

## CALISTO: California Spring Tournament 2020

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### Packet 15 Tossups

1. In 2017, archaeologists excavated an enormous skull-rack at a site in this city. Bernal Diaz wrote that this city was divided into 20 districts called *calpulli* (cuhl-poo-yee). Unarmed nobles of this city were massacred at a festival on the orders of Pedro de Alvarado. An invading force took heavy losses while retreating over a causeway out of this city during (\*) La Noche Triste (No-chay Treest-ay). Human captives taken in “Flower Wars” were sacrificed at this city’s Templo Mayor. Cuauhtémoc (Kwaw-tey-moc) became *tlatoani* of this city after Moctezuma II was killed in the custody of Hernán Cortés. For 10 points, name this city on Lake Texcoco, the capital of the Aztec empire.

ANSWER: **Tenochtitlan** [or México-**Tenochtitlan** or México-**Tenochtitlán**; prompt on Mexico City or Ciudad de México]

<Latin American History — French> [Edited]

2. Isoelectric focusing is combined with this technique in its “two-dimensional” form. Fluorescent intercalating agents such as ethidium bromide are often used to visualize the results of this technique. pH is usually maintained in this process using buffers containing Tris and EDTA, such as TAE. A ladder is often used in this technique to estimate the (\*) base pair count of molecules being analyzed. Molecules in this technique move from the cathode to the anode through a material often made of agarose. For 10 points, name this technique in which macromolecules are separated by applying an electric field to move them through a matrix.

ANSWER: **gel electrophoresis** [or agarose **gel electrophoresis**; accept two-dimensional **gel electrophoresis** or 2D **gel electrophoresis** or **2D electrophoresis** or polyacrylamide **gel electrophoresis** or **PAGE**; accept equivalents such as **running a gel**; prompt on electrophoresis]

<Biology — Schwartz> [Ed. Gurazada]

3. The hatsadiling is a large one of these animals in Thai myth. In one short story, a group of these animals attack the veteran Nat Hocken before a national emergency is declared by the BBC. Melane is accused of being evil in a restaurant after escaping these animals by taking shelter in a nearby phone booth. A woman visiting Bodega Bay tries to protect herself from these animals in a film inspired by a short story by (\*) Daphne du Maurier. Hera gave Heracles a castanet-like rattle to defeat these animals in the Stymphalian swamp for his sixth labor. For 10 points, name these animals that attack people in a movie by Alfred Hitchcock.

ANSWER: **birds** [accept **gulls** or **seagulls** or *The **Birds*** or Stymphalian **Birds**]

<Mixed/Other Academic — Schwartz> [Edited]

4. Jacqueline Rose argued that this poem’s central image is merely ‘speculative’ because “chuffing me off like” and “I began to talk like” begin similes, not metaphors. This poem describes a “black man who / Bit my pretty red heart in two.” The speaker of this poem declares that “the snows of the Tyrol” and “the clear beer of Vienna” are neither “pure or true.” This poem compares its addressee to a “ghastly statue with one gray (\*) toe / Big as a Frisco seal.” This poem’s line “Ich, ich, ich, ich” suggests a German reading of its opening as “You *du* not *du*, you *du* not *du*.” For 10 points, “a man in black with a Meinkampf look” is the subject of what poem by Sylvia Plath?

ANSWER: “**Daddy**”

<Poetry — Schwartz> [Ed. French]

5. Han van Meegeren modeled a forgery of this artist off of Caravaggio's *Supper at Emmaus*. The Dissius Auction of this artist's work included a possible self portrait on the left of his painting *The Procuress*. This artist may have used Anton van Leeuwenhoek (LAY-ven-hook) as the model for two paintings that depict their subjects scanning globes and maps. This artist of (\*) *The Astronomer* and *The Geographer* included a map of his native Netherlands in the background of his *The Art of Painting*. A tronie by this artist depicts a woman with a blue turban and the title piece of jewelry. For 10 points, name this Dutch Golden Age painter of *Girl with a Pearl Earring*.

ANSWER: Johannes Vermeer

<Painting — Ma> [Edited]

6. In female children, this disorder is often confused for Rett's syndrome. Children with this disorder are shown to lack a properly developed theory-of-mind in the Sally-Anne test. Ramachandran proposed that this disorder was caused by broken mirror neurons. Simon Baron-Cohen explained this disorder by describing an "extreme (\*) male brain." Leo Kanner proposed that this disorder was the result of neglectful "refrigerator mothers." A fraudulent *Lancet* article by Andrew Wakefield claimed that this disorder was caused by vaccinations. For 10 points, Asperger's syndrome is a form of what disorder characterized by challenges with social skills?

ANSWER: autism spectrum disorder [or ASD; prompt on Asperger's syndrome before "Asperger's"]

<Psychology — Schwartz> [Edited]

7. The expressive "international style" of this activity was supplanted first by ornate "special" patterns and later by standardized "compulsory" patterns. A ballroom dance-influenced subgenre of this activity is distinguished from another by the lack of jumps and the limitations on lifts. Midori Ito became the first woman to perform a (\*) triple axel in this activity in 1989. This activity involves the usage of toe jumps, edge jumps, and spins in different sequences to score points. American performers of this activity include Nathan Chen, Michelle Kwan, and Tara Lipinski. For 10 points, name this activity in which performers glide on ice using the namesake footwear.

ANSWER: figure skating [prompt on ice skating or skating]

<Other Visual Arts — Ma> [Edited]

8. The efficiency of methods for this task can be measured with the Weissman score. The H.264/AVC ("H-dot-2-6-4 A-V-C") standard specifies a codec (COH-deck) that performs this task at a relatively low bitrate. One algorithm for this task builds a binary tree based off relative symbol frequency that can be translated into a prefix code. That algorithm is called Huffman coding. The .jar (dot-JAR) format for Java archives is derived from a format whose files are the result of this process. Artifacts of this process can be found in MPEG (EM-peg) or (\*) JPEG (JAY-peg) files. This process's lossless form is performed when creating a "dot-zip" archive. For 10 points, name this process in which a file's size is reduced.

ANSWER: data compression [accept lossless compression or lossy compression or image compression or video compression] (The Weissman score was originally developed for the HBO series *Silicon Valley*.)

<Computer Science — Gray> [Ed. Gurazada]

9. A limitation to this amendment established in *Chaplinsky v. New Hampshire* was gutted in *Cohen v. California*. One case involving this amendment, *Minersville School District v. Gobitis*, was overturned in the *Barnett* case. One exception to a right in this amendment was established in Oliver Wendell Holmes' opinion in the (\*) Schenck case, which established the "clear and present danger" doctrine. Shouting "Fire!" in a crowded theater is often cited as an exception to, for 10 points, what amendment of the United States Constitution protecting the freedom of speech?

ANSWER: First Amendment to the Constitution [or Amendment 1]  
<U.S. History — Shahriar> [Ed. Iyer]

10. A character in this novel is unable to move on from her husband's death due to the presence of his portrait. Another character in this novel makes a fortune by vastly inflating the prices of horses in a war zone. That character, who pretends to be Clytemnestra while playing charades, shouts "Vive la France!" as she throws a dictionary out of a carriage. In this novel, (\*) William Dobbin and Amelia Sedley are able to marry due to George Osborne's death just before the Battle of Waterloo. Becky Sharp manipulates her way through the English upper class in this "novel without a hero." For 10 points, name this novel by William Makepeace Thackeray.

ANSWER: Vanity Fair  
<Long Fiction — Schwartz> [Edited]

11. The distribution function of this substance obeys a collisionless form of the Boltzmann equation called the Vlasov equation. The distance at which the electric potential of a charge carrier is screened by a factor of one over  $\epsilon$  in this substance is called the Debye length. Hannes Alfvén founded a field of study focused on this substance called (\*) magnetohydrodynamics. This substance is confined using poloidal and toroidal magnetic fields in a tokamak. Particles must be in this state of matter for natural nuclear fusion to occur. For 10 points, name this "fourth state of matter" which consists of a very hot gas of ions and makes up the Sun.

ANSWER: plasma  
<Physics — Gurazada> [Edited]

12. When Mary washes a man's feet with an expensive perfume made of "pure nard," this person asks why Mary did not spend her money to help the poor instead. According to the Gospel of John, Satan enters this man after this man is given dipped bread by his teacher. This disciple either dies of suicide by hanging or by bursting open in Akeldama, which is known as the (\*) Field of Blood. This apostle, who is referred to by John as "a thief," is replaced by Matthias. This apostle reveals his teacher to the Sanhedrin after he kisses him in the Garden of Gethsemane. For 10 points, name this twelfth apostle, who, for thirty pieces of silver, betrays Jesus.

ANSWER: Judas Iscariot  
<Religion — Gray> [Ed. Dai]

13. Discoloration of this country's rivers and a nickname for this country are due to high laterite content in its soil. A national park in this country contains a "forest" of huge limestone spikes called Tsingy de Beharama, and a dry "spiny forest" biome of actual trees takes up much of this country's south. Species that are endemic to this country and are seen as national symbols include the cat-like fossa and most species of (\*) baobab trees. This country is home to the Malagasy people and has its capital at Antananarivo. For 10 points, name this country, which is separated by the Mozambique channel from the eastern coast of Africa and is known for its lemurs.

ANSWER: Republic of Madagascar [or Repoblikan'i Madagasikara]  
<Geography — Song/Gray> [Ed. Gray]

14. In this play, a character interrupts a professor's rant about local Devonian fossils. A mail-boy in this play who claims that his knee knows when it's going to rain eventually dies after going to war. A couple in this play get engaged a year after entering Morgan's drugstore to get ice-cream sodas. A woman in this play asks if "any human beings ever (\*) realize life while they live it" after encountering the milkman Howie Newsome and the suicidal choir director Simon Stinson. That woman asks to revisit her twelfth birthday in Grover's Corners with the Stage Manager in this play. For 10 points, name this play about the life of George Gibbs and Emily Webb, written by Thornton Wilder.

ANSWER: *Our Town*

<Drama — Schwartz> [Edited]

15. In an uprising against this ruler, striking workers were joined by women protesters on International Women's Day. Due to fear that there was not enough beer and pretzels, a stampede killed over one thousand people during this ruler's coronation feast. This ruler's imperial guard fired at unarmed protesters led by Father Georgy Gapon, after which this ruler's advisor Sergei Witte helped him draft the (\*) October Manifesto. This ruler, whose Imperial Guard committed the Bloody Sunday massacre, was overthrown by the February Revolution. The Bolsheviks executed, for 10 points, what last tsar of Russia?

ANSWER: Nicholas II [or Nikolai II or Nikolai Alexandrovich Romanov or Saint Nicholas the Passion-Bearer; prompt on Nicholas or Nikolai or Nicky]

<European History — Song> [Ed. Athreya]

16. A composer from this country quoted themes from Beethoven's *Eroica* symphony in his five-minute long *Internet Symphony*. An instrument from this country traditionally uses python skin and has its bow strung between its two strings. A violin concerto from this country titled for the "Butterfly Lovers" is sometimes performed with traditional instruments from this country like the (\*) *pípá* and *èrhú*. "The Red Detachment of Women" was one of this country's Eight Model Plays, which replaced this country's traditional *Jīngjù*. For 10 points, name this East Asian country home to Peking Opera.

ANSWER: ANSWER: People's Republic of China [or Zhōngguó or Zhōnghuá Rénmín Gònghéguó or PRC; do NOT accept or prompt on "Republic of China" or "Zhōnghuá Mínguó"]

<Classical Music — Ma> [Edited]

17. In a story by this author, an outlaw decides not to fight the marshal of the title town after he finds out that the marshal is married. In another story by this author, Johnnie is accused of cheating at cards by the Swede. The Captain, the Cook, the Correspondent, and the Oiler are all stranded at sea in a story by this author of (\*) "The Bride Comes to Yellow Sky" and "The Blue Hotel." In a novel by this author, Wilson mistakes a head injury caused by the butt of a rifle for a gunshot wound. In that novel by this author, the death of Jim Conklin traumatizes Henry Fleming during the Civil War. For 10 points, name this American author of "The Open Boat" and *The Red Badge of Courage*.

ANSWER: Stephen Crane

<Short Fiction — Venkateswaran> [Edited]

18. **Water and this compound are formed in the Sabatier (sa-ba-T'YAY) process. This compound reacts with water in steam-[this compound] reforming to make syngas. This compound is found trapped inside of ice in clathrates on the ocean floor. Hydrogen gas, water, ammonia, and this compound were the starting reagents in the (\*) Miller-Urey experiment. When one mole of this compound combusts fully, one mole of carbon dioxide and two moles of water form. Carbon is in its most reduced state in this compound. This tetrahedral compound is the main constituent of natural gas. For 10 points, name this simplest hydrocarbon, which has the chemical formula CH<sub>4</sub>(C-H-4).**

ANSWER: **methane** [accept **CH<sub>4</sub>** (C-H-4) before “CH<sub>4</sub>”; prompt on natural gas; do NOT accept or prompt on “ethane”]

<Chemistry — Hong> [Ed. Bandara/Gurazada]

19. **In a medieval beast epic, one of these animals tricks the dull-witted Isengrim into joining a monastery. Nǔwā sent one of these animals to possess the Shāng dynasty concubine Dájǐ. The messengers of the *kami* of rice, Inari, take the form of these animals. One of these animals attempts to flatter the rooster Chanticleer in a medieval fable. In Japanese myth, the spirits of these animals possess beautiful women and may have up to nine (\*) tails. Those spirits are called *kitsune*. The medieval trickster Reynard is one of these animals. For 10 points, name these sly canines, one of whom ate the Gingerbread Man.**

ANSWER: **fox** [accept Reynard the **Fox** or *húlijīng* or *jiǔwěihú* or nine-tailed **fox**; accept *kitsune* before “kitsune”]

<Mythology — Dai> [Ed. French]

20. **With the aim of “correcting” the vulgate history of Cleitarchus, Arrian of Nicomedia wrote this ruler’s namesake Anabasis. This ruler’s forces crossed a monsoon-flooded river in order to surprise and defeat the elephant forces of King Porus at the Battle of the (\*) Hydaspes River. This ruler ordered the building of a causeway in order to besiege and capture the city of Tyre. This ruler’s Companion Cavalry defeated the forces of Darius III at the battle of Gaugamela. This ruler turned an angry horse away from its shadow in order to tame his steed Bucephalus. For 10 points, name this son of Philip II, a “great” king of Macedon.**

ANSWER: **Alexander** the **Great** [or **Alexander III** of Macedon or **Aléxandros ho Mégas**; prompt on Alexander or Aléxandros]

<Ancient/Classical History — Iyer> [Edited]

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## Packet 15 Bonuses

1. Two sons of William the Conqueror, Richard of Normandy and William Rufus, were killed while hunting in this forest. For 10 points each:

[10] Name this forest in Hampshire in the south of England.

ANSWER: **New Forest**

[10] New College is ironically one of the oldest colleges of this university, which is itself the oldest university in the English-speaking world. Scholars fleeing unrest at this university founded Cambridge University.

ANSWER: University of **Oxford** [or Universitas **Oxoniensis**]

[10] A city in the northwest of England on the Tyne River is named after a “new” one of these buildings which was built in 1080. British royal residences of this kind include one in Windsor and one named Balmoral in Scotland.

ANSWER: **castle** [accept **Newcastle-upon-Tyne**]

<Geography — Gray> [Edited]

2. Rita Dove’s collection *Sonata Mulattica* follows the life of George Bridgetower, who was the original dedicatee of a work by this composer. For 10 points each:

[10] Name this composer. In *A Clockwork Orange*, Alex is conditioned to hate this composer’s “Choral” ninth symphony via the Ludovico Technique.

ANSWER: Ludwig van **Beethoven**

[10] Dove’s *Sonata Mulattica* takes its title from the original name of this Beethoven composition. In a novella, Posdnicheff murders his wife after she performs this composition with her lover, Troukhatchevsky.

ANSWER: **Kreutzer Sonata** [or **Violin Sonata** No. **9** or **Op. 47**]

[10] In this novel, Tomas quotes a note from Beethoven’s sixteenth string quartet when he tells Tereza, “es muss sein.” The dog Karenin dies of cancer in this novel by Milan Kundera, which is set during the Prague Spring.

ANSWER: *The **Unbearable Lightness of Being*** [or ***Nesnesitelná lehkost bytí***]

<Other Literature — Gurazada> [Ed. French]

3. In Arthurian legend, this object is described as a cup that could bring eternal youth and happiness. For 10 points:

[10] Name this object, which is sought after by the Knights of the Round Table. In the 12th century, this object was identified with the chalice that collected the blood of Jesus during the crucifixion.

ANSWER: the Holy **Grail**

[10] In the original Arthurian legend, this knight obtains the Holy Grail. In later versions, this knight does not obtain the Holy Grail but accompanies Sir Bors and Sir Galahad in their quest for it.

ANSWER: Sir **Percival** [or Sir **Peredur** or Sir **Perceval** or Sir **Parzival** or Sir **Parsifal**]

[10] Sir Percival obtains the Holy Grail by this king, who rules the waste land. Sir Percival fails to heal this crippled king because he does not ask the healing question.

ANSWER: the **Fisher** King

<Mythology — Dai> [Ed. French]

4. The vast majority of this neurotransmitter is produced in enterochromaffin cells or Raphe nuclei. For 10 points each:

[10] Name this neurotransmitter derived from tryptophan. This neurotransmitter is targeted by a namesake class of reuptake inhibitors that includes Zoloft and Prozac, and it regulates mood, appetite, and sleep.

ANSWER: **serotonin** [or **5-HT** or **5-hydroxytryptamine**]

[10] Selective serotonin reuptake inhibitors can treat this condition, which can be caused by serotonin depletion. Symptoms of this condition include lack of motivation and persistently low mood.

ANSWER: clinical **depression** [or major **depressive** disorder or **MDD**; accept **antidepressants**]

[10] This class of drugs targets enzymes that break down serotonin, dopamine, and norepinephrine. They can be used as antidepressants or to treat Parkinson's disease.

ANSWER: **MAOIs** [or **monoamine oxidase inhibitors**; accept **RIMAs** or **reversible inhibitors of monoamine oxidase A**]

<Biology — Schwartz> [Ed. Gurazada]

5. Louis Riel led an uprising of these people in the Red River Colony. For 10 points each:

[10] Name these people, who were mixed-race descendants of aboriginal Canadians and European Settlers.

ANSWER: **Métis**

[10] Many Métis were descendants of French settlers who worked as trappers in this industry. The primary objective of this industry in North America was the acquisition of beaver pelts.

ANSWER: **fur** trapping [or **fur** trading]

[10] The Red River Rebellion occupied areas of Prince Rupert's Land, a territory under the control of a fur-trading company named for this explorer that controlled most of the North American fur trade from its Fort Vancouver.

ANSWER: Henry **Hudson** [accept **Hudson's** Bay Company]

<British/Commonwealth History — Athreya> [Edited]

6. This work originally included three shades that pointed to the words "Abandon all hope, ye who enter here" before their hands were joined and the words removed. For 10 points each:

[10] Name this large sculptural group by Auguste Rodin (roh-DAN) depicting scenes from Dante's *Inferno*.

ANSWER: *The **Gates of Hell*** [or *La **Porte de l'Enfer***]

[10] The center of the *Gates of Hell* is occupied by this smaller sculpture which depicts a contemplative Dante Alighieri resting his chin on his hand.

ANSWER: The **Thinker** [or Le **Penseur**; accept *The **Poet*** or Le **Poète**]

[10] The largest collection of Rodin's works outside of Paris is in a museum in this American city. An artist from this city depicted a horrified woman watching a surgery in *The Gross Clinic*.

ANSWER: **Philadelphia**

<Sculpture — Ma> [Edited]

7. A man named Ser Ciappelletto convinces a town to canonize him in this collection's first story. For 10 points each:

[10] Name this collection of 100 short stories. It includes a story about a woman named Griselda whose patience is tested when her husband Gualtieri pretends to kill her children.

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

[10] Giovanni Bocaccio set *The Decameron* in the middle of this 14th century epidemic, which killed over a third of Europe's population.

ANSWER: **Black Death** [or **Black Plague** or **bubonic plague** or The **Pestilence**; accept the **Plague**]

[10] In *The Decameron*, Federigo frantically cooks one of these animals when he hears his crush Monna Giovanna is coming to visit him. Unfortunately, Monna came because she wanted to show this animal to her son before he dies.

ANSWER: a **falcon** [prompt on **bird**]

<Short Fiction — Schwartz> [Edited]

8. The sixth and final piece in this set was originally composed for the "piccolo" variant of the title instrument while the fifth requires scordatura on the A string. For 10 points each:

[10] Name this set of six pieces, each of which begins with a Prelude and Allemande and ends with a Gigue.

ANSWER: Johann Sebastian **Bach's** solo **cello suites** [accept any answer indicating they are suites by Bach written for cello]

[10] This cellist won a Grammy for his recording of Bach's "Unaccompanied Cello Suites." This cellist founded the Silk Road Ensemble to promote Eurasian music.

ANSWER: Yo-Yo **Ma**

[10] Yo-Yo Ma often encores with *The Swan*, the penultimate movement of this French composer's *The Carnival of the Animals*. He also wrote *Danse Macabre* (mah-CAWB).

ANSWER: Camille **Saint-Saëns** (san SAWN) [or Charles-Camille **Saint-Saëns**]

<Classical Music — Gurazada> [Ed. Ma]

9. The comet Shoemaker-Levy 9 was torn apart by tidal forces when it passed inside this planet's Roche (rohsh) limit. For 10 points each:

[10] Name this planet. Tidal heating caused by this planet is likely responsible for the subsurface ocean and intense volcanism on two of its moons.

ANSWER: **Jupiter**

[10] Those moons, Europa and Io ("EYE"-oh), are part of a set of moons collectively named for this Italian astronomer, who was arrested by the church after publishing his *Dialogue Concerning the Two Chief World Systems*.

ANSWER: **Galileo** [or Galileo **Galilei**]

[10] Unlike the other Galilean moons, Callisto is not significantly heated by tides because it does not experience this phenomenon. In this phenomenon, orbiting bodies pass each other at regular intervals because their periods are small rational multiples of each other.

ANSWER: orbital **resonance**

<Astronomy — Gurazada> [Ed. French]

10. This entity lost influence during the Thermidorian Reaction. For 10 points each:

[10] Name this entity that formed the de facto French revolutionary government during the Reign of Terror. It was led by Maximilien Robespierre until his execution in 1794.

ANSWER: **Committee of Public Safety** [or **Comité de salut public**]

[10] This moderate revolutionary fell out of favor with Robespierre after he opposed the Reign of Terror. This man would later be accused of taking bribes and embezzling diplomatic funds, and was executed by the regime.

ANSWER: Georges Jacques **Danton**

[10] Danton was also accused of directing the September Massacres of prisoners in this city. Revolutionaries installed a flame of reason in this city's Notre Dame Cathedral.

ANSWER: **Paris**

<European History — Athreya> [Edited]

11. You think you're human, but should you be so sure? For 10 points each, answer the following about the murky nature of consciousness:

[10] You might be one of these beings which experience no qualia but are physically identical to humans. David Chalmers is known for arguing that these beings are logically conceivable.

ANSWER: p-**zombies** [or philosophical **zombies**]

[10] You might instead be one of these things whose capacity to understand is central to the Chinese Room Argument. The Turing Test is meant to distinguish these things from humans.

ANSWER: **computers** [or **artificial intelligences** or **AI** or **strong AIs** or **weak AIs** or **robots**]

[10] Or maybe, as this philosopher hypothesized, the outside world is all an illusion made by an "evil demon." This French philosopher showed he was only sure about his own consciousness by stating "I think, therefore I am."

ANSWER: René **Descartes** [accept **Cartesian** dualism]

<Philosophy — Gray> [Edited]

12. An influential "geometric" system of these things named Futura was designed by Paul Renner on Bauhaus principles. For 10 points each:

[10] Name these systems of glyphs used for printing or displaying text. Other families, or typefaces, of these systems are Garamond and Times New Roman.

ANSWER: **fonts**

[10] In line with Bauhaus's minimalist principles, Futura lacks these things. The presence of these small perpendicular strokes on the ends of longer strokes is generally thought to make printed text more readable.

ANSWER: **serifs**

[10] Another significant choice is the shape of this letter. Futura was one of the first fonts to have a single-story version of this letter, which is also known as the Italic form, in contrast to the double-story Roman form.

ANSWER: lowercase **a**

<Mixed/Other — Gray> [Edited]

13. This quantity is equal to the hyperbolic cosine of the rapidity. For 10 points each:

[10] Name this quantity, which is equal to one over the square root of one minus velocity squared over the speed of light squared.

ANSWER: **Lorentz** factor [or **Lorentz** term or **Lorentz** gamma; prompt on **gamma**]

[10] The Lorentz factor multiplies this quantity as measured by a moving observer to yield the “proper” value of this quantity. Special relativity predicts that this quantity dilates at large velocities, unlike its counterpart, which contracts.

ANSWER: **time** [accept **time** dilation]

[10] The Lorentz factor describes many phenomena, such as time dilation and length contraction, that occur in this scientist’s theory of special relativity. This scientist also formulated general relativity and the equation  $E = mc^2$ .

ANSWER: Albert **Einstein**

<Physics — Gurazada> [Edited]

14. For 10 points each, answer the following about the early U.S. textile industry:

[10] This planned industrial city was the center of the early American textile industry. “Mill Girls” who originally staffed its mills formed a “Labor Reform Association” in this city to advocate for a 10-hour work day.

ANSWER: **Lowell**, Massachusetts

[10] The Lowell mills primarily processed this crop. Eli Whitney’s “gin” helped automate the process of removing seeds from this crop.

ANSWER: **cotton**

[10] This machine, which helped automate clothing production in the mid 19th century, was the subject of a dispute between Isaac Singer and Elias Howe, the latter of whom created the lockstitch variety of this device.

ANSWER: **sewing machine**

<US History — Gray> [Edited]

15. After finding the shards of this object in its cupboard, the owner of this object carries off its fragments “as if she carried a dead body.” For 10 points each:

[10] Name this glass red object, which is broken by a cat while its sickly owner is visiting a doctor in a nearby town.

ANSWER: Zeena’s **pickle-dish**

[10] The destruction of Zeena’s pickle-dish represents the disintegration of Ethan and Zeena’s marriage in this author’s novel *Ethan Frome*. She also wrote *The Age of Innocence*.

ANSWER: Edith **Wharton**

[10] The pickle-dish breaks after this woman uses it to serve Ethan an intimate supper. After realizing that they cannot be together, Ethan and this woman try to kill themselves by sledding into an elm tree.

ANSWER: **Mattie** [or Mattie **Silver**]

<Long Fiction — Schwartz> [Ed. French]

16. Members of this religion believe in the unity of humanity, rejecting the concept of race. For 10 points each:  
[10] Name this religion that stemmed from Babism. Members of this religion worship Manifestations of God such as Jesus and Muhammad.

ANSWER: **Bahá'í** [or **Bahá'í** Faith]

[10] This great grandson of the founder of Baha'i was the only person given the title of Guardian of the religion because all possible hereditary successors had been excommunicated by the time of his death in 1957.

ANSWER: Shoghi **Effendí** [or Shoghi **Effendí** Rabbání]

[10] The governing body of the Bahá'í Faith, the Universal House of Justice, is located in this country's city of Haifa, also home to the Shrine of the Bab. Its city of Jerusalem is important in Islam, Christianity, and Judaism.

ANSWER: State of **Israel**

<Religion — Venkateswaran> [Edited]

17. A variety of flowers intertwined onto a stainless steel skeleton form Jeff Koons's giant *Puppy*, which stands outside one of these art museum. For 10 points each:

[10] Name these museums, one of which in Bilbao features an undulating cloak of titanium. Frank Lloyd Wright created the cylindrical spiral design of another of these museums in New York City.

ANSWER: **Guggenheims** [accept **Guggenheim** Bilbao or Solomon R. **Guggenheim** Museum]

[10] This Canadian-American architect designed the Guggenheim Bilbao. His other works include the Dancing House in Prague.

ANSWER: Frank **Gehry** (gary)

[10] Gehry designed a pavilion named for this man for Chicago's Millennium Park. This man also established an architecture prize that was awarded to Gehry in 1989.

ANSWER: Jay A. **Pritzker** [accept **Pritzker** Prize or **Pritzker** Pavilion]

<Architecture — Ma> [Ed. Malouf]

18. This dictator supported the hijacking of Air France Flight 139. For 10 points each:

[10] Name this President of Uganda from 1971 to 1979, who overthrew Milton Obote to gain power. As President, this person expelled thousands of Asians from his country.

ANSWER: Idi **Amin** Dada

[10] In 1979, Idi Amin attempted to invade the Kagera region of this country, which led to his overthrow in a military operation authorized by this country's president Julius Nyerere. This country is currently governed from Dodoma.

ANSWER: United Republic of **Tanzania**

[10] Idi Amin allowed the hijacked Air France flight 139 to land at this airport, which was later raided in Operation Thunderbolt to rescue the hostages from that flight. This airport is the principle international airport of Uganda.

ANSWER: **Entebbe** Airport

<African History — Shahriar> [Ed. Iyer]

19. Oku Onuora and Jean Binta Breeze practice the “dub” form of this art form, which arose out of improvised “toasting” in the 1970s. For 10 points each:

[10] Name this art form, which was performed by artists like Saul Williams on an HBO series hosted by Mos Def. Marc Smith originated the practice of “slams” of this art form, at which it is performed in competition.

ANSWER: **poetry** [or **spoken word**; accept dub **poetry** or slam **poetry** or **Def Poetry** or **Def Poetry Jam**; prompt on **rap**]

[10] A preeminent slam poet, Staceyann Chin, is among the many contemporary poets from this country, where dub poetry originated. Harlem Renaissance poet Claude McKay was born in this country.

ANSWER: **Jamaica**

[10] Staceyann Chin is active in this city, where the Harlem Renaissance occurred.

ANSWER: **New York** City

<Poetry — French> [Edited]

20. Transitions that are inactive in this technique are active in Raman spectroscopy and vice versa. For 10 points each:

[10] Name this technique, which produces a spectrum consisting of a “diagnostic region” and a “fingerprint region.”

ANSWER: **infrared** spectroscopy [or **infrared** spec or **IR** spectroscopy or **IR** spec or **vibrational** spectroscopy or **infrared** spectrometry or **IR** spectrometry or **vibrational** spectrometry; accept **infrared** spectrum or **IR** spectrum or **vibrational** spectrum]

[10] This functional group produces an IR spec signal between 1600 and 1700 inverse centimeters. This functional group consists of a carbon double bonded to another carbon.

ANSWER: **alkenes** [do NOT accept or prompt on "alkanes" or "alkynes"]

[10] Plates made of this material are used to sandwich liquid samples in preparation for IR spec. This ionic compound has chemical formula NaCl.

ANSWER: table **salt** [accept **sodium chloride** or **halite**]

<Chemistry — Gurazada> [Edited]