

# Saturnalia: Packet 6

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THESE TOSSUPS ARE PAIRED WITH BONUSES. IF A TOSSUP IS NOT CONVERTED, SKIP THE PAIRED BONUS AND MOVE ON TO THE NEXT TOSSUP. DO **NOT** COME BACK TO THE SKIPPED BONUS.

1. **In his concerto for this instrument, Erich Wolfgang Korngold reused a two octave ascending theme from his film score for *Another Dawn*. A G minor “Canzonetta” is the middle movement of a D major concerto for this instrument inspired by Edouard Lalo’s concerto for it, the *Symphonie Espagnole*. Pyotr Tchaikovsky’s concerto for this instrument is in (\*) D major. Joseph Joachim (“YO-zef YAW-kim”) was the dedicatee of a D major concerto for this string instrument composed by Johannes Brahms. For 10 points, name this highest-pitched string instrument played by Niccolò Paganini.**

ANSWER: **violin** [accept **violin** concerto]

<Classical Music — Jeffrey Ma> [Edited]

1. Along with Liberal leaders Juan Álvarez and Ignacio Comonfort, this politician supported the Plan of Ayutla (“eye-YOOT-lah”). For 10 points each:

[M] Name this president of Mexico from 1858 to 1872. The tenure of this first Mexican president of indigenous origin saw both the Reform War and the occupation of Mexico by the French under Emperor Maximilian I (“the first”).

ANSWER: Benito **Juárez** [or Benito Pablo **Juárez** Garcia]

[E] Juárez targeted this institution’s traditional *fuero* (“F’WAIR-oh”) rights and expropriated their large landholdings in Mexico. This institution’s monasteries and convents were also secularized during Juárez’s tenure.

ANSWER: **Catholic** Church [accept word forms of **Catholic** such as **Catholicism**; prompt on answers mentioning **Church** or **Christianity** by asking “Which denomination of Christianity?”]

[H] Juárez enforced laws that dissolved indigenous corporate holdings, leading in part to the indigenous landlessness that this leader’s Plan of Ayala decried. This leader was assassinated in 1919 by the forces of Venustiano Carranza.

ANSWER: Emiliano **Zapata**

<World History — Laurence Li> [Edited]

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2. **A monotonic function can lack this property only at countably many points. If a function with this property maps a compact metric space to a metric space, then it also has the uniform type of this property. This property is often defined using the epsilon-delta criterion. A function with this property must (\*) attain every value between its minimum and maximum by the intermediate value theorem. A function  $f$  has this property at a point  $a$  if the limit of “ $f$  of  $x$ ” as  $x$  approaches  $a$  equals “ $f$  of  $a$ .” For 10 points, name this property of functions that can be drawn on paper without picking up the pen.**

ANSWER: **continuity** [accept word forms such as **continuous**]

<Math — Ye> [Ed. French]

2. Every hour, a five-note trumpet call is played from this city's Saint Mary's Basilica. For 10 points each:  
[M] Name this city at the foot of the Carpathians that contains the Jagiellonian University on the Vistula River. The Royal Road goes through this city's Florian gate.

ANSWER: **Kraków** [or **Cracow**]

[E] Kraków is in this country on the Baltic Sea. Other cities in this country include Łódź, Gdańsk, and its capital, Warsaw.

ANSWER: Republic of **Poland** [or Rzeczpospolita **Polska**]

[H] This highest sub-range of the Carpathian Mountains is located south of Kraków and north of the Slovak border. Poland's highest peak, Rysy, is in these mountains.

ANSWER: **Tatra** Mountains [or **Tatry**]

<Geography — McAvoy-Bickford> [Edited]

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3. **In a novel by this author, a character declares, "Calamity has come on you, my brethren, and my brethren, you deserved it." In another novel by this author, a skin disease causes a dog to develop brown sores and lose most of its fur. This author wrote a novel in which the secondary narrator Tarrou lives in a town where a sermon by (\*) Father Paneloux ("pah-neh-LOO") precedes a sharp increase in the number of infected people. Another novel by this author begins "Maman ("muh-MAHN") died today" and describes a remorseless man who killed an unnamed Arab. For 10 points name this existentialist author of *The Plague* who created Meursault ("mare-SOH") in *The Stranger*.**

ANSWER: Albert **Camus** ("cah-MOO")

<Long Fiction — Condrón> [Edited]

3. This character deduces that another character has a wife, two girls, two parakeets, and is begrudgingly a cat person because his wife and kids like them. For 10 points each:

[H] Name this character who tells a man that he poisoned his landlady's dog with rat poison hidden in burger meat. This character mockingly mumbles, "Oh my God," after running into a knife held by Peter.

ANSWER: **Jerry**

[M] Jerry is stabbed by Peter at the end of this one-act play by Edward Albee. The action of this play occurs around a single bench in Central Park.

ANSWER: *The **Zoo Story***

[E] Martha and George invite the younger couple Nick and Honey to their house for an evening of drinking and verbal abuse in an Albee play titled *Who's Afraid of [this author]?*

ANSWER: Virginia **Woolf** [accept *Who's Afraid of Virginia **Woolf**?*]

<Drama — Ashbrook> [Ed. Condrón]

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4. **A legislature in this region requires certain motions to pass with a majority in two rival blocs, a process called cross-community voting. A man known as Soldier F anonymously testified regarding an event in this region for the Saville Inquiry. The "blanket" and "dirty" protests at this region's Maze Prison culminated in a hunger strike led by (\*) Bobby Sands. In this region, soldiers from the Parachute Regiment opened fire on protesters in the Bogside during the 1972 Bloody Sunday massacre, which led to increased support for the Provisional IRA ("I-R-A"). For 10 points, name this region that saw conflict between Catholic nationalists and Protestant unionists during The Troubles.**

ANSWER: **Northern Ireland** [or *Tuaisceart Éireann* or *Norlin Airlann*; prompt on Ulster or Ireland or the United Kingdom or the UK; do NOT accept or prompt on "North Ireland"]

<European History — French> [Edited]

4. These protists are thought to produce about twenty percent of the Earth's atmospheric oxygen. For 10 points each:

[M] Name this class of single-celled algae whose members may have centric or pennate shapes. These algae use silica to build cell walls called frustules ("FRUHS-chewls"), which can accumulate to form these algae's namesake type of "earth."

ANSWER: **diatoms** ("DYE-uh-toms") [accept **Bacillariophyceae** or **Diatomophyceae** or **Bacillariophyta**; accept **diatomaceous earth**]

[E] Like diatoms, the "glass" variety of these animals incorporates silica into its body structure in the form of spicules ("SPICK-yool's"). These simple, filter-feeding animals comprise the phylum Porifera.

ANSWER: **sponges** [accept glass **sponges**; prompt on **Hexactinellida** or **Symplasma**]

[H] Diatoms share the clade Heterokonta with this other class of algae characterized by large amounts of the pigment fucoxanthin ("f' yoo-koh-ZAN-thin"). Many of these algae, such as *Macrocystis* ("mac-roh-SIST-iss"), possess gas-filled floats called pneumatocysts ("new-MAT-oh-sists").

ANSWER: **brown** algae [or **Phaeophyceae** or **Phaeophyta**]

<Biology — Yin> [Edited]

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5. **This musician sang the lines, "They say I look like God. Could God be black?" in a jazz musical he worked on with Dave Brubeck called *The Real Ambassadors*. This musician collaborated on songs like "My Heart" with his second wife, Lil Hardin. With Earl Hines, this musician made recordings of "Weather Bird" and (\*) "West End Blues," both of which were written by his mentor, Joe "King" Oliver. With his "Hot Five," this musician recorded "Heebie Jeebies," which features his scat singing. For 10 points, name this jazz trumpeter nicknamed "Satchmo" who raspily sang, "I see trees of green, red roses too," in "What a Wonderful World."**

ANSWER: Louis **Armstrong**

<Jazz — Felix Wang> [Ed. Jeffrey Ma]

5. A poem titled for this location has an ancient Greek epigraph meaning "A human being: cause enough for misery." For 10 points each:

[H] Name this location where the speaker's "careless childhood did stray" beneath "distant spires" and "antique tow'rs." That poem titled for this location laments, "Where ignorance is bliss, 'tis folly to be wise."

ANSWER: **Eton** College [accept "Ode on a Distant Prospect of **Eton** College"]

[M] "Ode on a Distant Prospect of Eton College" was written by this author. In another poem, this author described the title location as "far from the madding crowd's ignoble strife."

ANSWER: Thomas **Gray** (That other poem is "Elegy Written in a Country Churchyard.")

[E] "Ode on a Distant Prospect of Eton College" describes the "silver-winding way" of this English river. William Blake called this river "charter'd" in his poem "London."

ANSWER: River **Thames** [accept **Thames** River]

<Poetry — Condron> [Edited]

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6. **In plants, these structures are the site of a mechanism in which isocitrate lyase ("LYE-ase") catalyzes the production of succinate ("SUCK-sin-ate"). That mechanism is the glyoxylate ("gly-OX-il-ate") cycle. Mutations in the PEX ("P-E-X") gene family render these structures non-functional, causing the degradation of myelin ("MYE-uh-lin"), in neonatal adrenoleukodystrophy and other (\*) Zellweger spectrum disorders. Like mitochondria, these structures break down fatty acids into acetyl-CoA ("uh-SEE-til koh-A") through beta oxidation. These structures neutralize reactive oxygen species using enzymes such as urate oxidase and catalase. For 10 points, identify these organelles named for their ability to produce and break down hydrogen peroxide.**

ANSWER: **peroxisomes** [prompt on **microbodies**; prompt on **glyoxysomes** by asking "which are a specialized type of what structures?"]

<Biology — Yin> [Edited]

6. For 10 points each, answer the following about composer Bohuslav Martinů (“MAHR-tee-noo”):

[M] Martinů’s Paris period is strongly influenced by the Neoclassical style of this Russian composer, whose pieces in that style include the opera *The Rake’s Progress* and the *Symphony of Psalms*.

ANSWER: Igor **Stravinsky**

[H] During World War II, Martinů composed his dissonant Double Concerto for two of these ensembles. His countryman Antonín Dvořák’s (“d’vor-JAHK’s”) E Major *Serenade* is also scored for one of these ensembles.

ANSWER: **string orchestra** [or **strings**; accept *Serenade for Strings*; accept *Double Concerto for Two String Orchestras*, *Piano*, and *Timpani*; prompt on **orchestra**]

[E] Martinů and Dvorak are both composers from this modern-day country. In 1919, Martinů wrote a rhapsody commemorating this country’s union with its eastern neighbor Slovakia to form an independent state.

ANSWER: **Czech** Republic [or **Česká republika** or **Czechia**; accept *Czech Rhapsody*; accept **Czechoslovakia**]  
<Classical Music — Jeffrey Ma> [Edited]

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7. **British archaeologist Irving Finkel reconstructed the rules to a game played by this civilization that was played with a tetrahedral die. Chariots and soldiers made of shell and red limestone precess over a lapis lazuli background in an artifact from a city in this civilization called its “Standard.” The first ruler of this civilization is identified as Etana of Kish in this civilization’s (\*) King List, which was discovered at Lagash. That city’s Royal Cemetery was excavated by Leonard Woolley. This civilization was conquered by a former royal cup-bearer, Sargon of Akkad. For 10 points, name this ancient Mesopotamian civilization which built ziggurats at cities like Ur and Uruk.**

ANSWER: **Sumer** [or **Sumerians**; prompt on **Ur** or **Uruk**; do NOT accept or prompt on “Assyria”]  
<World History — French> [Edited]

7. The `xz` (“X-Z”) utility uses the Lempel-Ziv-Markov chain algorithm to perform this process. For 10 points each:

[E] Name this process, which reduces the number of bits needed to represent data. The data in dot-zip files has undergone this process.

ANSWER: lossless **compression** [or data **compression**]

[H] The `gzip` (“G-zip”) utility uses the DEFLATE (“deflate”) algorithm, a combination of LZSS (“L-Z-S-S”) and this algorithm. This algorithm replaces fixed-length character codes with shorter variable-length prefix-free codes based on relative character frequency.

ANSWER: **Huffman** coding [or **Huffman** compression or **Huffman** encoding; accept static **Huffman** encoding or dynamic **Huffman** encoding]

[M] In the trie (“try”) encoding generated by Huffman coding, every node except for leaves contain this value. This value is the intentional absence of any value.

ANSWER: **null**

<Computer Science — Gurazada> [Edited]

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8. **This poem deviates from its source text, a travelogue by Samuel Purchas, by describing “twice five miles of fertile ground” instead of the sixteen miles described by Purchas. This poem describes “A savage place! As holy and enchanted / as e’er beneath a waning moon was haunted.” This poem ends by mentioning he who “on honey-dew hath fed, and (\*) drunk the milk of Paradise” after describing “an Abyssinian maid... singing of Mount Abora.” An interruption by a “person from Porlock” prevented its author from finishing this poem. For 10 points, a “stately pleasure-dome” is described in what Samuel Taylor Coleridge poem titled for a Mongol ruler?**

ANSWER: “**Kubla Khan**”

<Poetry — McAvoy-Bickford> [Ed. Condron]

8. The semi-empirical mass formula can be used to compute this structure's mass defect. For 10 points each:  
[M] Name this structure, which George Gamow ("GAM-off") described by the liquid drop model. This structure is anomalously stable at so-called "magic numbers."

ANSWER: atomic **nucleus**

[H] This model of the nucleus is most often used to explain magic numbers, since they are not predicted by the liquid drop model. This model was developed by Eugene Wigner ("VIG-ner"), Maria Goeppert-Mayer, and J. Hans D. Jensen.

ANSWER: nuclear **shell** model

[E] Both the liquid drop model and the nuclear shell model attempt to predict nuclear structure based on the number of neutrons and on this quantity. This quantity equals the number of protons in the nucleus.

ANSWER: **atomic number** [prompt on **Z**]

<Chemistry — Daniel Ma> [Ed. French]

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9. **In this state, a preacher called The Public Universal Friend who claimed to have no gender established the township of Jerusalem. William Miller, a resident of this state, used a 2,300-day prophecy to conclude that the Second Coming would occur in 1843. The western part of this state became known as the (\*) Burned-over District for its religious fervor during the Second Great Awakening. In this state, Joseph Smith discovered the golden plates on the Hill Cumorah ("kuh-MORE-uh"). Many Dutch Reformed churches were established in this state when it contained the city of New Amsterdam. For 10 points, name this state that contains St. Patrick's Cathedral on its island of Manhattan.**

ANSWER: **New York**

<Other — McAvoy-Bickford> [Edited]

9. This artist included images of John F. Kennedy and an astronaut in his silkscreen *Retroactive I* ("one"). For 10 points each:

[H] Name this artist who integrated elements of painting and sculpture in a series of "combines." This artist's piece *Monogram* features a stuffed Angora goat wearing a tire and standing on top of a canvas.

ANSWER: Robert **Rauschenberg** [accept Milton Ernest **Rauschenberg**]

[E] Rauschenberg's combine entitled *Third Time Painting* places one of these objects on top of the canvas. These objects melt in Dali's *The Persistence of Memory*.

ANSWER: **clocks** [accept **watches** or **timepieces**]

[M] This artist was Rauschenberg's longtime lover and artistic partner. This artist used encaustic wax painting in his work *Three Flags*, which stacks three canvases depicting American flags on top of each other.

ANSWER: Jasper **Johns**

<Painting and Sculpture — Forrest> [Ed. Bowman]

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10. **These molecules are formed from the reaction of a lithium diorganocuprate and an organyl halide in the Corey-House synthesis. Derivatives of a cyclic molecule of this type are produced by the Simmons-Smith reaction. The flagpole interaction destabilizes a conformation taken by a cyclic one of these molecules to relieve torsional strain. A single dehydrogenation of these molecules yields (\*) alkyl substituents. The tetrahedral geometry of the simplest of these molecules is explained by the  $sp^3$  ("s-p-3") hybridization between its hydrogen and carbon atoms. For 10 points, methane and butane exemplify what fully-saturated hydrocarbons that contain only single carbon-carbon bonds?**

ANSWER: **alkanes** [or **cycloalkanes**; prompt on **methane** or **cyclopropane** or **cyclohexane** with "what general class of molecules does that compound belong to?"; prompt on **hydrocarbons**; do NOT accept or prompt on "alkenes" or "alkynes"]

<Chemistry — Bowman> [Edited]

10. Lakshmana drew a chalk line to protect this woman while he was looking for her husband, but she stepped over the line to feed a mendicant. For 10 points each:

[M] Name this woman. That mendicant was actually a *rakshasa* in disguise, who kidnapped this woman and imprisoned her in the *Ashok vatika* garden.

ANSWER: **Sita**

[E] Sita was the wife of this prince of Ayodhya (“uh-YOHD-yuh”), who was exiled by his father Dasharatha. This hero’s namesake epic describes his journey to the kingdom of Lanka to rescue Sita from the demon-king Ravana.

ANSWER: **Rama** [or **Ram**]

[H] Sita was kidnapped after she urged Rama to pursue a golden one of these animals that was really Ravana’s uncle, Maricha, in disguise.

ANSWER: **deer** [or **fawn** or **stag** or **buck**]

<Mythology — Athreya> [Edited]

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11. **This artist depicted his secretary and sister-in-law Ethel Wibly wearing a black, slightly-transparent dress in the painting *Mother of Pearl and Silver*. In another painting by this artist, a woman standing on a wolf pelt holds a lily and wears a white dress. This artist signed many of his paintings with a monogram of a butterfly with a stinger. This artist of (\*) *The White Girl* sued the art critic John Ruskin for using the words “flinging a pot of paint in the public’s face” to describe his *Nocturne in Black and Gold*. For 10 points, name this artist who depicted the side profile of his mother in his *Arrangement in Grey and Black No. 1*.**

ANSWER: James Abbott McNeill **Whistler**

<Painting and Sculpture — Zhou> [Ed. Jeffrey Ma]

11. Archbishop Richard Whately decried this practice as a part of his hatred of almsgiving. For 10 points each:

[H] Name this practice in which Protestants set up schools that fed starving children on the condition that they receive Protestant instruction. Edward Nangle was a notable proponent of this practice.

ANSWER: **souperism** [or word forms such as **souper**; accept **jumpers** or **cat breacs**]

[E] Souperism was common during this event that was caused by a devastating blight and exacerbated by the laissez-faire policies of Charles Trevelyan. This event led to the partial depopulation of an island led from Dublin.

ANSWER: Irish **potato famine** [or **Great Hunger** or **Great Famine** or **Gorta Mór**; accept any answers mentioning **famine** and **Ireland**; prompt on **famine**]

[M] This prime minister during the Irish potato famine resigned shortly after repealing the Corn Laws. The Metropolitan Police force gained the nickname “Bobbies” in reference to this leader, who founded the force in 1829.

ANSWER: Robert **Peel** [or Sir Robert **Peel**, 2nd Baronet]

<European History — Iyer> [Edited]

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12. **A god from what is now this country names a Temple that Michael Aquino founded after leaving the Church of Satan. A deity worshiped in this country was praised in his namesake *Great Hymn*, which is often compared to Psalm 104. The ancient people of what is now this country believed in a life-essence called *ka*. A ruler of what is now this country established a monotheistic religion that worshipped the (\*) sun disk. Rulers of what is now this country were aided in their passage through the Duat by spells written in the *Book of the Dead*. For 10 points, name this modern-day country where worship of the Aten was established by the pharaoh Akhenaten.**

ANSWER: **Egypt** [or **Kemet**]

<Religion — French> [Ed. Dai]

12. Soviet montage theory used these transitions between shots in an attempt to convey different emotions. For 10 points each.

[E] Name these sudden transitions between shots whose “jump” variety involves shifting the camera slightly to jarringly convey the passage of time. They are contrasted with dissolves and wipes.

ANSWER: **cuts**

[M] This 2019 film uses a single shot only broken by a blackout to tell the story of Corporal Schofeld and Corporal Blake delivering a secret message to Colonel Mackenzie.

ANSWER: **1917**

[H] This person won the 2019 Oscar for Best Cinematography for his work on the film *1917*. He also won in 2017 for *Blade Runner 2049* and is known for his collaborations with the Coen brothers.

ANSWER: Roger **Deakins**

<Film — Iyer> [Ed. Bowman]

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13. **In a novel by this author, a man is forced to draw trousers on images of flamingos. This author created a character who says, “For you, a thousand times over,” to a character who later frames him for stealing a watch. A novel by this author ends with Tariq and his family visiting a hut that Jalil built. In that novel, Leila and Mariam try to escape the abusive Rasheed. (\*)** Rahim Khan says “there is a way to be good again” to a man who went to America and married Soraya in another novel by this author. This author wrote a novel in which Assef rapes the cleft-lipped Hazara boy, Hassan. For 10 points, *A Thousand Splendid Suns* is by what Afghan author of *The Kite Runner*?

ANSWER: Khaled **Hosseini**

<Long Fiction — McAvoy-Bickford> [Edited]

13. In *Prior Analytics*, Aristotle presented the first formal study of this field. For 10 points each:

[E] Name this field of philosophy concerned with the study of arguments. Methods used in this field include inductive and deductive reasoning.

ANSWER: **logic**

[H] This German philosopher’s Begriffsschrift system of logic was the first to use quantified variables and employed the first modern logical proofs. His books include *On Sense and Reference* and *The Foundations of Arithmetic*.

ANSWER: Freidrich Ludwig Gottlob **Frege**

[M] This other philosopher created a logic system based on interaction of thought and being in his book *The Science of Logic*. That book combines Aristotle’s syllogism with this thinker’s concept of the dialectic.

ANSWER: Georg Wilhelm Friedrich **Hegel**

<Philosophy — Dai> [Ed. Ashbrook]

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14. **This leader’s government ordered the execution of American filmmaker Charles Horman. This leader was controversially made a senator-for-life after he was succeeded by Patricio Aylwin. This leader’s secret police conducted a car bombing in Washington D.C. to assassinate Orlando Letelier. This leader took power after the bombing of (\*)** La Moneda Palace during a CIA-sponsored coup. This leader refused to privatize his nation’s copper industry despite being advised to do so by a group of laissez-faire economic advisors nicknamed the “Chicago Boys.” This leader overthrew Salvador Allende in 1971. For 10 points, name this right-wing military dictator of Chile.

ANSWER: Augusto **Pinochet** [or Augusto José Ramón **Pinochet** Ugarte]

<World History — Louis Li> [Ed. Iyer]

14. Two men break into this character's apartment while he is waiting for Mrs. Grubach to bring him breakfast. For 10 points each:

[H] Name this character who is arrested on his 30th birthday for an unknown crime. After his arrest, three of his coworkers break into the apartment of his neighbour Fräulein Bürstner.

ANSWER: Josef **K**. (“YO-zef kah”)[or **Josef K.**]

[E] Josef K. is the main character of *The Trial*, an unfinished novel by this author. This author wrote about Gregor Samsa's transformation into an “*ungeheuren Ungeziefer*” (“UHN-guh-HOY-ren UHN-guh-ZEE-fer”), or “horrible vermin,” in *The Metamorphosis*.

ANSWER: Franz **Kafka**

[M] In this other Franz Kafka short story, the Officer shows the Traveller an execution device made of “the Bed,” “the Designer,” and “the Harrow.” At the end of this short story, the Officer tries to get the machine to inscribe the words “Be Just” on his back but is instead stabbed to death.

ANSWER: “**In the Penal Colony**” [or “**In der Stra kolonie**”]

<Short Fiction — Orr> [Edited]

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15. **One politician in this organization was nicknamed “Mr. No No No” and said that one meeting of this organization was not for a birthday party. One wing of this organization invalidated the Privacy Shield agreement that another part signed since it did not comply with its (\*) GDPR.** Ursula von der Leyen succeeded Jean-Claude Juncker (“YOON-ker”) as president of this organization's Commission in 2019. This organization's “frugal four” countries agreed to a coronavirus stimulus deal in exchange for larger rebates. This organization's member countries tightened borders during the pandemic, despite many being in its Schengen Area. For 10 points, name this organization that the UK left in Brexit.

ANSWER: The **European Union** [or the **EU**]

<Current Events — McAvoy-Bickford> [Edited]

15. Men of the cloth aren't immune from the scruples. For 10 points each, answer the following about depictions of clerical guilt in fiction:

[M] Reverend Curtis Hartman spies on Kate Swift while she prays in the nude in “The Strength of God,” a story from this collection by Sherwood Anderson.

ANSWER: **Winesburg, Ohio**

[E] This author created Reverend Hooper, who claims to see a symbol of secret sin on every face around him as he is dying, in “The Minister's Black Veil.” He also wrote *The Scarlet Letter*.

ANSWER: Nathaniel **Hawthorne**

[H] This other author wrote about a priest who cuts off one of his fingers amid struggles with lust and doubt in the story “Father Sergius.”

ANSWER: Leo **Tolstoy** [or Lev Nikolayevich **Tolstoy**]

<Short Fiction — Condron> [Edited]

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16. **A study by Batygin and Brown concluded that one of these objects likely causes the orbital clustering of distant KBOs (“K-B-O's”). The disk-instability and core-accretion models explain the existence of a class of these objects that only forms beyond the frost line. According to the Nice (“neece”) model, the outward migration of that class of these objects caused the Late Heavy Bombardment. 51 Pegasi b (“fifty-one PEH-guh-sye B”) exemplifies a large, (\*) “hot” class of these objects with orbital periods of less than 10 days. The IAU (“I-A-U”) declared in 2006 that these objects must “clear the neighborhood.”** For 10 points, name these celestial bodies which include Earth and Mars, but not Pluto.

ANSWER: **planets** [accept **Planet** Nine or **Planet** X or giant **planets** or exo**planets** or extrasolar **planets** or terrestrial **planets** or rocky **planets**; accept **gas giants** or **ice giants** or **hot Jupiters** or **hot Neptunes**; do NOT accept or prompt on “dwarf planets” or “minor planets”] (KBO stands for Kuiper belt object.)

<Astronomy — Yin> [Edited]

16. A question about an imaginary Metallic Metals Act was used to show how people fill out these things even when they don't know what they are talking about. For 10 points each:

[E] Name these things conducted by companies like Gallup and Rasmussen. These things show the opinions of a group of people on various issues.

ANSWER: opinion **poll** [accept opinion **survey** or **questionnaire**]

[H] Some polls suffer from this bias, which is similar to self-selection bias, if they fail to reach a representative portion of society for the issue they are polling. The continuum of resistance model attempts to correct for this bias.

ANSWER: **non-response** bias [accept **participation** bias]

[M] This type of poll is used to gauge interest in pursuing a plan of action or policy measure. The State of Iowa holds this type of ad hoc poll every presidential election cycle as an early way for candidates to build campaign momentum.

ANSWER: **straw** poll [do NOT accept or prompt on "caucus"]

<Other Social Science — McAvoy-Bickford> [Ed. Ashbrook]

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17. **A text by this author begs the readers' forgiveness if it "overstates the truth," but begs God's forgiveness if it "understates the truth." In a speech, this author contrasted a "dark and desolate valley" with a "sunlit path." This author repeated, "How long? Not long" in a speech that asserts, "the arc of the moral universe is long, but it bends towards (\*) justice."** This author used the metaphor of cashing a "promissory note" at the "bank of justice" in a speech that imagines a nation where his "four little children" will be judged "by the content of their character." For 10 points, name this author of "Letter from a Birmingham Jail" and the "I Have a Dream" speech.

ANSWER: Martin Luther **King**, Jr. [or **M.L.K.**]

<Other Literature — French> [Ed. Condron]

17. Bednorz and Müller discovered a material for which this temperature was 35 kelvin, much higher than the previously known values for it. For 10 points each:

[H] Name this temperature, which is relatively high for certain cuprates. Below this temperature, electrons condense into composite bosons through the exchange of phonons.

ANSWER: **critical** temperature

[E] The critical temperature is the temperature below which these materials conduct current without any resistance. BCS ("B-C-S") theory and Ginzburg-Landau theory are two theories of these materials.

ANSWER: **superconductor**s [do NOT accept or prompt on "conductors"]

[M] Before the discovery of YBCO ("Y-B-C-O"), superconductors had to be cooled to their critical temperature using this substance. This substance is a superfluid below the lambda point, and it is used as a coolant in MRI scanners.

ANSWER: **liquid helium** [or **liquid He**; prompt on **helium** or **He**]

<Physics — French> [Edited]

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18. **One document by this thinker mentions "decision, activity, secrecy, and dispatch" as reasons for a unitary executive. A document by this thinker that called for increased tariffs and internal improvements was central to the American School of Economics. A report by this thinker called for the redemption of government securities and the assumption of (\*) state debts.** In addition to writing a report on Manufactures and two reports on Public Credit, this thinker wrote 51 of the *The Federalist Papers* in collaboration with John Jay and James Madison. For 10 points, name this first Secretary of the Treasury who was killed in a duel with Aaron Burr.

ANSWER: Alexander **Hamilton** (The document in the first sentence is Federalist No. 70.)

<U.S. History — Laurence Li> [Edited]

18. During this battle, General Francois Kellerman took off his hat and yelled “Long live the nation” to arouse his troops’ patriotic fervor. For 10 points each:

[H] Name this 1792 battle that halted the Duke of Brunswick’s march on Paris. Johann Wolfgang von Goethe (“GUR-tuh”) wrote that this battle was the beginning of a “new epoch in the history of the world.”

ANSWER: Battle of **Valmy**

[E] Following the Battle of Valmy, the National Assembly abolished the French monarchy, which had been headed by this ruler. This king was executed alongside his wife Marie Antoinette in 1793.

ANSWER: **Louis XVI** (“the sixteenth”) [prompt on Louis or Louis Capet]

[M] Shortly before the Battle of Valmy, this general was declared a traitor by the National Assembly. This man earlier authored the Declaration of the Rights of Man with Abbé Sieyès (“ah-BAY SEE-yez”) and Thomas Jefferson.

ANSWER: Marquis de **Lafayette** [or Marie-Joseph Paul Yves Roch Gilbert du **Motier**]

<European History — Louis Li> [Ed. Iyer]

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19. **This author recorded the creation story of the Serrano based on tales told by Rosa Morongo. This author worked with a student on a pamphlet espousing that there was no “Jewish race” in an effort to debunk racial pseudoscience. In one work, this author compared the “paranoid” culture of the Dobu with the cultures of tribes such as the (\*) Zuni and Kwakiutl. Margaret Mead wrote that this thinker believed culture was “personality writ large” in the foreword to this thinker’s *Patterns of Culture*. For 10 points, name this American anthropologist who contrasted Japan’s shame culture with America’s guilt culture in *The Chrysanthemum and the Sword*.**

ANSWER: Ruth Fulton **Benedict**

<Other Social Science — McAvoy-Bickford> [Ed. Ashbrook]

19. One of these cases, *Gonzales v. Williams*, originated the designation of “noncitizen national” that still applies to American Samoans. For 10 points each:

[H] Name this 1901 set of Supreme Court cases. These cases prevented newly-acquired U.S. territories from being incorporated into the Union based on the difficulty of enacting “Anglo-Saxon principles.”

ANSWER: **Insular** Cases [prompt on Downes v. Bidwell]

[E] In a case pitting Jesús M. Balzac against this U.S. territory, the Supreme Court ruled that only “fundamental” rights applied to its residents. This territory’s Legislative Assembly resides in its capital of San Juan.

ANSWER: **Puerto Rico** [or Commonwealth of **Puerto Rico**]

[M] The Insular Cases applied to three territories acquired in the Spanish-American War: Puerto Rico, Guam, and this territory. Emilio Aguinaldo fought U.S. occupation in this territory.

ANSWER: The **Philippines** [or Pilipinas or Filipinas or Republic of the **Philippines** or *Republika ng Pilipinas*]

<U.S. History — Tagtmeier> [Ed. Laurence Li]

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20. **This quantity names a positive constant  $\Delta$  (“delta”) that is conjectured to exist in a large class of non-abelian gauge (“gayj”) theories. Virtual particles exist off of the “shell” named for this quantity. A “gap” named for this quantity is the subject of an unsolved problem in Yang-Mills theory. The existence of neutrino flavor oscillations implies that neutrinos have a (\*) non-zero value for this quantity. Particles with a value of zero for this quantity travel at the speed of light. Special relativity implies the equivalence of energy and this quantity. For 10 points, energy equals what quantity times the speed of light squared?**

ANSWER: **mass** [or **mass**-energy; accept **mass** gap or **mass** shell or rest **mass** invariant **mass** or proper **mass** or intrinsic **mass** or inertial **mass** or gravitational **mass**; prompt on m; prompt on energy or E before “energy”]

<Phyysics — French> [Edited]

20. In one episode, this character writes a self-help book called *Wish it. Want it. Do it.* For 10 points each:  
[M] Name this anthropomorphic white dog who was brought back only two episodes after his death. This character drives a Toyota Prius and was replaced by a dog with an Italian-American accent, Vinny, after his death.

ANSWER: **Brian** Griffin

[E] Brian Griffin is the pet of the Griffin family on this animated sitcom, whose other members include Chris, Lois, Meg, and Peter.

ANSWER: ***Family Guy***

[H] In the episode “Yug Ylimaf,” Brian tries to impress his dates by showing them one of these devices built by Stewie Griffin. In another episode, Stewie uses one of these devices to help Chris, his brother, pass a history test.

ANSWER: **time machine** [accept descriptive answers indicating a device used for **time travel**]

<Popular Culture — Athreya> [Ed. Maharjan]