

1. A film showing these objects was central to a study that verified Charles Fillmore's theory of lexical information in tests that used verbs as a fixed effect. An experiment in which changes were made to these objects to create "releaser cues" was cited in a 1982 article in *The Atlantic* co-written by political scientist James Wilson. The intensity of language used to describe interactions involving these objects was varied, such as by using the word "contacted" instead of (*) "smashed," in a study by John Palmer and Elizabeth Loftus. One of these objects left in Palo Alto was found to be untouched, while another of them left in the Bronx was vandalized within 10 minutes, in a Philip Zimbardo experiment that was considered to verify broken windows theory. For 10 points, identify these objects whose license plates were removed in that experiment.

ANSWER: cars [or automobiles; accept license plates before "smashed"; accept car crashes or crashed cars; prompt on vehicles]

<Social Science: Psychology, WA>

2. The italicized seventh section of a poem contrasts the "soothing" of this entity with the fact that "my love soothes not me." Another poem sees "the calyx of death's bounty" in this entity and tells the audience, "This fabulous shadow only [this entity] keeps." Walt Whitman's "Out of the Cradle Endlessly Rocking" was originally titled "A Word Out of" this entity. A "wild call" from this entity is heard in a poem whose speaker pairs this entity with (*) "the lonely... sky." This natural entity is described as "retreating, to the breath / of the night-wind" and as having a "melancholy, long withdrawing roar" in a poem that proclaims "Ah, love, let us be true / To one another!" For 10 points, John Masefield wrote "I must go down to" what entity, which is described as "calm tonight" in the opening of Matthew Arnold's "Dover Beach"?

ANSWER: the sea [prompt on waves or surf or troughs by asking "what's the general body?"; prompt on the ocean or equivalents by asking "what word is used in the poems?"; accept "A Word Out of the Sea" or "Sea Fever"] (The second sentence is about "At Melville's Tomb.")

<Non-Epic Poetry, JC>

3. Chaotic examples of these systems characteristically exhibit a "double-scroll attractor" pattern. A common application of the Schur complement is to solve finite element problems in which these systems are "coupled" with fields. Modeling these systems is the primary use of the open source simulator SPICE. Planar versions of these systems can be simplified using mesh analysis, which includes a technique that establishes equivalence by eliminating (*) non-source elements called the Y-delta transform. These systems can be simplified by Norton's and Thévenin's ("tave-NAN's") theorems. The transient response time of these systems equals approximately 5 time constants for their RC type. The sum of all potentials around one of these must be zero by Kirchhoff's second law. For 10 points, name these networks made of components such as resistors and batteries.

ANSWER: electric circuits [accept field-circuit coupled problems or Simulation Program with Integrated Circuit Emphasis; accept specific types such as RC circuits or Chua's circuit; prompt on electronic networks]

<Physics, WA>

4. Though it's not the Will, Arthur Schopenhauer claimed that "unless [this concept] is the direct and immediate object of life, our existence must fail of its aim" in an essay on this concept "in the World." A philosophical system which claims that this concept is caused by *tanhā* inspired Schopenhauer, who claimed that "all striving comes from lack" and is thus equivalent to this concept. The term *nirodha* refers to a (*) cessation of this concept, which is the usual English rendition of the term *dukkha* ("DOOK-kuh"). This concept was first witnessed by a religious leader at age 29 when he left the palace where his *kshatriya* ("k'SHAH-tree-yuh")

parents lived, leading him to preach an Eightfold Way for avoiding it. The First Noble Truth states that life is equivalent to, for 10 points, what painful experience that can be escaped through *nirvana*?

ANSWER: suffering [or unsatisfactoriness or stress or angst; accept dukkha until it is read; accept “On Suffering in the World”; prompt on pain; prompt on desire by asking “what does desire cause?”]

<Thought, WA>

5. A speech against this policy described equality as the “prime rib of America.” Violations of the Electronic Communications Privacy Act in enforcing this policy were alleged in *McVeigh v. Cohen*. Advocates of eliminating this policy cited the fact that it necessitated the firing of dozens of qualified Arabic linguists, including Daniel Choi. The act that repealed this policy was implemented by Mike Mullen and (*) Leon Panetta. This policy, which was challenged in *Log Cabin Republicans v. United States*, was officially motivated by an “unacceptable risk” to “high standards of morale, good order, and discipline.” The Clinton administration created, for 10 points, what policy under which the US military forbade discrimination against closeted LGBT people, but did not let them serve openly?

ANSWER: “Don’t ask, don’t tell” [or DADT; prompt on any answers that refer to anti-LGBT discrimination] (The speech referred to was given by Lady Gaga in Maine.)

<US History, WA>

6. This organization was conceived during a meeting in the Streamline Hotel. This organization was co-founded by Bill France, whose descendants continue to tightly control it. An early administrator of this organization lends his nickname to an event that starts in New York and ends in Redondo Beach, California. Tom Wolfe profiled an early member of this organization in his article “The (*) Last American Hero.” This organization regulates an activity that began with moonshine bootleggers such as Junior Johnson and “Cannonball” Baker, and maintains locations nicknamed “Dega,” “Fontana,” and “Monster Mile.” This organization began mandating the use of a head-and-neck stabilizer after the death of Dale Earnhardt Sr. For 10 points, what association runs the Daytona 500?

ANSWER: NASCAR [or National Association for Stock Car Auto Racing]

<Other/Misc Academic, JC>

7. This quantity is lowered by CUR approximations. In latent semantic analysis, choosing a smaller value for this quantity allows the approximation of an object that contains term frequencies for a given document. By the Eckart–Young theorem, a reduction in this quantity can be performed by computing a singular value decomposition and truncating the three resulting matrices, thus giving a matrix’s (*) low-[this quantity] approximation. The number of columns of a matrix is equal to the sum of the dimension of the null space and this quantity by the [this quantity]–nullity theorem. This quantity equals the number of non-zero elements along the diagonal of the middle matrix of a diagonalization, or the number of non-zero rows in row-echelon form. For 10 points, name this quantity equal to the dimension of the column space of a matrix.

ANSWER: rank [accept dimensionality; accept dimension before “Eckart–Young,” but do not accept or prompt on “dimension” after “Eckart–Young”; accept low-rank approximation; prompt on rank–nullity theorem]

<Other Science: Math, AK>

8. A piano piece in C minor by this composer begins with long, loud octave Gs in both hands and later transitions into a march in A-flat major. This composer crossed out the second of two trios, one in B major and one in A-flat major, that he wrote for the first of his posthumously published *Three Piano Pieces*. This composer of an F minor fantasy for piano duet expanded upon a freeform style invented by his friend Jan Václav Voříšek (“yahn VOT-slav VOR-ih-shek”) by writing six short piano pieces called (*) *moments musicaux* (“moh-MAWN myoo-zee-KOH”) and two sets of four *Impromptus*. His compositions for piano often re-use his other works, such as his *lied* (“leed”) “The Wanderer,” his incidental music to *Rosamunde*

(“roh-zah-MOON-duh”), and another of his *lieder* titled “Die Forelle” (“dee foh-RELL-uh”). For 10 points, name this composer of the “Trout” quintet.

ANSWER: Franz **Schubert** (The first line describes the Opus 90, No. 1 Impromptu.)

<Classical Music/Opera, WA>

9. A work titled for this person is described as “fifty-odd rhymed and irregular lines of exquisite prosody” in a Jorge Luis Borges (“BOR-hays”) story. In the frame story of a novel, this person owns an atlas that includes such hellish places as Babylon, YahooLand, and Brave New World. A poem about this title person describes a waterway that “sank in tumult to a lifeless ocean.” Dialogues between this ruler and a visitor who describes the (*) 55 title locales frame the novel *Invisible Cities* by Italo Calvino. While writing a work titled for this ruler after an opium-induced dream, an author was visited by a “Person from Porlock.” Visits to this ruler’s court are recorded in the travelogue *Il Milione* (“eel meel-YO-nay”) by Marco Polo. A “stately pleasure-dome” is decreed by, for 10 points, what ruler of Xanadu in a Samuel Taylor Coleridge poem?

ANSWER: **Khubilai** Khan [or **Kubla** Khan]

<Misc. Lit, WA>

10. It’s not a pulley, but *cranequiniers* (“cran-keen-YAY”) were people who used a variety of these items in France to which a cranequin (“cran-CAN”), windlass, winch, or similar device was added to improve effectiveness. People using these items would often also use a *pavise* (“puh-VEES”) for protection. The Second Lateran Council reaffirmed a ban on these items that was originally introduced by Pope Urban II, although Urban II’s ban only applied to using them (*) against Christians. These items were employed ineffectively at the Battle of Crecy by mercenaries recruited from Genoa. One of them was used to kill Richard the Lionheart. These ranged weapons, which resemble small ballistas, were controversial because they allowed a relatively untrained man to kill a knight in armor. For 10 points, name these mechanical bows popular in medieval Europe.

ANSWER: **crossbows** [accept **arbalest** before “arbalest”; prompt on **bows** or **bows and arrows**]

<Continental post-600 History, WA>

11. Ed Ruscha (“roo-SHAY”) used this series’s name to title the paintings of Los Angeles industrial buildings that he created for the 2005 Venice Biennale (“bee-en-NAH-lay”). The creator of this series quoted *Childe Harold’s Pilgrimage* and proposed to display it around a mantle in a letter outlining it to patron Luman Reed. In a painting in this series, trees partly conceal the smoke that emerges from a circle of stones and a boy tends sheep in the foreground. A small moon against a purple sky forms the backdrop of its last painting, in which (*) vines grow over a lone column. A huge fire engulfs a city on the right as a throng tries to cross a collapsing bridge in the fourth entry in this series, *Destruction*, which precedes its final entry, *Desolation*. For 10 points, name this series that depicts the rise and fall of a civilization by Thomas Cole.

ANSWER: *The **Course of Empire***

<Painting/Sculpture, WA>

12. An emperor of this dynasty tried to dissuade discontent by having the engineer Bi Lan construct a chain-pump water delivery system in the capital. Intrigue during this dynasty involving scholars and the students who supported them, called *dangren* (“dahng-run”) or “partisans,” prompted a civil liberties crackdown that was lifted by Emperor Ling. A succession struggle during this dynasty between Empress He (“huh”), her brother He Jin (“huh jeen”), and a faction of eunuchs allowed Dong Zhuo (“dong jwoh”) to come to power. A group called the (*) Celestial Masters emerged late in this dynasty and led the Five Pecks of Rice rebellion. This dynasty ended with the abdication of Emperor Xian (“sh’yen”) to Cao Pi (“tsao pee”), whose father was a warlord who contended with Sun Quan (“sun ch’wen”) and Liu Bei (“lyoh bay”). For 10 points, name this dynasty whose collapse gave way to the Three Kingdoms period.

ANSWER: **Han** dynasty [or **Hàn** cháo]

<World History, NB>

13. A film set in this city was supposedly produced using “short-end” film stock scrounged on the street from American news crews. In that film set here, a woman is held by a priest after she is shot while pursuing a truck full of political prisoners. A film set in this city ends with a father holding his son’s hand and vanishing into a crowd, having just been caught by police outside a soccer stadium. In an opening sequence, a man tries to get numbers from (*) sunbathers outside this city while riding in a helicopter transporting a statue of Christ. The Gestapo search for a Communist in a film that calls this city an “open city.” A father searches this city for the stolen conveyance that he uses to get to work in the neorealist film *The Bicycle Thieves*. For 10 points, name this city where a couple frolics in the Trevi Fountain in Federico Fellini’s *La dolce vita* (“la DOL-chay VEE-tah”).

ANSWER: **Rome** [or **Roma**; accept **Rome**, *Open City* or **Roma città aperta**]

<Other Art: Film, WA>

14. This theory predicts the characteristic “double-humped” shape that is seen on graphs of the enthalpy of hydration, which typically have peak values for three-electron cations (“CAT-eye-ons”). This theory can be used to determine the site preference of different spinels (“spin-ELLS”). This theory predicts that doubly degenerate states will be resolved by a distortion along the z-axis called the (*) Jahn–Teller effect. In this theory, stable configurations result at energies that are expressed as multiples of the splitting parameter. By combining this theory with molecular orbital theory, it can be generalized to more accurately describe ligands (“LIG-unds”), particularly sigma and pi orbitals. For 10 points, name this theory developed by Hans Bethe (“BAY-tuh”) that describes the structure of d-block transition metals.

ANSWER: **crystal field** theory [or **CFT**; accept **ligand field** theory before “molecular orbitals”]

<Chemistry, WA>

15. A character in this play defines kindness and cruelty together as “the teaching emotion. And what is gained is loss.” That character in this play asks another “is this the thing in the world you’d fight for?” before saying “this is probably the first time in your life you’ve had anything more trying to face than changing your cat’s toilet box.” A man in this play claims to have been a homosexual for exactly eleven days. A character in this play describes his neighbor as “God who is a (*) colored queen who wears a kimono and plucks his eyebrows.” To avoid being attacked by his landlady’s dog, a character in this play poisons the dog with a hamburger bun. A character in this play impales himself on another character’s knife after starting a fight on a bench. Jerry and Peter chat in Central Park in, for 10 points, what Edward Albee play?

ANSWER: **Zoo Story**

<Drama, EL>

16. A false urban legend claims that fathers among this religious group paint their doors blue to indicate that they have marriageable daughters. Youths in this religious group call their friend group a “buddy bunch.” The documentary *Devil’s Playground* fueled hedonistic stereotypes that this group’s youth go on massive binges of drug usage. Wayward members of this group are subject to *Meidung* (“MY-doonk”), or (*) shunning, if they fail to comply with its community rules, which are called the *Ordnung* (“ORD-noonk”). Before members of this group marry and are baptized as adults, they engage with the outside, or “English” world in a period of freedom called *Rumspringa*. For 10 points, name this old-fashioned Mennonite community in the US known for its use of horses and buggies.

ANSWER: **Amish** [or **Pennsylvania Dutch** or **Pennsylvania German**; prompt on **Anabaptists**; prompt on **Mennonites** before “Mennonites”]

<Religion, WA>

17. When visiting his friend Bernard Baruch during Prohibition, this man was hit by a car and secured a doctor's note that he should drink alcohol to help his concussion. This politician claimed that he "never received the President without at least a bath towel" to dismiss a rumor that he walked around naked in the White House. He likened a political rival to "one who feeds a crocodile, hoping it will feed him last." An apocryphal story holds that, when this man was told "Sir, you are very drunk!" in the (*) street, he replied "You are very ugly. I will be sober in the morning, but you will still be ugly." A speech by this politician coined the term "special relationship" to describe US-UK relations. Another of his speeches mentioned a barrier "from Stettin in the Baltic to Trieste in the Adriatic." For 10 points, name this Prime Minister who gave the Iron Curtain speech.

ANSWER: Winston **Churchill**

<British/CW History, EL>

18. In Mapuche myth, a cataclysmic fight took place between two of these animals named Trentren and Caicai. Many Native American peoples believe that either a red buffalo or a red horned version of this animal lives in waters. A god that took the form of this animal was startled by a number of quail on a journey in which he was guided by the evening star, represented by his dog-headed twin, through nine realms; that journey allowed that god with this animal form to create (*) humanity from jade bones that he retrieved from the underworld. The Maya had a god that took this form named Q'uq'umatz or Kukulcan, who was worshipped at the great pyramid at Chichen Itza. The Aztecs founded their capital where an eagle and this animal were found on a cactus. For 10 points, Quetzalcoatl was a feathered example of what sort of animal?

ANSWER: **snake** [or **serpent**; accept **feathered serpent** or **snake**-antelope dance; prompt on **dragon**]

<Mythology, WA>

19. Recent studies suggest that during infections by members of this viral genus, its secreted glycoprotein inhibits macrophage production of TNF-alpha. A vaccine that targets two of these viruses is based on the genetically modified ChAd3 adenovirus and has shown success in phase 2 clinical trials. One species of these viruses is transmissible by aerosols amongst non-human primates and is named after the city of (*) Reston, Virginia. A drug cocktail developed by Canadian and American companies for treating infections with one of these viruses consists of three monoclonal antibodies and is called ZMapp. In 2005, Leroy et al. suggested that some African fruit bat species are reservoirs for these hemorrhagic fever-causing viruses. For 10 points, name these viruses, whose *Zaire* strain caused a large 2014 outbreak in Guinea, Liberia, and Sierra Leone.

ANSWER: **Ebola** virus [accept **Ebola** virus (disease) or Reston **Ebola** virus or **Ebola Zaire**]

<Biology, JL>

20. In a feud over editions of this novel, John Kidd pointed out that Hans Gabler misprinted the real-life Harry Thrift's name as "H. Shrift" in a list of cyclists at the end of one section. A character in this novel references a word "known to all men" while meditating on the "Ineluctable modality of the visible." A large period answers the question "Where?" in this novel's penultimate chapter, which is written in the form of a question-and-response catechism. The title character of this novel masturbates to (*) Gerty MacDowell on the beach in the section "Nausicaa." This novel, which opens with Buck Mulligan insulting Stephen's mother in "Telemachus," ends with the words "yes I said yes I will yes." For 10 points, Molly's soliloquy ends what novel constructed around a day in the life of Leopold Bloom and written by James Joyce?

ANSWER: **Ulysses**

<Long Fiction, JC>

Bonuses

1. Under the direction of Dr. Isaac Greggs, this band got its current nickname for being able to play the top 40 hits of the day. For 10 points each:

[10] Name this marching band that competes yearly with Grambling State's more traditional marching band at the Bayou Classic.

ANSWER: "**Human Jukebox**" [accept the **Marching Band of Southern University and A&M**]

[10] In 1972, the Human Jukebox opened for this Jazz Festival. Duke Ellington included a saxophone solo by Paul Gonsalves during a performance at the 1956 iteration of this Jazz Festival.

ANSWER: **Newport** Jazz Festival

[10] The Human Jukebox and Grambling State battle each year in the Superdome, a stadium in this city. The Human Jukebox played at the first football game in this city after it was hit by Hurricane Katrina.

ANSWER: **New Orleans**

<Other Art: Jazz, EL>

2. A process that crosses the interface between these two phases was pioneered by Makosza ("mon-koh-sha") et al. and may use crown ethers such as 18 crown 6. For 10 points each:

[10] Name these two phases that form distinct layers in a separatory funnel in liquid-liquid extraction.

Phase-transfer catalysis through quaternary ammonium salts allows a complex containing the reactant to cross the interface between them.

ANSWER: **aqueous** phase AND **organic** phase

[10] Phase-transfer catalysis is a type of this general kind of catalysis in which the catalyst and reactants are in different phases. It is contrasted with homogenous catalysis.

ANSWER: **heterogeneous** catalysis

[10] This process is an important step in heterogeneous catalysis. It occurs in the first two steps of the three-step Langmuir-Hinshelwood mechanism, and it is described mathematically by the Langmuir isotherm.

ANSWER: **adsorption** [do not accept or prompt on absorption]

<Chemistry, AK>

3. Canens committed suicide after her husband, a king of Latium, was transformed into this animal. For 10 points each:

[10] Name this animal that Circe transformed Picus into after he rejected her advances. This animal is also sacred to Mars.

ANSWER: **woodpecker** [accept black **woodpecker**; prompt on bird]

[10] A woodpecker brought food to these twin brothers who were sheltered by a she-wolf as children. One of them killed the other in order to found Rome.

ANSWER: **Romulus** AND **Remus**

[10] Mars fathered Romulus and Remus by raping this daughter of Numitor. Amulius, the uncle of this woman, forced her to be a Vestal Virgin prior to giving birth.

ANSWER: **Rhea Silvia** [prompt on partial answer]

<Mythology, RRP>

4. A small bridge fording a river can be seen over the left shoulder of this painting's central figure. For 10 points each:

[10] Name this painting that was copied by Raphael in a sketch of a "Young Woman on a Balcony." Small brush strokes were used to gently blend the colors around the eyes of this painting's central figure.

ANSWER: the **Mona Lisa** [or *La Gioconda* or *La Joconde*]

[10] This artist of the *Madonna of the Rocks* is believed to have depicted Lisa Gherardini in the *Mona Lisa*.

ANSWER: **Leonardo da Vinci** [accept either underlined name]

[10] Writing of the Mona Lisa, this author said that she is “older than the rocks among which she sits.” This art critic developed his statement “All art constantly aspires toward the condition of music” in “The School of Giorgione.”

ANSWER: Walter **Pater**

<Painting/Sculpture, WA>

5. This technique is used for isolating bacterial strains and is often done using a sterilized loop of wire or cotton swab. For 10 points each:

[10] Identify this technique that is used when creating a bacterial culture. It involves making a zig-zag motion and then rotating the Petri dish, then repeating the process multiple times.

ANSWER: **streaking**

[10] Growth media for preparing bacterial cultures often uses this substance derived from seaweed and put on a Petri dish. You may either give the name of the gel or the polysaccharide that it is made of.

ANSWER: **agar** [or **agarose**]

[10] Biological tests, such as the Ames test, use growth media containing a compound such as histidine when culturing bacteria described by this adjective. In contrast to heterotrophs, bacteria described by this adjective are unable to synthesize a particular compound that is necessary for survival.

ANSWER: **auxotrophs** [or **auxotrophic**; or **auxotrophy**]

<Biology, AK>

6. The symbolism of the garden in this collection refers to both the medieval notion of a garden of delights, as illustrated by the tale of Masetto, and a place that offers refuge from the plague. For 10 points each:

[10] Name this collection by Giovanni Boccaccio that consists of one hundred stories told over ten days.

ANSWER: *The* **Decameron** [or **Decamerone**]

[10] Like many medieval texts that echo Boethius, the *Decameron* places central importance on this concept. Niccolò Machiavelli contrasted this concept with *virtù*, and said that both are important qualities for a leader.

ANSWER: **Fortuna** [or **fortune**; prompt on **luck**]

[10] In a double entendre from the *Decameron*, Cimon and Iphigenia join a number of Rhodians *per fortuna*, which could mean that either fortune or one of these events was the cause of their meeting. In the fourth story told on the second day, Landolfo experiences misfortune due to two of these events.

ANSWER: a **storm** [or a **thunderstorm** or a **tempest**; prompt on **shipwreck** by asking “what causes the shipwreck?”; do not accept or prompt on “flood”]

<Short Fiction, WA>

7. Composers from this modern-day country include the mononymous Tansen, who names an award given to classical musicians every year. For 10 points each:

[10] Name this country whose native instruments include the *sarod*, *sitar*, and *tabla*.

ANSWER: **India** [or Republic of **India**; or **Bharatiya** Ganarajya]

[10] The *sarod* and other Indian string instruments can easily produce *meend*, which is equivalent to this Italian term from Western classical music that refers to a slide from one pitch to another.

ANSWER: **glissando**

[10] A *sarod* master with this surname became the first Indian musician to receive a MacArthur grant in 1991 after he worked to bring Indian music to the US. The best-known *qawwali* musician of the 20th century was a man with this surname who worked with Peter Gabriel on the soundtrack to *The Last Temptation of Christ*.

ANSWER: **Khan** [accept Ali Akbar **Khan** or Nusrat Fateh Ali **Khan**]

<Classical Music/Opera, WA>

8. This country's military participated in the Vadamarachchi Operation in 1987, the first conventional military operation on home soil since colonial rule. For 10 points each:

[10] Name this country whose air force was instrumental in transporting troops and supplies during a 1971 uprising by the Marxist JVP party.

ANSWER: **Sri Lanka** [or Democratic Socialist Republic of **Sri Lanka**]

[10] The Vadamarachchi Operation sought to regain control of the Jaffna Peninsula from this separatist group, which waged a civil war in Sri Lanka that lasted until 2009.

ANSWER: **Tamil Tigers** [or **Liberation Tigers of Tamil Eelam** or **LTTE**]

[10] Most of Sri Lanka's current combat aircraft are Chinese-built versions of aircraft designed by a Russian company known by this acronym. The F-86 Sabre was the first American response to this company's model 15.

ANSWER: Russian Aircraft Corporation **MiG** [or **Mikoyan** and Gurevich Design Bureau]

<World History, BB>

9. A partisan phenomenon described by this word is measured by such indices as those developed by Michael Taylor and V. M. Herman in 1971 and Federal Reserve economist Marina Azzimonti in 2013. For 10 points each:

[10] Give this word that can describe a social phenomenon exacerbated by partisanship, in which groups collectively take more extreme positions and attitudes than members' inclinations.

ANSWER: **polarization** [accept word forms such as **polarized**; accept political **polarization** or attitude **polarization** or group **polarization**]

[10] Some analysts have partly attributed the recent increase in polarization in US politics to this landmark 2010 Supreme Court decision that prohibited the restriction of independent political expenditures.

ANSWER: **Citizens United v. Federal Election Commission**

[10] Surveys from this nonprofit consistently find that Americans have become more partisan on all issues. This nonprofit, which bills itself as a "fact tank" and source of free data, is a subsidiary of a set of "Charitable Trusts" founded by a namesake Sunoco executive in the 1950s.

ANSWER: **Pew Research Center** [prompt on **Pew** or other partial answers by asking "what is the full name of the nonprofit?"]

<Other/Misc Academic, WA>

10. A poem by Mary Oliver opens, "Ordinarily, I go to" this place "alone" and declares that "If you have ever gone to" this place "with me, I must love you very much." For 10 points each:

[10] Name these locations that title a book in which the author recounts a trip with his friend Stephen Katz.

ANSWER: **woods** [accept **forests**]

[10] This nonfiction author wrote about his hike up the Appalachian Trail in the legendary *A Walk in the Woods*. This author's other nonfiction works include *Notes from a Small Island* and *A Short History of Nearly Everything*.

ANSWER: Bill **Bryson**

[10] Henry David Thoreau retreated into the "woods to live deliberately" and recounted his journey in this book titled for the pond near which he stayed.

ANSWER: **Walden**

<Misc. Lit, JC>

11. This prayer is considered *nafl*, or voluntary, and is not allowed to be performed during noon, sunrise, or sunset. For 10 points each:

[10] Name this prayer performed by Muslims who need guidance from Allah about a decision. It is followed by a *du'a*, or supplication, in which the performer states the issue that they need guidance on.

ANSWER: Salat al-**Istikhara**

[10] Salat al-Istikhara is not part of the daily prayers of Islam, of which there are this many. This is also the number of pillars of Islam.

ANSWER: **five**

[10] Not performing any prayer deemed *fard*, or obligatory, has different consequences based on which *madhab*, or schools of this system of Islamic jurisprudence, an individual follows. This system interprets the Shariah.

ANSWER: **fiqh**

<Religion, AK>

12. David Lewis has argued that these things, though causally isolated, have a concrete reality beyond abstract theoretical utility. For 10 points each:

[10] Identify these things that modal logicians such as Saul Kripke use in order to give a formal semantics for necessity. These things do not necessarily exist.

ANSWER: **possible worlds** [prompt on worlds]

[10] Kripke defines modality in terms of this binary relation denoted *R*. A sentence is [emphasize] *necessarily* true if and only if it is true in every possible world with this relation to the actual world.

ANSWER: **accessibility** relation [or **accessible**; or word forms]

[10] This rationalist philosopher argued that our world was the best of all possible worlds. He and Isaac Newton independently developed calculus.

ANSWER: Gottfried Wilhelm **Leibniz** [or Gottfried Wilhelm **von Leibniz**]

<Thought, KL>

13. Riots sparked by resentment over police brutality took place on a night named for these structures, which were employed by students who forced George Pompidou to reopen the Sorbonne. For 10 points each:

[10] Identify these structures. Their first major appearance in Parisian history occurred on a namesake “day” in 1588 during an outbreak of mass protest against Henry III.

ANSWER: **barricades** [or Day of the **Barricades** or La Journée des **Barricades** or Night of the **Barricades** or La Nuit des **Barricades**]

[10] The “Night of the Barricades” and the May 1968 protests were a reaction to the conservative policies of this French President who had risen to fame as leader of Free France during World War II.

ANSWER: Charles **de Gaulle**

[10] The “Day of the Barricades” was coordinated by a holder of this title in concert with ambassadors from Philip III of Spain. Several months later, Henry III had that holder of this title and his brother, a cardinal named Louis, murdered at the Château de Blois.

ANSWER: Duke of **Guise** (“gheez”) (Henry of Guise led the Catholic League.)

<Continental post-600 History, EL>

14. This poet asked “Who dreamed that beauty passes like a dream” in his poem “The Rose of the World.” For 10 points each:

[10] Name this poet whose early period produced the collection *The Rose* and the poem “The Lake Isle of Innisfree.” This poet wrote “Sailing to Byzantium.”

ANSWER: William Butler **Yeats**

[10] “The Rose of the World,” as well as other poems from *The Rose* such as “When You Are Old” and “The Countess Cathleen in Paradise,” depict Yeats’s unrequited love for this Irish nationalist activist.

ANSWER: Maud **Gonne** [or Maud Gonne **Macbride**]

[10] “The sad rose of my days” is mentioned twice in a Yeats poem titled for a rose that is implied to waste away on one of these objects. An old poem titled for one of these objects preserved in the Vercelli Book opens “Listen! I will tell of the sweetest dreams” and describes one of these objects covered in gemstones and bloodstains.

ANSWER: **rood** [accept “To the Rose Upon the **Rood** of Time” or *Dream of the **Rood***; prompt on cross or crucifix or True Cross by asking “what is the cross referred to as in the title?”]

<Non-Epic Poetry, WA>

15. Energy transmitted by this phenomenon is measured by an SI unit called the dose. For 10 points each:

[10] Identify this phenomenon. In hospitals, patients wear lead aprons to protect themselves from it when undergoing imaging procedures.

ANSWER: **radiation** [or ionizing **radiation**]

[10] Like MRI, this technique's "functional" form is becoming widely used for non-radiative imaging, such as measuring blood flows to understand brain activity. It is often used to analyze the contents of milk, as milk proteins typically have absorbance bands in the range of 1000 to 2000 nanometers.

ANSWER: **near-infrared spectroscopy** [or functional **near-infrared spectroscopy**; or **NIR spectroscopy** or **nIRS** or **fnIRS**; accept **FT-NIR**; prompt on **spectroscopy**; prompt on **IR** or **infrared** spectroscopy]

[10] Another imaging technique is a form of tomography that analyzes emission of these particles to scan for disease. Of the two particles produced when a photon undergoes pair production, this one is less common in the universe overall.

ANSWER: **positrons** [accept **positron** emission tomography] (The technique is a PET scan.)

<Physics, WA>

16. For about a century, this empire engaged in constant warfare on its eastern borders against the Hephthalites, who are also known as the White Huns. For 10 points each:

[10] Name this Persian empire that, in addition to dealing with the White Huns, also dealt with an invasion from the more famous European Huns around 435 AD. This empire fought the Eastern Roman Empire for centuries.

ANSWER: **Sassanid** Empire [or **Sassanian** Empire]

[10] The Hunnic invasion of the Sassanid Empire reached this Mesopotamian capital of the Sassanids and Parthians. This city, located on the Tigris River, was consciously founded near the former Seleucid capital city.

ANSWER: **Ctesiphon** [or **Tisfun**]

[10] The Huns invaded the Sassanid Empire after Attila and Bleda signed a treaty named for this river with the Eastern Roman Empire. Diocletian defeated Carinus at a decisive 285 AD battle named for this river.

ANSWER: **Margus** River [accept Battle of the **Margus**]

<Ancient History, NB>

17. This structure's "feng shui" ("fung shway") is a method of manipulating blocks of it in order to achieve more consistent exploitation. For 10 points each:

[10] Name this region of memory contrasted with the stack. This region of memory is allocated in C using functions like "malloc" ("MAL-uck") and "calloc" ("CAL-uck").

ANSWER: **heap** [accept **heap** feng shui]

[10] No-execute protections may be bypassed by "spraying" the heap with shellcode produced by this type of compilation, whose results must be executable. The JVM performs this type of compilation on Java bytecode to produce machine code.

ANSWER: **just-in-time** compilation [or **JIT** compilation; accept **JIT** spraying]

[10] When targeting browsers, JIT ("jit") sprays are typically performed with this prototype-based programming language that almost all browsers support. Node.js ("node-J-S") is a runtime for this language that uses Google's V8 engine for it.

ANSWER: **JavaScript** [or **ECMAScript**; prompt on **JS** or **ES**]

<Other Science: Computer Science, JL>

18. This politician nearly went bankrupt several years after leaving office, so he was lent a substantial amount of money by his cousin Gazaway Bugg. For 10 points each:

[10] Name this politician who was known as the "Poet President" for writing such poems as "The Daughter of Mendoza." This politician facilitated a huge debt crisis by authorizing the issuance of worthless "redback" currency.

ANSWER: Mirabeau **Lamar**

[10] Lamar wrote a poem to a newspaper in 1841 under the pseudonym “Faddle” insulting this politician, who both preceded and succeeded him as President of Texas. This namesake of a Texas city won the Battle of San Jacinto.

ANSWER: Sam **Houston**

[10] Lamar’s Secretary of War was a general with this surname who later died leading Confederates on the first day of the Battle of Shiloh. Robert E. Lee replaced another man with this surname as leader of the Army of the Potomac.

ANSWER: **Johnston** [accept Albert Sidney **Johnston** or Joseph **Johnston**; do not accept or prompt on “Johnson”]

<US History, NB>

19. This country is the setting of a novel in which Kitty Fremont and Karen Hansen help defeat a British blockade of the title ship. For 10 points each:

[10] Name this country home to the authors of *A Tale of Love and Darkness* and *Open Closed Open*. This country was also home to an author whose distinct word choice is referred to as “Agnonit” (“ogg-no-NEET”).

ANSWER: **Israel** (In order of mention, the authors are Amos Oz, Yehuda Amichai, and S. Y. Agnon.)

[10] This bestselling 1958 Leon Uris novel follows the Israeli independence movement and the founding of Israel. This novel takes its title from an immigration ship from the late 1940s.

ANSWER: **Exodus**

[10] This man cited *Exodus* as a driving example of the propagandistic and distorted view of history with which West regards the Arabic and Eastern world, a thesis that he laid out in *Orientalism*.

ANSWER: Edward **Said** (“sa-EED”)

<Long Fiction, JC>

20. When this situation occurs in a labor market, the quantity of labor purchased will be determined by the intersection of the marginal cost and marginal revenue product curves, but the wage value will be depressed. For 10 points each:

[10] Identify this general type of market situation. Examples of this situation may include Walmart being the only employer in a small town, or a government mandating that all grain be sold through a wheat board.

ANSWER: **monopsony** [do not accept or prompt on “monopoly”]

[10] A labor market monopsony may be counteracted by workers forming one of these organizations, which could then collectively bargain the wage up to equal the monopsonist’s marginal revenue product.

ANSWER: labor **unions** [or trade **unions**]

[10] The Oxford English Dictionary credits the coining of the term “monopsony” to this economist’s book *The Economics of Imperfect Competition*. This woman extended Keynesian (“KANE-zee-in”) theory to apply to long-run situations in her book *The Accumulation of Capital*.

ANSWER: Joan **Robinson**

<Social Science: Economics, WA>

