are broken. They appear in *Oscar and Lucinda*, in which a church of this material is transported from Sydney to Bellingen.

ANSWER: **glass**

[10] Lucinda spends much of her early years in Sydney either as a guest in Reverend Hasset's quarters or as part of “Mr. d'Abbs's menagerie” compulsively engaging in this “sinful” activity, which is done in secret most evenings after Mrs. Burrows leaves.

ANSWER: playing **cards** [or **cribbage**; or **poker**; prompt on gambling]

2. Late in life, this man moved to Guinea and changed his name to Kwame Ture (*kwah-may too-ray*) to honor Kwame Nkrumah and Sekou Toure. For 10 points each:

[10] Name this honorary Black Panther, who popularized the term “Black Power” after taking over from John Lewis as chairman of SNCC.

ANSWER: Stokely **Carmichael**

[10] Carmichael worked with this woman on the Freedom Summer voter registration drive. This woman was elected Vice-Chair of the Mississippi Freedom Democratic Party that demanded to be seated at the 1964 convention.

ANSWER: Fannie Lou **Hamer**

[10] The phrase “Black Power” was first brought to prominence by Stokely Carmichael during this event, a 220-mile trek from Memphis to Jackson, Mississippi, which others took up after its original participant was shot.

ANSWER: James Meredith's one-man **March Against Fear** [or the James **Meredith March**; or equivalents]

3. Epistemicists (*ep-ih-STEM-iss-ists*), such as Timothy Williamson, claim predicates with this property have a sharp, although unknowable, threshold. For 10 points each:

[10] Name this property of predicates that have borderline cases. This property is famously exhibited by “being a heap” in the Sorites paradox.

ANSWER: **vagueness**

[10] This approach to vagueness, appearing in Fine's “Vagueness, Truth, and Logic”, allows statements about borderline cases to lack a truth value, and includes a strengthening of truth for being true under all precisifications (“precise”-if-ik-ay-shuns).

ANSWER: **supervaluationism**

[10] The ideas of supervaluationism appeared in this philosopher's paper “Vagueness”. With Alfred North Whitehead, this philosopher wrote the text *Principia Mathematica*.

ANSWER: Bertrand **Russell**

4. Continuing the normalization of US-Cuba relations, President Barack Obama ended the wet-foot, dry-foot policy in January 2017. For 10 points each:

[10] The wet-foot, dry-foot policy played a prominent role in the custody battle over this Cuban boy, who was sent back to Cuba after a federal court determined extended relatives could not apply for asylum for the boy.

ANSWER: Elian **Gonzalez**

[10] Fidel Castro replied to Obama by saying “we do not need the empire to give us anything” in his column in this Cuban state newspaper, named after the yacht that brought Castro to Cuba during the Cuban Revolution.

ANSWER: **Granma**

[10] Since taking over for Fidel, Raul Castro has expanded this group of people who are self-employed. The most common type of them run “Paladares” (pah-lah-dah-“race”).

ANSWER: **Cuentapropistas**

5. Calculating this quantity first involves determining S , the number of segregating sites, and π , the mean number of pairwise differences. For 10 points each:

[10] Name this statistic that allows one to distinguish a DNA sequence evolving randomly from one evolving under some sort of selection. When this value is less than zero it indicates that there is an abundance of rare alleles.

ANSWER: Tajima’s **D**

[10] Tajima’s D can determine the extent of this process, the random fluctuation of allelic frequencies over time.

ANSWER: **genetic drift** [or **allelic drift**, or the **Sewall Wright effect**]

[10] When calculating Tajima’s D , this term is used to describe a DNA sequence that evolves randomly. This term is also used to describe a theory that posits that because most deleterious mutations are quickly removed from the gene pool, most genetic drift arises from mutations of this type.

ANSWER: **neutral**

6. This white stone mansion on the Brenta Riviera has a raised front portico that can be accessed through twin side stone stairways. For 10 points each:

[10] Identify this building that is also known as La Malcontenta, due to the legend that the spouse of its owner was locked up there when she refused to sleep with him.

ANSWER: Villa **Foscari**

[10] The Villa Foscari was designed by this Italian architect of the Villa Barbaro whose classically-derived style influenced Thomas Jefferson.

ANSWER: Andrea **Palladio**

[10] The Villa Foscari is located a few miles west of this city, which contains Palladio’s monumental churches Il Redentore and San Giorgio Maggiore.

ANSWER: **Venice**

7. This phenomenon can be characterized with the i-RISA (“eye”-ree-sah) model, which assesses salience attribution, and is highly linked to levels of delta-FosB (foss bee) and CREB (kreb). For 10 points each:

[10] Name this maladaptive psychiatric phenomenon, in which a rewarding substance like nicotine is compulsively sought and used despite harmful consequences.

ANSWER: **addiction**

[10] This author of *The Myth of Mental Illness* argued that addiction was a moral issue rather than a biological one. This Hungarian-American leader of the anti-psychiatry movement argued that mental illness was metaphorical.

ANSWER: Thomas **Szasz** (zahz)

[10] Pavlovian-instrumental transfer can be abolished by lesions to this ventral striatum structure whose “shell” receives dopaminergic projections from the ventral tegmental area. It is essential for assigning motivational salience, or “wanting”, to a reward.

ANSWER: **nucleus accumbens** [or **NAcc**; or **NAcb**]

8. This story's narrator repeats the line "And I sat there getting drunker and drunker and more in love and more in love" as he describes the torture of a captured Comanche. For 10 points each:

[10] Name this frantically narrated short story that ends with the narrator removing his belt and shoelaces and looking "into their savage black eyes, paint, feathers, beads."

ANSWER: "The **Indian Uprising**"

[10] This American author wrote "The Indian Uprising" and later included it in his collection *Sixty Stories*. This archetypal postmodernist reimagined a fairy tale in his most famous novel.

ANSWER: Donald **Barthelme** (BAR-tel-may) [do not accept any other Barthelmes]

[10] The aforementioned novel centers on this fairy tale character and features a list of her fears including mirrors, apples, and poisoned combs.

ANSWER: **Snow White**

9. Name these things about Greco-Persian relations. For 10 points each:

[10] The first major conflict between the two polities came during the Ionian Revolt. It went poorly for the Greeks, after the fleet defending Miletus was soundly beaten at this naval engagement.

ANSWER: Battle of **Lade** (lah-day)

[10] The first Persian invasion of Greece was itself stymied at the Battle of Marathon, after which a messenger of this name brought news of the victory back to Athens.

ANSWER: **Pheidippides**

[10] This battle, which allegedly took place on the same day as Plataea, marked the complete destruction of Xerxes' fleet. Fought off the coast of Ionia, the Greeks were commanded by the Spartan king Leotychides.

ANSWER: Battle of **Mycale**

10. This dance was sometimes called a *cinq-pas* (sahnk-PAH) because it consisted of four kicks followed by a leap. For 10 points each:

[10] Name this dance that was frequently paired with a pavane during the Renaissance. John Dowland composed examples named for the King of Denmark and a frog.

ANSWER: **galliards**

[10] John Dowland composed galliards for this pear-shaped string instrument, which was incredibly popular during the Renaissance. Music for this instrument was commonly written using tablature.

ANSWER: **lutes**

[10] Lutes evolved from this fretless Arabic instrument after it was introduced to Europe sometime around the 11th century. Modern players of this instrument from Iraq include Rahim al-Haj and Munir Bashir.

ANSWER: **ouds** (OODs)

11. In the Mundell-Fleming model, a fixed regime for this value cannot be maintained along with free capital movement and independent monetary policy. For 10 points each:

[10] Name this value giving the cost of one currency in terms of another.

ANSWER: foreign **exchange rate** [or **forex**; or **FX** rate]

[10] The Mundell-Fleming model therefore states that this type of exchange rate regime, where exchange rates fluctuate, must prevail in order to have free capital movement and independent monetary policy.

ANSWER: **floating** exchange rate regime [or **flexible** exchange rate]

[10] This statement in exchange rate economics holds that devaluing currency will lead to an improvement in a country's balance of payments if the sum of demand elasticity for exports and imports exceeds one.

ANSWER: **Marshall-Lerner** condition

12. A famous cartoon of this event depicts the Governor of the territory in which it took place cowering under his bed. For 10 points each:
- [10] Name this uprising, led by George Macarthur. Macarthur was angered by, among other things, a lien against one of his ships for abetting an escaped convict and Major George Johnston.
ANSWER: **Rum Rebellion** of 1808
- [10] That Governor deposed in the rum rebellion was William Bligh, who had earlier experienced dissatisfaction with his command aboard the HMS Bounty. The Bounty's mission was to retrieve these plants from Tahiti and deliver them to the Caribbean.
ANSWER: **breadfruit** trees
- [10] After William Bligh was deposed as governor of the New South Wales territory, he was succeeded by this Scotsman. A university in Sydney established in 1964 bears his name.
ANSWER: Lachlan **Macquarie**
13. Cross sections in this theory are typically factorized into universal long-distance functions, such as form factors, and short-distance parton contributions that can be accurately computed via perturbative techniques. For 10 points each:
- [10] Name this non-abelian gauge theory whose coupling constant decreases logarithmically with increasing energy.
ANSWER: **QCD** [or **quantum chromodynamics**]
- [10] In Euclidean space, the QCD path integral has infinitely many local minima that are referred to as a "fluid" of these pseudoparticles, which are classical solutions to equations of motion with finite non-zero action.
ANSWER: **instantons** [or **instanton** fluid]
- [10] In three-dimensional gauge theories with Higgs fields, instantons correspond to a type of these particles named for 't Hooft (UT OAF) and Polyakov. Gauss's law for magnetism implies that these particles do not physically exist.
ANSWER: magnetic **monopoles** [accept 't Hooft-Polyakov **monopoles**]
14. The first known reference to this technique appears in the treatise *Rhetorica ad Herennium*. For 10 points each:
- [10] Name this mnemonic technique in which a person memorizes the layout of a place, and associates something to be memorized to various items therein.
ANSWER: **method of loci** [or **memory palace**; or **memory journey**; or **mind palace**]
- [10] The method of loci was supposedly developed by Simonides of Ceos after he was saved from a collapsing banquet hall by these twin sons of Leda.
ANSWER: **Castor** and **Pollux** [or **Kastor** and **Polydeuces**; or the **Dioscuri**; or the **Gemini**; or the **Castores**]
- [10] That story appears in *The Art of Memory*, a study of mnemonic systems up to the Renaissance by this historian. She is also known for her book *Giordano Bruno and the Hermetic Tradition*.
ANSWER: Frances **Yates**
15. A ship made completely of water sits in the background of a painting featuring these creatures. For 10 points each:
- [10] Name or accurately describe these creatures which are made out of stone and singing in *The Wonders of Nature*. Another is seen lying resignedly on a beach in *The Collective Invention*.
ANSWER: **reverse mermaids** [accept descriptions like "a mermaid with a **fish head** and **human legs**" or anything else indicating a fish-human hybrid that reverses the normal mermaid arrangement, do not accept or prompt on "mermaid" by itself]
- [10] Rene Magritte, the creator of those reverse mermaids, painted a man of this profession lost in surreal surroundings. Edgar Degas's many paintings of this profession include one that borrows from Gozzoli's *Journey of the Magi* and one of his brother Achille lying prone.
ANSWER: **jockeys**
- [10] Another motif used by Rene Magritte was this type of object which takes up the entire space of *The Living Room*. This object covers most of a man's face in *The Son of Man*.
ANSWER: green **apple**

16. The journey described in this work was undertaken by its author and his wife from 1763-65 to recover from the death of their daughter. For 10 points each:

[10] Name this nonfiction account in which the quarrelsome author heaps contempt on locals of the title countries. It prompted a response from Laurence Sterne, who parodied its author as Smelfungus.

ANSWER: **Travels through France and Italy**

[10] In this picaresque novel by the same author, the title friend of Hugh Strap serves in the French army at the Battle of Dettingen, sails all over the world, and eventually marries Narcissa.

ANSWER: *The Adventures of* **Roderick Random**

[10] This Scottish author wrote *Travels through France and Italy* and *The Adventures of Roderick Random*. His other picaresque novels include *The Expedition of Humphry Clinker*.

ANSWER: Tobias **Smollett**

17. This man was defeated as a result of listening to the advice of the double agent Hushai rather than that of Ahitophel. For 10 points each:

[10] Name this Old Testament figure who led a rebellion against his father David for control of Israel.

ANSWER: **Absalom** [or **Avshalom**]

[10] Earlier, Absalom had been sent into exile in Geshur after murdering this half-brother of his, who had raped his sister Tamar.

ANSWER: **Amnon**

[10] Absalom was killed by the army commander Joab in Ephraim Wood after getting this part of his body caught in a tree.

ANSWER: his **hair** [prompt on **head**]

18. Operators like AND, OR, and NOT are used in this system of mathematics, which was first introduced in the textbook *The Mathematical Analysis of Logic*. For 10 points each:

[10] Name this branch of mathematics in which variables can be assigned values of one or zero. It is named for a 19th-century mathematician.

ANSWER: **Boolean algebra** [or **Boolean logic** or **Boolean mathematics**]

[10] Drawing one of these tables, which are sometimes known as Veitch diagrams, is useful for simplifying Boolean expressions, since these diagrams neglect “don't care terms.”

ANSWER: **K-map** [or **Karnaugh**-Veitch map]

[10] The Quine-McCluskey algorithm for simplifying Boolean expressions begins by finding these smallest collections of min-terms or max-terms that “span” a Boolean function. Sums of products are generated from charts of these functions in Petrick's Method.

ANSWER: **prime implicants** [prompt on **implicants**]

19. This author wrote a play with a prologue delivered by Pan, whose worshippers make up the chorus. For 10 points each:

[10] Name this Greek playwright. He created the old man Knemon, who is bullied into going to a party at the end of a play in which his daughter marries Sostratos.

ANSWER: **Menander** [or **Menandros**]

[10] The only near-complete text of Menander's *Dyskolos* was found on one of these ancient Egyptian manuscripts named for the Swiss scholar who purchased them. The 66th of these documents contains one of the oldest near-complete texts of the Gospel of John.

ANSWER: **Bodmer** papyri [or **Bodmer** papyrus; or obvious equivalents]

[10] Menander is the foremost representative of the New Comedy, in contrast to the Old Comedy, which is defined almost solely from the surviving works of this playwright contemporary with the great tragedians.

ANSWER: **Aristophanes**

20. The most common laboratory source of this element is its dichloro octadiene derivative. For 10 points each:
[10] Name this metal whose hexa-fluoride can surprisingly oxidize a molecule of diatomic oxygen to form the di-oxygen-yl cation. This element's two-plus oxidation state typically forms sixteen-electron square planar complexes.

ANSWER: **platinum** [or **Pt**]

[10] The fact that even diatomic oxygen could be oxidized led to the discovery that elements from this notoriously unreactive periodic group could also form chemical compounds.

ANSWER: **noble gases**

[10] This quantity, represented by the letter eta, describes how many continuous atoms in a ligand connect to a metal center. For example, the ethylene ligand in Zeise's salt has a value of two for this parameter, and the cyclo-penta-dien-yl ligands in ferro-cene have a value of five.

ANSWER: **hapticity**