

CALISTO 2

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Packet 13

1. **One of these structures named Capital Gate holds the record for the furthest leaning manmade building in the world. Fazlur Khan originated a “bundled tube” system used to design these structures while working for Skidmore, Owings, and Merrill. Frank Lloyd Wright designed an unrealized one of these structures called (*)** The Illinois. A footbridge connects two of these buildings designed by César Pelli in Kuala Lumpur. Adrian Smith designed one of these buildings in Dubai that includes an unusable spire that adds over 250 yards to its height. For 10 points, the Burj Khalifa and Petronas Twin Towers exemplify what very tall buildings?

ANSWER: **skyscrapers** [prompt on tower before mention; prompt on high-rise; prompt on office building by asking “What kind of building are the offices located in?”; prompt on hotel by asking “What kind of building is the hotel located in?”]

<Architecture — Miles> [Edited]

1. Victor Berger was the first member of a party representing this ideology to be elected to Congress in the United States. For 10 points each:

[E] Name this left-wing ideology, whose “sewer” type was used to describe some politicians around the turn of the 20th century. More recently, the “democratic” form of this ideology has been advocated by Bernie Sanders.

ANSWER: **socialism** [accept **Socialist** Party; accept democratic **socialism** or sewer **socialism**]

[H] Emil Seidel became the first Socialist mayor of a major American city after being elected mayor of this city in 1910. “Sewer socialism” was coined to mock socialists from this city who bragged about their great sewer system.

ANSWER: **Milwaukee**

[M] After being defeated in Milwaukee’s 1912 mayoral election, Seidel became the running mate for this Socialist presidential candidate. This politician ran the last of his five presidential bids from prison in 1920.

ANSWER: Eugene V. **Debs** [or Eugene Victor **Debs**]

<American History — Delot-Vilain> [Edited]

2. **The force generated by these things is density times velocity times circulation by the Kutta-Joukowski theorem. They're not wheels, but the degree of asymmetry in the shape of these objects, called camber, can allow them to function at zero angle of attack. Control surfaces like (*) flaps and ailerons may be attached to these things to prevent stalling and control roll. The Bernoulli effect explains how these things generate force, since by deflecting air downwards they create a lower pressure above them than below them. For 10 points, name these things that generate lift to keep airplanes in the air.**

ANSWER: **wings** [accept **airfoils**; accept **lift surfaces**; prompt on airplanes or aeroplanes before mention by asking “which part of the airplane?”]

<Physics — Sheffield> [Edited]

2. A character in this play hurls a plate of linguini at the wall and complains about a note reading “We’re all out of Corn Flakes. F.U.” For 10 points each:

[H] Name this play in which Felix Ungar stays with his friend Oscar after his wife kicks him out of their house. Felix moves in with the Pigeon sisters at the end of this play by Neil Simon.

ANSWER: *The **Odd Couple***

[M] The Pigeon sisters, Gwendolyn and Cecily, are named for the female leads of this play. In this play, Jack and Algernon schedule a christening because Gwendolyn and Cecily refuse to marry them on the basis of their names.

ANSWER: *The **Importance of Being Earnest***

[E] The premiere of Neil Simon’s *The Odd Couple* and the American premiere of Oscar Wilde’s *The Importance of Being Earnest* both took place in this New York City theater district, which is home to many musicals.

ANSWER: **Broadway**

<Drama — Sheffield> [Ed. Orr]

3. **In a dream in this novel, a character compares her vision to “the window of an old Christmas card” while her daughter is taken from her. That character in this novel hides butter in her shoes and later uses it as lotion for her arms. This novel’s protagonist finds solace in a phrase engraved in her cupboard, (*) “nolite te bastardes carborundorum.”** After stabbing an Aunt in the Red Center, Moira runs away in this novel. The protagonist is forced to have children for Serena Joy and the Commander in this novel, which is set in the Christian fundamentalist Republic of Gilead. For 10 points, name this dystopian novel about Offred by Margaret Atwood.

ANSWER: *The **Handmaid’s Tale***

<Long Fiction — Yau> [Ed. Orr]

3. This show’s third season was released in 2021 and follows the divorce of Denise, a Black lesbian novelist. For 10 points each:

[H] Name this Netflix series that follows Dev Shah, a struggling Indian actor who moves to Italy to learn how to make pasta after breaking up with his girlfriend Rachel.

ANSWER: ***Master of None***

[E] *Master of None* was created by and stars Aziz Ansari, who also starred in this comedy TV series about the title Pawnee, Indiana government department. Nick Offerman plays the libertarian Ron Swanson on this show.

ANSWER: ***Parks and Recreation*** [or ***Parks and Rec***; prompt on **PNR**]

[M] In *Master of None*, Denise is played by Lena Waithe, who titled one of her own shows after this home city of hers. A series about the workers of Firehouse 51 in this city spawned a number of spinoffs that all air on NBC.

ANSWER: **Chicago**, Illinois [accept *The **Chi*** or ***Chi-Town***] (The other series is *Chicago Fire*, whose spinoffs include *Chicago P.D.*, *Chicago Med*, and *Chicago Justice*.)

<Popular Culture — Ashbrook> [Edited]

4. **The Wörgl experiment saw the introduction of a type of this stuff with intentional demurrage, inspired by the ideas of Silvio Gessell. The difference between this stuff’s value and its production cost is called seigniorage. When there are two types of this stuff, the less intrinsically valuable kind becomes dominant according to (*) Gresham’s law.** Historical examples of this stuff include rai stones, disks of limestone used by the Yapese, and cowrie, a type of sea snail shell. This stuff is traded in foreign exchange markets. The fiat type of this stuff may derive value from being declared legal tender. For 10 points, name this stuff used as a medium of exchange, including euros and dollars.

ANSWER: **currency** [or **cash**; accept **scrip**; accept **money**; accept **coins** or **bills** or bank**notes**; prompt on specific types of currency like **dollars**]

<Economics — Sheffield>

4. The Rosetta@home project aims to improve prediction of this process in part by analyzing user inputs to a video game that challenges users to simulate it as accurately as possible. For 10 points each:

[H] Name this process which would take an impossibly long amount of time to do by chance according to Levinthal's paradox.

ANSWER: **protein folding** [accept word forms] (The name of the game mentioned in the leadin is called *Foldit*.)

[E] The deep learning algorithm AlphaFold predicts protein structure based only on the order of these subunits, which make up a protein's primary structure. In proteins, these compounds are connected by peptide bonds.

ANSWER: **amino acids**

[M] Mutations in the PrP gene can cause the formation of these agents made of misfolded proteins that in turn cause other, normal proteins to take on their shape. Scrapie, kuru, and mad cow disease are all caused by these agents.

ANSWER: **prions**

<Biology — Schwartz> [Edited]

5. **A photo published in *Life Magazine* shows the activist Yuri Kochiyama holding this person's head after his death. This person gained public fame after an interview of him by Louis Lomax was included in the vilifying documentary (*) *The Hate That Hate Produced*. This person claimed to receive "spiritual insights" into American racial animosity after observing unity between "blue-eyed blondes" and "black-skinned Africans" during his hajj. This civil rights activist feuded with Elijah Muhammad before quitting the Nation of Islam. For 10 points, name this Black nationalist leader with a single-letter surname.**

ANSWER: **Malcolm X** [or Malcolm **Little** or el-Hajj Malik **el-Shabazz**]

<American History — Delot-Vilain> [Edited]

5. Leon Battista Alberti's trabeated three-tiered design for the facade of one of these buildings progresses from rustication to ornamentation with each ascending floor. For 10 points each:

[H] Name these buildings, one of which Alberti designed for the Rucellai ("ROO-chuh-lye") family. A copy of Michelangelo's *David* stands in one of these buildings nicknamed "*vecchio*" ("VEH-kee-oh").

ANSWER: **palaces** [or **palazzo** or **palazzi**; accept **Palazzo Rucellai**; accept **Palazzo Vecchio**]

[M] Both the *Palazzo Rucellai* and *Palazzo Vecchio* stand in this city. Filippo Brunelleschi used a herringbone pattern to construct a dome in this city that, to this day, remains the world's largest brick and mortar dome.

ANSWER: **Florence** [or **Firenze**]

[E] Many *palazzi* like the *Palazzo Pitti* now function as these institutions. Other examples of these institutions include the Uffizi and the Louvre.

ANSWER: art **museums** [or art **gallery**]

<Architecture — Ma> [Edited]

6. **The amoleh variety of this resource is produced around Lake Afrara in northern Ethiopia. In Britain, towns whose names end in the suffix "-wich" often were large producers of this resource historically. Lithium and this resource are highly concentrated in a feature named after Uyuni in the Bolivian Altiplano. Along the coast of the Gulf of Mexico, oil is often found in (*) "domes" of this resource. A pink-colored variety of this resource found in Punjab is named for the Himalayan mountains. The Bonneville Speedway in Utah is on an exceptionally flat "pan" of this resource. For 10 points, name this mineral resource found in high concentrations in the Dead Sea.**

ANSWER: **salt** [or rock **salt** or **halite** or **sodium chloride** or **NaCl**]

<Geography — Amanullah> [Edited]

6. A NASA space telescope named after this scientist is the most sensitive X-ray telescope in the world. For 10 points each:

[H] Name this Indian-American astrophysicist who calculated a “limit” equal to about 1.4 solar masses.

ANSWER: Subrahmanyan **Chandrasekhar** [prompt on Chandra X-ray Observatory]

[M] The Chandrasekhar limit gives the highest stable mass of these objects, above which they undergo Type Ia (“one-A”) supernovae. The Sun will become one of these objects at the end of its life.

ANSWER: **white dwarfs** [or **degenerate dwarfs**; prompt on dwarf stars or degenerate stars or compact stars or stellar remnants]

[E] Below the Chandrasekhar limit, white dwarfs are stabilized against this force by electron degeneracy pressure. This attractive force occurs between all objects with mass, like the Earth and the Moon.

ANSWER: **gravity** [or **gravitational** force]

<Astronomy — Yin> [Edited]

7. Robert de Vere and other favorites of a king of this name were sentenced to death after the rebellion of the Lords Appellant. Another king of this name likely employed members of the Assassins to kill Conrad of Montferrat. A king of this name was deposed by Henry Bolingbroke, the son of John of Gaunt. A king of this name was captured and (*) ransomed for 150,000 marks by Leopold of Austria, whom he had earlier insulted at the siege of Acre. That king of this name captured Jaffa after defeating Saladin during the Third Crusade, which he led with Philip II and Frederick Barbarossa. For 10 points, give this regnal name of the English king nicknamed “Lion Heart.”

ANSWER: **Richard** [accept **Richard I** or **Richard II** or **Richard** Couer-de-Leon or **Richard** the Lion Heart]

<European History — French> [Ed. Delot-Vilain]

7. In a poem, this character remarks that Friday “had a pretty body” after lamenting, “If only he had been a woman!” For 10 points each:

[E] Name this character who narrates that poem set after his return to England. This character survives on a desert island for twenty-eight years with his companion Friday in a novel by Daniel Defoe.

ANSWER: Robinson **Crusoe** [or **Robinson** Crusoe]

[H] That poem, “Crusoe in England,” is by this author. This poet wrote, “The art of losing isn’t hard to master” in her villanelle, “One Art.”

ANSWER: Elizabeth **Bishop**

[M] In “Crusoe in England,” the speaker recalls failing to remember that “of solitude” is the phrase that succeeds this poem’s lines, “that inward eye / Which is the bliss...” The speaker sees a “host” of golden flowers in this poem by William Wordsworth.

ANSWER: “**I Wandered Lonely as a Cloud**” [or “**Daffodils**”]

<Poetry — Condron> [Ed. French]

8. One of this author’s characters is given a new pair of skates for spelling the word “Eternity” out of ice. Another of this author’s characters sees visions of her grandmother while freezing to death on New Year’s Eve. In one of this author’s stories, Kay’s heart is pierced by a fragment of the devil’s mirror. The title character of a story by this author turns into (*) sea foam after the prince she saved from drowning doesn’t fall in love with her. This author of “The Little Match Girl” and “The Snow Queen” wrote about a character who trades her voice to a sea witch in exchange for legs. For 10 points, name this Danish author of fairy tales like “The Little Mermaid.”

ANSWER: Hans Christian **Andersen**

<Other Literature — Sheffield>

8. The 2020 iteration of this project had a much higher rate of unanswered questions than usual. For 10 points each:
[E] Name this project that surveys the entire U.S. population every ten years to gather demographic information and tally the country's number of inhabitants.

ANSWER: U.S. Census

[M] Controversially, the 2020 census added this statistical phenomenon to its results as part of the practice of "differential privacy." The ratio of signal to this phenomenon is used to quantify the purity of information.

ANSWER: noise

[H] As a result of differential privacy, the 2020 census "counted" a non-existent second person in Monowi, a town in this state which actually only has one resident.

ANSWER: Nebraska

<Other — Condron> [Edited]

9. **In Java, this operator has precedence only above assignment operators and the ternary operator. Transistors connected *in parallel* implement this operation, whose logic gate has a concave back and pointed front. When the first argument to this operation is true, short-circuiting skips evaluation of the second argument. This operation is true in three cells of a two-by-two truth table, unlike a similarly-named (*) "exclusive" operation which is only true in two. In many languages this operation is notated with two vertical bars. This operation is true when at least one of its inputs is true. For 10 points, name this logical operation which is the counterpart of AND.**

ANSWER: logical **OR** [or inclusive **OR** or bitwise **OR** or conditional **OR** or logical **disjunction**; do not accept or prompt on "exclusive OR"]

<Computer Science — Gray> [Edited]

9. The first movement of this composer's fifteenth and final symphony repeatedly quotes from Rossini's *William Tell* overture. For 10 points each:

[M] Name this composer. His fifteenth symphony includes his "D, E-flat, C, B" or "D-S-C-H" monogram, and its finale is reminiscent of the "invasion theme" he wrote in a previous symphony.

ANSWER: Dmitri Shostakovich [or Dmitri Dmitrievich Shostakovich]

[E] The finale of Shostakovich's fifteenth symphony quotes the fate motif from *Die Walküre*, an opera by this German composer of the *Ring* cycle.

ANSWER: Richard Wagner ("VOG-ner")

[H] The finale of Shostakovich's final composition, a sonata for viola and piano, paraphrases the repeated rising right-hand triplets G-sharp, C-sharp, E that begin this piece. A slow *adagio sostenuto* comprises the first movement of this Beethoven piece.

ANSWER: Moonlight Sonata [or Piano Sonata No. 14 or Fourteenth Piano Sonata or Opus 27 No. 2; prompt on partial answers]

<Classical Music — Condron> [Edited]

10. **A boy, his father, and their dog wait on a bench for a train that will take the boy to university in this artist's painting *Breaking Home Ties*. In another painting by this artist, three half-dressed boys race past a sign that reads, "No Swimming." In one painting, this artist peers into a mirror while smoking a pipe so he can draw a portrait of himself on an easel. This artist depicted a Thanksgiving dinner in the (*) "*from Want*" section of one work. This artist showed Ruby Bridges walking in front of a wall with a racial slur scrawled on it while going to school in *The Problem We All Live With*. For 10 points, name this American artist who created the Four Freedoms series for the Saturday Evening Post.**

ANSWER: Norman Rockwell [or Norman Perceval Rockwell]

<Painting — An> [Ed. Venkateswaran]

10. This woman apocryphally declared that “purple is the noblest shroud” during the Nika Riots. For 10 points each:
[M] Name this empress of the Byzantine Empire who met her husband Justinian through their shared support for the Blue faction of the demes.

ANSWER: **Theodora**

[E] Theodora originally worked as an actress and in this other profession, later advocating for women in this profession as empress. *Hetairai* were women in this profession in ancient Greece who often worked at brothels.

ANSWER: **prostitution** [accept any answers describing **sex work**]

[H] While Justinian was ill with the plague, Theodora confiscated the wealth of this prominent Byzantine general. This general defeated the Vandals at the battle of Ad Decimum and captured Ravenna from the Ostrogoths.

ANSWER: **Belisarius**

<European History — Prabhakar> [Edited]

11. **This quantity for molecular conformations can be compared by analyzing which molecule’s ground state destabilization decreases this quantity more. Quaternary ammonium salts can lower this quantity by causing a reactant to undergo phase transfer. The pre-exponential factor multiplies “e raised to negative this quantity over RT” in the (*) Arrhenius equation. On a reaction coordinate diagram, this quantity can be calculated by subtracting the height of the reactants from the height of the transition state. For 10 points, name this quantity which can be reduced by catalysts and describes the amount of energy needed to trigger a chemical reaction.**

ANSWER: **activation energy**

<Chemistry — Schwartz> [Edited]

11. One lover of this deity transforms into a cypress tree after accidentally killing a deer. For 10 points each:

[E] Name this lover of the boy Cyparissus. This Greek god of light and music is the twin of Artemis.

ANSWER: **Apollo**

[M] In another myth, Apollo becomes infatuated with this nymph after being struck by one of Cupid’s arrows. To escape his pursuits, this nymph prays to her father Peneus, who transforms her into a laurel tree.

ANSWER: **Daphne**

[H] Yet another unfortunate lover of Apollo is this man, who is killed after a jealous Zephyrus redirects a discus to hit him. After this man’s death, Apollo creates a flower out of his blood.

ANSWER: **Hyacinthus** [or **Hyacinth**]

<Mythology — An> [Edited]

12. **This character is compared to “that sail which leans on light... a schooner beating up the Caribbean” in Derek Walcott’s poem “Sea Grapes.” Another poem places this character by a “still hearth,” among “barren crags,” and “match’d with an aged wife.” In that poem, this character concludes that he is “strong in will / To (*) strive, to seek, to find, and not to yield.” In another work, this character consumes *moly* to avoid being transformed into a pig while on the island of Aea. That work begins *in medias res* as this character is stranded on Calypso’s island. For 10 points, name this Greek hero who journeys home to Ithaca in an epic by Homer.**

ANSWER: **Odysseus** [or **Ulysses**]

<Poetry — French> [Edited]

12. Edward Witten proposed that all versions of this theory could be united into a single M-theory, although a mathematical formulation for that theory has yet to be found. For 10 points each:

[M] Name this potential theory of everything, which models all elementary particles as vibrations of tiny harmonic oscillators.

ANSWER: **string** theory [accept super**string** theory]

[E] One theoretical success of string theory is its ability to replicate predictions of the thermodynamics of these things. These astronomical bodies are so dense that even light cannot escape.

ANSWER: **black holes**

[H] A niche theory in modern physics combines string theory with this other theory of everything, which proposes that every elementary particle has a partner whose spin differs by one-half.

ANSWER: **supersymmetry** [or **SUSY**]

<Physics — Sheffield> [Ed. Bowman]

13. **Functioning biological examples of these things allow juvenile planthoppers to synchronize their legs when jumping. Double basses are tuned with an apparatus that combines a screw and one of these things known as a worm drive. So-called (*) “sun” things of this kind are at the centers of planetary systems. A popular demonstration shows motion seemingly disappearing within a linked system of these things with a very high namesake “ratio.”** Low examples of these things may be selected to make pedaling a bicycle uphill easier. For 10 points, name these rotating machine parts that have interlocking teeth.

ANSWER: **gears** [accept worm **gear**s or planetary **gear**s or sun **gear**s]

<Other — Condron> [Edited]

13. This musician lost the use of two fingers on his left hand after he accidentally knocked over a candle, badly burning himself. For 10 points each:

[H] Name this French-Romani jazz guitarist. He composed the standards “Minor Swing” and “Nuages” with his Quintette du Hot Club de France.

ANSWER: Django **Reinhardt** [or Jean **Reinhardt**]

[M] Reinhardt’s album *Djangology* features a recording of the “I Got Rhythm,” a standard by this American composer. This composer fused jazz with classical music in pieces like *An American in Paris*.

ANSWER: George **Gershwin** [or Jacob **Gershwin**]

[E] Django Reinhardt also recorded a number of pieces with Duke Ellington, who played this keyboard instrument. Thelonius Monk and Herbie Hancock also played this instrument with 88 black and white keys.

ANSWER: jazz **piano** [or **pianoforte**]

<Jazz — Miles> [Edited]

14. **After discovering the twelve-tone technique in the late 1940s, this composer wrote works such as *Inscape* and *Connotations*. Inspired by a Henry A. Wallace speech, this composer wrote a brass and percussion piece that prominently features the ascending trumpet notes F, B-flat, F. This composer set excerpts from the Gettysburg Address to music in his (*) *Lincoln Portrait*. The daily life of the Bride and Farmer are accompanied by variations on the Shaker song *Simple Gifts* in a ballet by this composer choreographed by Martha Graham.** For 10 points, name this American “populist” composer of *Fanfare for the Common Man* and *Appalachian Spring*.

ANSWER: Aaron **Copland**

<Classical Music — An> [Ed. Ma]

14. This politician's namesake act ended up dispossessing the Five Civilized Tribes of over 90 million acres of land, though he was displeased with the final version of the bill. For 10 points each,

[H] Name this politician. After serving as Senate Majority Leader, this politician served as Herbert Hoover's vice president, becoming the first vice president with non-European ancestry through his Native American heritage.

ANSWER: Charles **Curtis**

[E] Curtis was in favor of sending Native American children to be educated in "boarding" types of these places. Dartmouth, one of these places in New Hampshire, was originally founded to Christianize Native Americans.

ANSWER: boarding **schools** [accept more specific types of schools like **colleges** or **university**]

[M] In Congress, Curtis introduced the first version of this proposed constitutional amendment that addressed women's rights. This amendment was approved by Congress in the 1970s but failed to be ratified by the states.

ANSWER: **Equal Rights Amendment** [or **ERA**]

<American History — Amanullah> [Edited]

15. **An editorial during this period titled "Leaving Asia" was written in response to the failed Gapsin coup. Forces opposed to the onset of this period were defeated in the Boshin War. Five principles for reform during this period were outlined in the Charter Oath. The (*) Satsuma Rebellion attempted to reverse the effects of this period nine years after its beginning. This period was prompted by the arrival of American "black ships" led by Commodore Matthew Perry. This period began after its eponymous emperor took power from the Tokugawa Shogunate. For 10 points, name this modernizing period of Japanese history.**

ANSWER: **Meiji** Restoration

<World History — Athreya> [Ed. Delot-Vilain]

15. An essay by this author argues that one character's "tragedy" is that "he admits the possibility of his being sub-human and feels constrained, therefore, to battle for his humanity." For 10 points each:

[M] Name this author. The fourteen-year-old John Grimes experiences a religious revelation while lying on the threshing-floor of a church in this author's novel *Go Tell It on the Mountain*.

ANSWER: James **Baldwin**

[H] In this essay, Baldwin criticizes the violence of Richard Wright's *Native Son* and the "self-righteous, virtuous sentimentality" of a Harriet Beecher Stowe novel.

ANSWER: "**Everybody's Protest Novel**"

[E] "Everybody's Protest Novel" calls Bigger Thomas, the protagonist of *Native Son*, the "descendant" of this character created by Stowe. This character appears in an anti-slavery novel titled for "[this character's] Cabin."

ANSWER: Uncle **Tom** [accept *Uncle Tom's Cabin*; or, *Life Among the Lowly*]

<Other Literature — Lin> [Edited]

16. **These people can confer blessings by reciting *Pirit* prayers. According to legend, one of these people stared at a wall for 9 years and had his own student cut off his arm. These people must follow a set of rules found in a text known as the *Vinaya*. *Sokushinbutsu* is a practice where these people (*) self-mummify while still alive. The third of the Three Jewels of Buddhism refers to these people. The community of these people is referred to as the *sangha*, while these people are known as *bhikku*. A martial arts practicing community of these people is found in Shaolin. For 10 points, name these religious people who try to achieve nirvana while residing in monasteries.**

ANSWER: Buddhist **monks**

<Religion — Dai> [Edited]

16. This test involves summing observed value minus expected value squared over expected value for each category, and then comparing the result to this test's namesake distribution. For 10 points each:

[M] Name this statistical test, used to determine the goodness-of-fit between a given distribution and the population distribution. This test is named for a Greek letter.

ANSWER: **chi-squared** test [or **chi-square** test; prompt on **chi**]

[H] Like Student's t-distribution, the chi-squared distribution takes this single parameter, equal to the number of categories minus one. This quantity can be thought of as the dimension of the domain of a random vector.

ANSWER: **degrees of freedom** [accept **df**]

[E] The central limit theorem can be used to show that as the degrees of freedom approach infinity, the chi-squared distribution approaches this distribution. This symmetric, bell-shaped distribution is ubiquitous in statistics.

ANSWER: **normal** distribution [or **Gaussian** distribution; prompt on **bell curve**]

<Math — Sheffield> [Edited]

17. **This process occurs due to the alternative fixation of incompatible genes at two or more loci according to the Dobzhansky–Muller model. Cline models of trait gradients can explain why “ring species” tend to undergo this process. Large amounts of unoccupied niches can cause this process to occur rapidly within a population in (*)** adaptive radiation. Whether this process occurs through divergent selection in the same area or through physical geographical separation classifies it as either sympatric or allopatric, respectively. For 10 points, name this process which produces two taxa that cannot interbreed.

ANSWER: **speciation** [accept descriptive answers like “formation of a **new species**”]

<Biology — Schwartz> [Edited]

17. The demons Beelzebub, Apollyon, and Legion build this place to tempt people passing through with “merchandise” like “lusts, pleasures, and delights of all sorts.” For 10 points each:

[H] Name this place. A jury including Mr. Blind-man and Mr. Cruelty imprison Christian and order Faithful to be burnt at the stake after they refuse to buy goods from this place.

ANSWER: **Vanity Fair** [prompt on **Vanity**]

[M] Christian and Faithful travel through Vanity Fair while on their way to the Celestial City in this allegorical novel by John Bunyan.

ANSWER: *The **Pilgrim's Progress***

[E] Meg dresses up to attend a party hosted by the wealthy Annie Moffat in this novel's chapter “Meg Goes to Vanity Fair.” The March sisters are inspired by *The Pilgrim's Progress* to take up their burdens and lead a Christian life in this novel by Louisa May Alcott.

ANSWER: ***Little Women***

<Long Fiction — Lin> [Ed. French]

18. **This character lies about seeing Gary Cooper exit the room while dancing with a group of three women in a hotel night club called the Lavender Room. This character begs a girl to come with him to New England after they ice-skate together clumsily. Rain starts pouring “in buckets” as this character watches his younger sister ride a (*)** horse on a carousel. This character fears that he is being molested when he wakes up to find his former teacher Mr. Antolini patting his head. After being expelled from Pencey Prep, this character secretly visits his sister Phoebe. For 10 points, name this teenager who hates “phonies,” the protagonist of J. D. Salinger's *The Catcher in the Rye*.

ANSWER: **Holden** Caulfield [prompt on **Caulfield**]

<Long Fiction — Lin>

18. For 10 points each, name these counties along the southern coast of Britain:

[E] Commoners are allowed to let their ponies graze in this county's New Forest, one of the last areas of unenclosed land in England. This county lends its name to a U.S. state east of Vermont and southwest of Maine.

ANSWER: **Hampshire** [accept New **Hampshire**]

[H] This county in the east of England shares its name with the first of the seven Anglo-Saxon kingdoms to convert to Christianity. Canterbury Cathedral is in this Home County, which borders the Thames Estuary to its north.

ANSWER: **Kent**

[M] In the other direction, this county west of Devon contains the westernmost point of mainland England, Land's End. This county is considered a Celtic nation and is the home of Tristan in the Arthurian legends.

ANSWER: **Cornwall**

<Geography — French> [Edited]

19. **In the opening of one of her songs, this artist says “I want it to be, like, messy.” This artist used a pink and purple poster to personally invite fans to a prom-themed concert. In one song, this artist yells “God, it’s brutal out here!” This artist whispers “I love you” after spitefully betting that (*) “she knows Billy Joel ‘cause you played her Uptown Girl” in one song. This artist sings that she got the title object “last week, just like we always talked about” in her debut single. On an album cover, this artist’s face is covered with stickers, and she sticks her tongue out to reveal the word *SOUR*. For 10 points, name this artist of “deja vu” and “driver’s license”.**

ANSWER: Olivia **Rodrigo**

<Pop Culture — An> [Edited]

19. For 10 points each, answer the following about Nurbanu Sultan, the real power behind the Ottoman throne from 1574 to 1583:

[H] Nurbanu was the mother of Murad III, the successor to a sultan with this name. The first sultan with this name defeated the Safavids at the Battle of Chaldiran and destroyed the Mamluk Sultanate to conquer Egypt.

ANSWER: **Selim** [accept **Selim** I or **Selim** the Grim or **Selim** II or **Selim** the Sot]

[M] Nurbanu claimed to be from this polity, and she actively promoted policies benefiting this polity. The Ottomans took over the islands of Cyprus and Crete from this polity, which controlled them as part of the Stato da Mar.

ANSWER: **Venice** [accept Most Serene Republic of **Venice** or **Venetian** Republic]

[E] Nurbanu commissioned Mimar Sinan to construct one of these buildings in the Uskudar district of Istanbul. The Hagia Sophia was converted into one of these Muslim religious buildings after the Fall of Constantinople.

ANSWER: **mosques** [or **masjids**]

<World History — Prabhakar> [Edited]

20. **Laurence Housman opened a studio that created artistic works in support of this movement. Members of this movement participated in the Mud March, which unsuccessfully pushed for the passage of a new bill. In protest against the imprisonment of a supporter of this movement, Mary Richardson damaged the painting (*) *Rokeby Venus*. The Representation of the People Act 1918 was a victory for this movement, whose members included Millicent Fawcett and Emmeline Pankhurst. For 10 points, name this movement that aimed to expand the right to vote beyond men in the United Kingdom.**

ANSWER: **women’s suffrage** movement [accept descriptive answers]

<European History — Amanullah>

20. These arguments are called “non-constructive” if they show that an object exists but do not provide a method for creating it. For 10 points each:

[E] Name these logical arguments that show a given statement is true by deriving it according to accepted rules of inference. In high school geometry, these arguments are often organized into two columns.

ANSWER: **proofs** [accept two-column **proofs**]

[M] This type of proof is also called an indirect proof, since it contrasts with proofs that directly derive a statement from axioms. In this type of proof, one supposes the statement to be proved is false and then derives an absurdity.

ANSWER: proof by **contradiction** [prompt on *reductio ad absurdum*; do NOT accept or prompt on “proof by negation”]

[H] Proof by contradiction is not a valid form of proof in intuitionistic logic because it rejects this law. This law states that, for any statement X, either X or $\neg X$ (“not X”) is true.

ANSWER: law of the **excluded middle**

<Philosophy — Panickssery> [Ed. French]