

CMST II

Packet 6

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1. **In the contemporary religion of these peoples, a pre-Christian deity and his traditional worship involving deerskins widely syncretized with St. Martin of Tours. In the 2010s, Catholic resistance to charismatic practices precipitated a mass conversion to Syriac Orthodoxy, possibly making these people its majority ethnic group. The syncretic Catholicism practiced by these people venerates a deity or saint known as Maximón who wears a black hat and is dressed colorfully in communities around Lake Atitlán. In these peoples' version of the myth of the creation of Adam, after two attempts that failed to produce viable humans from (*) soil and wood, God made him from maize. For defending the rights of this ethnic group and founding their political party Winaq, the Guatemalan activist Rigoberta Menchú Tum won the Nobel Peace Prize. For 10 points, name these indigenous Central-American peoples whose Pre-Columbian complexes remain at Palenque and Tikal.** ANSWER: **Mayan** people(s) [accept **K'iche'/Quiché** peoples even as they are a sub-group; prompt on **Guatemalans** and equivalents] (The deity mentioned in the first clue is Tohil.)
<JM - Geography (Mythology)>

A scholastic comment on this author's novel joked that "the biggest lie of all" is the final line of the book, which promises sequels. For 10 points each:

[10m] Name this 2nd century author of *A True Story*, often considered the first known work of science fiction, in which a whirlwind takes the protagonists to the moon where they find its king fighting to colonize the Morning Star.

ANSWER: **Lucian** of Samosata

[10h] This 17th century author wrote *The Man in the Moone*, one of the first early modern science fiction tales, in which a Spaniard rigs a contraption with geese and finds a society of lunar Christians.

ANSWER: Francis **Godwin**

[10e] This author wrote about the insectoid "Selenites" in his *The First Men on the Moon*, but was better known for pioneering science fiction writing like *The Time Machine* and *War of the Worlds*.

ANSWER: Herbert George **Wells**

<JM - Literature: World>

2. **After Nathaniel Jarvis Wyeth's innovations helped launch an early business shipping this resource, its owner built a storehouse in Madras that became the Vivekanandar Illam and compensated for the poor quality of Hugli-Chuchura's supply. Before his copper dealings triggered the Panic of 1907, Charles Morse ran a Tammany-backed monopoly on this resource in New York City. A catastrophic 1910 fire in a Maine town named for this resource and the suffix "-boro" was one of the final blows to its trade. After Geoffrey Pyke developed a reinforced form of this non-concrete resource called "Pykrete," the British military began Project Habakkuk to investigate making an (*) aircraft carrier with it. Long-distance trade in this resource began with the Massachusetts businessman Frederic Tudor. Specialized rail cars for storing this resource enabled the meat-packing industry to localize operations in hubs like Chicago rather than ship live cattle. For 10 points, name this resource whose international trade was obviated by mechanical refrigeration.** ANSWER: **ice** [reject "water"]
<JM - History: Ancient/Other>

This concept's originator used it to analyze when, in the experience of writing, one has myriad ideas already present to the mind in a chaotic jumble that is yet to be organized into a coherent thread. For 10 points each:

[10h] Give this philosophical concept named for a Nahuatl ("nah-HWAHTSCH") word for the space between bodies of water. Its originator used it to discuss the experience of "seeing-double" when living as part of multiple cultures.

ANSWER: **nepantla**

[10m] This philosopher theorized nepantla and discussed her "mestiza" identity in *Borderlands/La Frontera*, a seminal book in Chicana theory.

ANSWER: Gloria (Evangelina) **Anzaldúa**

[10e] Anzaldúa lamented how academics ignored the "unsafe" spiritual aspects of her work, like her use of these substances. Carlos Castañeda probably made up his anthropological reports about the teachings of the Yaqui shaman Don Juan, with whom he controversially claimed to use these substances.

ANSWER: **psychedelic** drugs [or **psychedelics**; accept **hallucinogens** or **hallucinogenic** drugs; accept specific answers of **psilocybin**, (magic/psychedelic) **mushrooms**, *Psilocybe mexicana* or *cubensis*, **mescaline**, or **peyote**; prompt on **drugs** or **entheogens**]

<JM - Thought: Other Philosophy>

3. **Skeletal editing techniques that rely on removal of this functional group are a focus of the Levin lab at UChicago. Hong and Marks pioneered an atom-economical method of adding this functional group across a double bond using organo-lanthanides. The "direct" method of a reaction that produces these compounds is sometimes called the Borch reaction and uses the very weak reagent STAB; that reaction to produce these functional groups begins with protonation of a (*) carbonyl to form an imine. Synthesis of aromatic examples of these compounds can be achieved via a palladium-catalyzed cross-coupling named for Buchwald and Hartwig. Reacting alkyl halides with potassium phthalimide, followed by acid hydrolysis, forms compounds with this functional group in the Gabriel synthesis. Alkylation of ammonia with alcohols produces these compounds. For 10 points, name this functional group consisting of one or more carbon single bonded to a basic nitrogen.**

ANSWER: **amines** [or primary/secondary/tertiary/quaternary **amines**; accept **amino** groups; accept (de)**amination** reactions]

<AF - Science: Chemistry>

One of these pieces titled "The Devil's Staircase" features an extreme six-*f* marking that somehow ramps up to eight *f*s, while another titled "Vertigo" ends with a diminuendo to an 8-*p* marking. For 10 points each:

[10h] Name these piano pieces and their composer. The first, titled "Disorder," has the left hand play only black keys and the right hand only white keys in two simultaneous time signatures, and the fourteenth is titled after Constantin Brâncuși's ("BRUHN-kush's") *Infinite Column*.

ANSWER: **Études** by György (Sándor) **Ligeti** ("LIG-eh-tee") [accept Ligeti's names in either order; prompt on partial answers]

[10e] This Russian composer used an extreme six-*p* marking in his sixth symphony, nicknamed *Pathétique*.

ANSWER: Pyotr Ilyich **Tchaikovsky**

[10m] In the opera *Le Grande Macabre*, Ligeti gave an even more extreme ten-*f* instruction to these instruments.

These instruments play at a separate tempo in the last movement of Charles Ives's 4th Symphony, and are sometimes scored with a clef consisting of two vertical bars.

ANSWER: **percussion** [or **drums**]

<JM - Arts: Classical Music>

4. **In a novel, a man anticipating this event tells a story to a boy named Tom and forces him to return home to relay it to others. This event titles a poem in which a man claims of God, “I found Him in the shining of the stars / I mark’d Him in the flowering of His fields.” In a dream foretelling this event, a man sits on a chair fastened to the Wheel of Fortune, below which he sees serpents in black water. This event is implied to occur at the end of the novel *The Candle in the Wind*, the last entry in a series about a character called “the (*) Wart.”** The Lincoln Thornton Manuscript preserves an “Alliterative” poem titled for this event, which inspired a later poem published by William Caxton and likely written from Newgate Prison. Before this event, a man thrice gives the command to throw a sword into a lake. Thomas Malory’s magnum opus is named after—for 10 points—what event that occurs after its legendary victim is mortally wounded by his son Mordred?

ANSWER: the **death** of **Arthur** [or *Le Morte d’Arthur*; accept equivalents like the **passing** of King **Arthur**; prompt on just **death** or synonyms] (The second sentence is from Tennyson’s *Idylls of the King*; the series is T. H. White’s *The Once and Future King*.)

<TM - Literature: British>

Answer some questions about one of the most important American judges you’ve probably never heard of, D.C. Circuit Justice J. Skelly Wright. For 10 points each:

[10e] You have Wright’s opinions in the sixties and seventies to thank for many of the rights you have against these people, like the “implied warranty of habitability” that they owe and defenses against a “retaliatory eviction” by one.

ANSWER: **landlords** [accept **lessors** or any answer that conveys people that **lease** or **rent out** property but do NOT accept or prompt on the inverse answers like “renters” or “lessees;” prompt on answers that convey only **owners of land or (real) property**]

[10m] Wright’s influential use of “arbitrary and capricious” review in *Ethyl Corp. v. EPA* applied a deferential standard of review denoted by this two word phrase. The government almost never loses under this standard that, unlike “strict” or “intermediate” scrutiny, requires only a basic link to a “legitimate government interest.”

ANSWER: **rational basis** review

[10h] In *Walker-Thomas Furniture v. Williams*, Wright defined the contours of this hard-to-apply defense to contract obligations. This doctrine can void a contract involving “gross inequality of bargaining power” or “unfair surprise.”

ANSWER: **unconscionability** [accept word forms]

<JG - Hard Social Science: Law>

5. **John Dunne argued that an ancient philosopher’s account of this phenomenon as pertaining only to unanalyzed wholes is undermined by his atomistic theory that all objects are aggregates. That thinker, Dharmakīrti (“t’HAR-muh-KEER-tee”), explained the relationship between language and this phenomenon in terms of *apopha* or “exclusion,” and developed Dignāga’s causal theory of it. The Yogācāra (“yo-guh-CHAR-uh”) school held a “mind-only” metaphysics that posited this faculty is merely the “by-product” of one’s karma. Many Indian scholastics analyzed errors in this faculty with the example of a “rope-snake.” Dignāga and his followers argued that only (*) inference and this faculty are epistemologically valid. This faculty was often divided into *nir-* and *sa-vikalpa* or “conception-free” and “-loaded” types. Indian scholastics organized forms of this faculty into six pairs called *Āyatana*, including the dyad of mind and mental objects atop the usual Western list of five. For 10 points, name this general faculty for receiving data through things like hearing or vision.**

ANSWER: **perception** [or *pratyakṣa*; accept answers of “**sensation**” or “(the) **senses**;” prompt on answers of specific faculties like **sight**, **hearing**, etc. by asking “which exemplify what more general faculty?”; prompt on answers of “the **mind**” or “the **mental**” before “faculty” is read by asking “which specific aspect thereof?"]

<JM - Thought: Other Philosophy>

Seti I fought a war against these people, whom he called the “Tjehnu,” and the Great Karnak Inscription describes the defeat of their “Great Chief” Meryey’s alliance with the Lukka and four Sea Peoples. For 10 points each:

[10h] Name this people, who at one point ruled Egypt in a dynasty descended from Osorkon the Elder. A stele recounting one pharaoh’s victory over these people is also one of the first documents to mention the word “Israel.”

ANSWER: ancient **Libyans** [accept **Meshwesh**, **Ma**, or **Libu**; prompt on ancient **Berbers/Amazigh**]

[10m] This pharaoh described victories over the ancient Libyans in the Great Karnak Inscription and a namesake stele discovered by Flinders Petrie. This pharaoh succeeded his father Ramesses II at the age of seventy.

ANSWER: **Merneptah**

[10e] Ramesses II and Merneptah ruled in this period of Egyptian history, in which Egypt reached its territorial height. It was followed by the third and last Intermediate Period, which included the Libyan 22nd Dynasty.

ANSWER: **New Kingdom**

<VA - History: Ancient/Other>

6. **The cover of a book about this group, which opens “In the beginning, somewhere south of anywhere I come from, lips pressed the edge of a horn,” calls it a “love letter” to “a group, a sound, and an era.” This group sampled Jack DeJohnette’s version of “Minnie The Moocher” to open a piece with the bass ostinato (read slowly) long F, long E, C, D, B-flat, B-flat. Hanif Abdurraqib’s 2019 book *Go Ahead in the Rain* examined the racial and social dynamics surrounding this group, including the role of the 1977 New York City (*) blackout in making musical equipment accessible to marginalized communities. Jungle Brothers formed the Native Tongues collective with this group, whose most famous song samples Lou Reed’s “Walk on the Wild Side.” Despite his 2016 death from diabetes complications, Phife Dawg posthumously appears on this group’s final album, *We Got It from Here... Thank You 4 Your Service*. *The Low End Theory* is by—for 10 points—what New York hip-hop group behind “Can I Kick It?”**

ANSWER: A **Tribe Called Quest** [prompt on **Tribe**]

<WJ - Arts: Other Music>

One form of these phenomena can occur when a dense solar prominence extends into the less dense solar corona.

For 10 points each:

[10m] Name these phenomena occurring in plasmas. Early fusion reactor designs such as the z-pinch and stellarator were susceptible to varieties of these phenomena such as their “kink” and “sausage” types.

ANSWER: **instabilities** [or plasma **instability**; accept sausage/kink/Rayleigh-Taylor **instability**]

[10e] Because this reactor design uses a helical magnetic field with safety factor greater than 1, it strongly suppresses kink instabilities. The ITER project is building the largest-ever fusion reactor with this toroidal design.

ANSWER: **tokamaks**

[10h] Tokamaks are susceptible to “major disruptions,” which are magnetohydrodynamic instabilities *lacking* this specific property. The Cowling antidynamo theorem states that a magnetic field with this property cannot be maintained by a dynamo action.

ANSWER: **axisymmetry** [or **axial symmetry**; accept word forms of either; prompt on **symmetry** or word forms]

<DE - Science: Physics>

7. **Huw Dixon suggested an “integer pricing” variant of this game where price is modeled as a discrete, rather than continuous, variable. Edgeworth partially names a model which adds capacity constraints to this game. Hotelling introduced his linear city model to circumvent this model's prediction that, in equilibrium, firms face an infinitely elastic demand curve. Since players in this game are incentivized to engage in (*)** epsilon-undercutting, this game's only pure strategy Nash equilibrium is paradoxically a state where all players set price equal to marginal cost. In this model, firms compete by setting prices unlike in the Stackelberg and Cournot models where they compete by setting the amount of output produced. For 10 points, identify this model of duopoly named for a French mathematician.

ANSWER: **Bertrand** model [or **Bertrand** game; or **Bertrand-Edgeworth** model]

<CK - Hard Social Science: Economics>

This novel climaxes with Rebecca revealing that she has kidnapped the mother of Lee Polk, a teenage boy who is imprisoned for slitting his father's throat as retaliation for sexual abuse. For 10 points each:

[10h] Name this novel in which the title character works as a secretary at a boys' prison in the town of “X-ville,” Massachusetts while dealing with her alcoholic, ex-cop father.

ANSWER: ***Eileen***

[10m] *Eileen* is by this author, who also wrote a novel in which the unnamed protagonist reflects on her relationship with her alcoholic mother while trying to sleep as much as possible through pills prescribed by the unorthodox psychiatrist Dr. Tuttle.

ANSWER: Ottessa **Moshfegh**

[10e] The narrator of that novel, *My Year of Rest and Relaxation*, studies art history at this university. This Ivy League university administers the Pulitzer Prizes.

ANSWER: **Columbia** University

<CM - Literature: American>

8. **This empire heavily relied on the Gar clan's military expertise in its early expansion until its rulers liquidated them at a fake hunt. After this empire collapsed, Bakhtiyar Khilji launched a failed invasion of its territories to take control of the Tea Horse Road. The *Testament of Ba* recounts a debate over this empire's state religion. This empire's founder conquered the Tuyuhun and Zhangzhung kingdoms, then deified his wives **Bhrikuti Devi and Princess (*)** Wenchang. The Zhol Pillars commemorate treaties made by the Yarlung Dynasty that ruled this empire, which was the Abbasid Caliphate's main ally at the Battle of Talas. This empire collapsed into the “Era of Fragmentation” after the murder of Langdarma, who had himself assassinated the last of its three “Dharma Kings” and restored the worship of Bön. For 10 points, name this empire founded by Songtsen Gampo, who laid the foundations for what is now Potala Palace in Lhasa.**

ANSWER: **Tibetan** Empire [or **Bod** chen po; accept **Túbō** or **Túfān**]

<VA - History: World>

The distinction between this title term and its counterpart was popularized in a work by Ferdinand Tönnies (“TOHN-yes”), founding member of the German Society for Sociology or DGS. For 10 points each:

[10h] Give this German word which, per one thinker, denotes social grouping based on “subjective feeling” that may be “affectual or traditional” unlike its counterpart term for grouping by “rational agreement by mutual consent.”

ANSWER: **Gemeinschaft** (“guh-MINE-shoft”) [reject “Gesellschaft” (“guh-ZELL-shoft”); prompt on answers of both *Gemeinschaft* und/and *Gesellschaft* together]

[10e] This other founding member of the DGS analyzed *Gemeinschaft und Gesellschaft* in *Economy and Society*. He also wrote an influential book on the relationship between socioeconomics and Protestantism.

ANSWER: Max(imilian Karl Emil) **Weber** (“VAY-bur”)

[10m] Eric Hobsbawm argued that identity politics emerged to create a fictitious *Gemeinschaft* among communities in response to *this process*’s rarification of the world into a single *Gesellschaft*. This process creates a “race to the bottom” between nations in the world economy.

ANSWER: **globalization** [accept with adjectives like “(socio)economic,” “cultural,” or “social”]

<JM - Thought: Soft Social Science>

9. **Terence Tao extended this result to cyclic groups of prime order, which he used to give a short proof of the Cauchy–Davenport theorem. A form of this statement expresses it in terms of the negative log of the overlap between two eigenvectors. That “entropic” form of this statement ensures the security of key distribution in quantum cryptography. A generalized form of this statement contains a term equal to the squared norm of one-half times the expectation of an (*) anticommator minus the product of individual expectation values. This statement is fulfilled asymmetrically by squeezed states and symmetrically by coherent states. This statement, which, in general, exists for any pair of non-commuting observables, is most commonly stated as: $\sigma_x \sigma_p$ is greater than \hbar over two. For 10 points, name this principle of quantum mechanics, that states that position and momentum cannot both be determined with arbitrary precision.**

ANSWER: **uncertainty** principle [accept Heisenberg **uncertainty** principle or generalized **uncertainty** principle or entropic **uncertainty** principle; accept any of the previous with “relation” replacing “principle”]

<DE - Science: Physics>

At the height of the fashionability of this country’s architecture and design in Europe, Catherine the Great had an entire “village” designed in imitation of this country for her palace at Tsarskoye Selo (“TZAR-sko-yay tsyel-OH”). For 10 points each:

[10e] Give this East Asian country whose design inspired many imitations by European craftsmen, such as replicas or derivatives of its porcelain vases and other such lacquerware.

ANSWER: **China** [or People’s Republic of **China**; or **PRC**; or **Zhongguo**; reject “Republic of China”]

[10m] This 18th-century British furniture maker’s *chinoiserie* works attached his name to a “Chinese” style of railing or balustrade. This man’s rococo and “gothic” works were featured in his book *The Cabinet Maker’s Director*.

ANSWER: Thomas **Chippendale** [reject “Thomas Chippendale, the Younger,” who was his son and also a furniture designer]

[10h] Chippendale’s work often made use of these motifs, ubiquitous in classical-inspired architecture and design, in which a surface is molded to appear like hanging plants. Their equivalent depicting hanging cloth is a “swag.”

ANSWER: **festoons**

<JM - Arts: Misc>

10. **This short story is used to illustrate the title phenomenon of “intellectual uncertainty” through its dichotomy of animate and inanimate in an essay by Ernst Jentsch (“YENTSH”). Another writer argued against that essay by instead centering the dichotomy of whether this story’s events, like the protagonist’s reports about an Italian barometer salesman, are real or imagined. In this story, the protagonist dances with a perfectly rhythmic girl who can only say “Ah, ah!” This story is cited as the prototype of the (*) *unheimlich*, or “uncanny,” in an essay by Sigmund Freud. At the end of this story, after Lothar saves Clara from being thrown off a steeple, Nathanael jumps off instead, driven mad from discovering that Olympia is an automaton. For 10 points, name this E. T. A. Hoffman short story whose title figure plucks the eyes of restless children.**

ANSWER: “The **Sandman**” [or *Der Sandman*]

<JM - Literature: European>

Though Jains celebrate this holiday at the same time as Hindus with some similar practices, they conceive of it as marking Mahavira’s attainment of Nirvana rather than associating it with Lakshmi and Ganesha. For 10 points each: [10e] Name this Hindu “festival of lights” celebrated in mid-autumn with gift-giving, *diya* oil lamps, and colorful decorative *rangoli* motifs.

ANSWER: **Diwali** [or **Deepavali**; or **Dipavali**]

[10m] Many Hindus think that Diwali marks the date of Lakshmi’s birth in this mythological event, during which Vasuki was wrapped around an uprooted Mount Mandara.

ANSWER: **churning** of the **ocean** of milk [accept equivalent permutations like “**churning** of the milk **sea**,” or ***Samudra manthana***, ***Sāgara manthana***, or ***Kshirasāgara manthana***]

[10h] During Diwali, some Hindus—especially among the merchant classes—perform rituals for this deity of bookkeeping and wealth. This guardian of the North is lord of the Yaksha nature spirits.

ANSWER: **Kubera(n)** [or **Kuvera(n)**]

<JM - Religion (Mythology)>

11. **An essay titled for this concept argues that the creation of moral hierarchies “has more in common with ideologies of racism than with true ethics,” citing the hysteria caused by the “domino theory” of this concept’s “perils.” An essay concerning the “political economy” of this concept argues that Marxist theories of oppression do not account for examples in non-capitalist societies like those of the Amazon basin, as both cases involve the oppressed being “trafficked.” The “charmed circle” and its “outer limits” were introduced in a 1984 essay titled “Thinking” this concept by (*) Gayle Rubin. This is the first title concept of a book that posits that the Australian administration’s outlawing of warfare subverted the Tchambuli people’s social dynamics. The pacifist Arapesh and aggressive Mundugumor peoples were studied in that Margaret Mead work titled for this concept and “*Temperament in Three Primitive Societies*.” For 10 points, name this concept contrasted with gender.**

ANSWER: **sex** [accept “Thinking **Sex**: Notes for a Radical Theory of the Politics of Sexuality;” accept “The Traffic in Women: Notes on the ‘Political Economy’ of **Sex**,” accept ***Sex and Temperament in Three Primitive Societies***; reject “gender”]

<WJ - Thought: Soft Social Science>

Charles Valentine Riley, Leo Laliman, and Gaston Bazille saved this industry by importing American stock immune to a “Great Blight” that only the Assyrτικο variety from Santorini could resist in Europe. For 10 points each:
[10m] Name this industry nearly wiped out in the 19th century by *phylloxera* insects. The Bishop of Fulda allegedly blundered into the use of the “noble rot” in this industry, which Louis Pasteur also supposedly “saved.”

ANSWER: **winemaking** [or equivalents like “**wine** industry;” accept more specific answers like **champagne**; accept answers involving **grapes**, **vineyards**, or **viticulture**]

[10h] Eastern Bloc countries often declared “war” on this insect likely spread by WWII. East Germany claimed this “American bug” was biological warfare and had youth groups competitively catch them on “Special Search Days.”

ANSWER: Colorado **potato beetle** [or *Lepinotarsa decemlineata*; accept the **ten-lined spearman**; prompt on partial answers]

[10e] These rat-borne insects were vectors for the bubonic plague, which actually prevents them from drinking blood and forces them to puke it back into the bloodstream.

ANSWER: **fleas** [specifically the oriental rat **flea** or *Xenopsylla cheopis* (accept either underlined portion); accept the order **Siphonaptera** or any member thereof] (The sad phenomenon described is called “Bacot’s block.”)

<JG - History: European>

- HALFTIME -

12. **This artist accidentally left Euridyce’s hand on the back of a bronze sculpture of Orpheus, and later left the marble of the entrance to the underworld intentionally unhewn in a work in which Orpheus covers his eyes. A student of this artist depicted a woman bent over to receive a kiss from a kneeling man in *Sakuntala*. That student of this artist reacted to an interpersonal situation by sculpting a young woman on her knees reaching after an older man as he is led away by another woman. That student of this artist depicted (*) dancers intertwined in wrinkled cloth in *The Waltz*. This mentor of the sculptor behind *The Mature Age* adapted his *St. John the Baptist Preaching* into a head- and arm-less *Walking Man*. A work by this teacher and lover of Camille Claudel depicts six men with nooses around their necks. For 10 points, name this sculptor of *The Burghers of Calais*.**

ANSWER: (François) Auguste (René) **Rodin** (“oh-GOOST roh-DAW”)

<JM - Arts: Painting and Sculpture>

Defects in the metalloproteinase ZMPSTE24, which processes one of these proteins, can cause an inability to repair double-strand breaks. For 10 points each:

[10h] Name these proteins, a subclass of intermediate filaments that form a dense network within cells. Defects in the processing of these proteins, such as activation of a cryptic splice site at exon 11, causes a variety of disorders collectively known as their namesake “-opathies.”

ANSWER: nuclear **lamins** [accept **lamin**opathies; prompt on nuclear **lamina**]

[10e] A point mutation that leads to alternative splicing of lamin A disrupts nuclear stability, leading to this class of diseases characterized by rapid premature aging.

ANSWER: **progerias** [or **progeroid** diseases; accept **Hutchison–Guilford** syndrome or **HGPS**]

[10m] At the end of G₂ phase, functional lamins are disassembled via phosphorylation by the MPF, a complex of these *two* protein families. The complex of these two protein families phosphorylates various proteins at all cell-cycle checkpoints.

ANSWER: **cyclins** AND **Cdks** [accept **cyclin-dependent kinases** for Cdk; accept specific cyclins/Cdks such as **cyclin B** or **Cdk1**]

<VA - Science: Biology>

13. **In Ashkenazic liturgy, a hymn with this name is sung when the Sefer Torah is being returned to the Ark, and its wooden poles share this name. In the Mormon book of Nephi, Lehi has a vision of people using iron rods to navigate a path to this specific object. The components of a metaphysical structure with this name are opposed and restrained by corresponding “nutshell” entities called *Qlipoth*. In a text named for this object, Chaim Vital codified the teachings of (*) Isaac Luria. This object names a ten or eleven node diagram with *Da'at* connected to all nodes and the *Keter* at its top composed of divine emanations called *sefirot*, which is central to Kabbalistic thought. After a commandment about a similar object was violated by Adam and Eve, they were forbidden to access this object located in the Garden of Eden. For 10 points, name this mythical plant similar to one titled for “knowledge of good and evil.”**

ANSWER: **tree of life** [or *Etz Hayim/Chaim*; prompt on tree; prompt on emanations or sefirot/sephiroth before mention by asking “which appear as parts of what structure?”; reject “tree of (the knowledge of) good and evil”]
<JM - Religion>

In a play by this author, Dr. Valentine receives the title wisdom from Walter the waiter, “*You Never Can Tell*,” after a series of mistaken identity situations. For 10 points each:

[10m] Name this author of a play in which Dr. Colenso Ridgeon discovers a cure for tuberculosis but has to make some hard choices while fighting for medical resources.

ANSWER: George Bernard **Shaw** [or GB **Shaw**] (The latter play is *The Doctor's Dilemma*.)

[10h] This author's first play, *The Young Idea*, was largely adapted from Shaw's *You Never Can Tell*. Upon seeing the script, Shaw advised this playwright to “never see or read” his plays and “get clean away from” him if he wanted to succeed.

ANSWER: Noël (Peirce) **Coward**

[10e] Throughout his career, Coward refused to make a much-desired musical version of this Shaw play, in which Eliza Doolittle is taught upper class mannerisms by Prof. Henry Higgins.

ANSWER: ***Pygmalion***

<JM - Literature: British>

14. **Whig representative Mordecai Oliver published an independent report on this incident as the only dissenter in a congressional committee that refused to investigate it. This event ended early because the main target, “Dutch Henry,” happened to be away from home. During this event, John P. Doyle and two of his sons were executed for their membership in the Law and Order Party. Henry Clay Pate briefly captured some of this event's perpetrators, but then surrendered to the others at the Battle of (*) Black Jack. This event, which Frederick Douglass called “a terrible remedy for a terrible malady,” followed the receipt of a telegram about Preston Brooks's caning of Charles Sumner the day before. This event, perpetrated using broadswords by a militia of “Rifles” sharing its name, responded to the Border Ruffians' sacking of Lawrence three days earlier. For 10 points, name this “Bleeding Kansas”-era attack on pro-Slavery settlers led by John Brown at a namesake creek.**

ANSWER: **Pottawatomie** massacre [prompt on “Bleeding Kansas” before mention]

<JM - History: American>

Philosopher Andrew Cutrofello wrote a “sequel” to Hegel’s most widely read book titled for this entity “at Dawn,” which details the philosophical reception of said book in the same allegorical style it used. For 10 points each: [10m] Give this metaphorical creature symbolizing knowledge. Hegel’s remark that this being arises “only when the shades of night are gathering” expresses that philosophical development can only be understood in hindsight.

ANSWER: **Owl of Minerva** [or “**Owl of Athena**,” or *Athene noctua*; accept the whole phrase “The **Owl of Minerva** flies at dusk” and variations thereof; accept *The Owl at Dawn*]

[10e] Despite Cutrofello’s book being its “sequel,” the Owl does not appear in this work. Hegel introduced the lord-bondsman dynamic in this book, written before *The Science of Logic*.

ANSWER: *The Phenomenology of Spirit* [or *The Phenomenology of Mind*, or *Phänomenologie des Geistes*]

[10h] In this 2019 book, the author tries to interpret the *Phenomenology* to examine “the transcendental conditions of the possibility of determinately contentful conceptual norms” and work out a complex theory of objectivity.

ANSWER: *A Spirit of Trust: A Reading of Hegel’s Phenomenology* (by Robert Brandom)

<JM - Thought: Philosophy>

15. In a 2010 paper, Kritchman and Raz used a strategy resembling the Surprise Exam paradox applied to this property to develop a novel proof of Gödel’s second incompleteness theorem. Martin-Löf randomness for an infinite string is typically defined in terms of incompressibility of its initial segments or in terms of this property. Values for one type of this property above a particular constant are unprovable according to (*) Chaitin’s Incompleteness Theorem. That property of this type measures the shortest program that can reproduce a given string, and is named for Kolmogorov (“kohl-muh-GOR-ov”). Deterministic and non-deterministic spatial forms of another type of this property are related by Savitch’s theorem. This property for an algorithm is typically computed using asymptotic analysis of its worst-case runtime. For 10 points, P and NP are classes named for what property, whose time form is typically measured for an algorithm via big-O notation?

ANSWER: **complexity** [accept computational **complexity**, Kolmogorov **complexity**, **complexity**,

Solomonoff–Kolmogorov–Chaitin **complexity**, program-size **complexity**, descriptive **complexity**, **algorithmic entropy**, or time/space **complexity**]

<JM - Science: Computer Science>

Carlo Ginzburg argued that Pontius Pilate’s presence in a painting of *this scene* represents Byzantine emperor John VIII Palaiologos, claiming it is a symbolic invitation to join the ongoing crusade. For 10 points each:

[10e] Give this artistic scene from the life of Christ popular during the Renaissance. In both of Caravaggio’s versions, Christ is tied to a stone column or pillar while undergoing corporal punishment.

ANSWER: **flagellation** of Christ [accept answers of the “**Scourging** at the Pillar”]

[10m] Ginzburg’s interpretation concerned this artist’s version of the *Flagellation*, in which the pillar is topped by a golden swordsman. In that work by this artist, three men in the right-foreground stand oblivious to the scene.

ANSWER: **Piero della Francesca** [accept either underlined portion; or Piero **di Benedetto**]

[10h] Caravaggio’s paintings of the flagellation were inspired by this earlier Venetian artist’s version for the San Pietro in Montorio. His painting *The Violinist* may be a self-portrait.

ANSWER: **Sebastiano** del **Piombo** [accept either underlined portion; or **Sebastiano Luciani**; or **Sebastiano Veneziano**]

<JM - Arts: Painting and Sculpture>

16. A novel set in this city includes a lengthy discussion of the “built/unbuilt” opposition, as seen in the Mbutu’s circular arrangement of huts and in the Aboriginal Dreamtime. A description of an author from this city as “to put it modestly, Jesus Christ” is a popular blurb for a novel whose protagonist coats flowers in metal and schemes to kidnap his ex-wife’s cousin. A novel set in this city ends with a New Year’s party on the roof of an unfinished apartment complex. The protagonist of another novel constructs a makeshift (*) bridge connecting neighboring apartment windows in this city, where he works at a circus before being institutionalized. *The Seven Madmen* by Roberto Arlt and *Ghosts* by César Aira are set in this capital city, where Horacio heads after meeting the writer Morelli in Paris in a novel whose “Table of Instructions” outlines how its 99 “expendable chapters” can be read out of order. For 10 points, *Hopscotch* is partly set in what South American home city of Julio Cortázar?
ANSWER: **Buenos Aires** [or Autonomous City of **Buenos Aires**; or Ciudad Autónoma de **Buenos Aires**] (The description of Roberto Arlt as “to put it modestly, Jesus Christ” was given by Roberto Bolaño.)
<TM - Literature: World>

After public health research swayed opinion against hydrogenated solid oils like vegetable shortening, they have largely been replaced by oil from the red fruit of this plant. For 10 points each:

[10m] Name this plant whose oil is essential to some West African cuisines. Though not intrinsically environmentally detrimental, extreme demand for this plant’s cultivation has incentivized extensive deforestation in Indonesia and Malaysia.

ANSWER: oil **palms** [accept, but DO NOT REVEAL *elaeis guineensis/oleifera*]

[10h] *Caiziyou* (“TSAI-zuh-yoh”), the distinctive cooking oil of Sichuan cuisine, is a roasted, unprocessed oil prepared from this yellow-flowered plant. Before its introduction, the oil was prepared from related field mustard.

ANSWER: **rapeseed** [or oilseed **rape**; or **Brassica napus**; anti-prompt on **canola**]

[10e] Canola oil, heavily processed from a rapeseed varietal developed to be low in erucic (“air-OOH-sick”) acid, gets its name from this country, where it is the primary crop of the western Great Plains provinces.

ANSWER: **Canada**

<JM - Geography>

17. A philosopher critiqued a non-reductionist “view” named for a type of these things by imagining a person gradually changing into Greta Garbo via a “Combined Spectrum.” In that passage from *Reasons and Persons*, Derek Parfit refutes the claim that personal identity is a “further” one of these things. A paper titled for a type of these things notes the importance of “special context” using the example of an amateur film production in which what appears to be a transaction is merely a piece of acting. That paper primarily analyzes a statement about (*) owing the grocer for potatoes. The second statement in Wittgenstein’s *Tractatus* is that “the world is the totality of [these entities], not of things.” Drawing on Anscombe, Searle distinguished between institutional and brute types of these things. Hume’s is-ought problem is related to a distinction between this concept and value. For 10 points, give these things contrasted with fiction or mere opinion.
ANSWER: **fact** [accept more specific answers such as brute **fact** or further **fact**]
<TM - Thought: Philosophy>

The TULC organized African-Americans in the industry making these things, which Gunnar Myrdal optimistically called a “partial emancipation” and which inspired the efforts of the mailman Victor H. Green. For 10 points each:

[10e] The “Green Book” helped African-Americans using these things find safe hotels and avoid racist “sundown towns.” Black workers in the industry making them helped Detroit have one of the NAACP’s largest chapters.

ANSWER: **cars** [accept **automobiles** or **motorcars**; prompt on interstate **highways**]

[10m] The Green Book helped develop this network of theaters and nightclubs catering to black audiences in the South. Similar to the Jewish Borscht Belt, it launched the careers of B.B. King, Ray Charles, and Marvin Gaye.

ANSWER: **Chitlin’ Circuit**

[10h] The Green Book also advertised this “Black Eden” in Michigan that declined with the end of segregation. The Paradise Club in this rare resort town open to African Americans was a key Chitlin’ Circuit musical incubator.

ANSWER: **Idlewild**, Michigan
<CK - History: American>

18. **The first 24 solo piano pieces of this type were published as its country's *National Dances* by a composer named Maria, inspiring a more famous countryman to adopt the form. A later composer of these works tried to introduce melodic elements from the highland Goral people in a "National" period Op. 50 collection. A piece of this type begins (read slowly) D, descending F sharp E D, F sharp, rising A, B, C. Movement 3 of Henryk Górecki's ("guh-RETS-ski's") third symphony quotes a repeated alternating harmony from an earlier composer's Op. 17 No. 4 piece of this type. The majority of their best-known composer's (*) *rubato* markings appear in these pieces, whose characteristic triple-meter rhythm is (read slowly) dotted eighth, sixteenth, quarter, accented quarter, eighth, eighth, quarter, accented quarter. It's not the Polonaise, but Maria Szymanowska ("shih-muh-NOFF-skuh") and Karol Szymanowski ("shih-muh-NOFF-ski") composed dozens of pieces in—for 10 points—what musical form named for a Polish dance, favored by Frédéric Chopin?**

ANSWER: **mazurkas** [or **mazurek**] (The piece in the third sentence is Chopin's Op. 50, No. 1.)
<JM - Arts: Classical Music>

The high binding affinity of polyhistidine tags to immobilized metals make the pair a popular choice for this technique. For 10 points:

[10m] Name this technique which purifies proteins by binding them to a stationary resin before washing that resin free of contaminants and eluting the resulting proteins stuck to the column.

ANSWER: **affinity chromatography** [or **IMAC** or immobilized metal **affinity chromatography**, prompt on **liquid chromatography** or column **chromatography**]

[10h] Affinity chromatography assays which use amylose resins usually rely on adding this protein to the target peptide. This protein found in *E. coli* is frequently fused to recombinant proteins to increase their solubility.

ANSWER: **maltose binding** protein [or **MBP**]

[10e] While amylose-MBP columns can be eluted by adding—unsurprisingly—maltose, poly-his tags must be eluted by more clever means, such as by adding EDTA to do *this process* to the metal, thereby stripping it from the column.

ANSWER: **chelation** [accept word forms]

<SS - Science: Chemistry>

19. **In the medieval period, these people were organized in districts called "Tax Mountains" that lend their name to a landmark 1981 court case. The division between these people's "sea" and "mountain" subgroups originated when they were offered incentives to re-populate fishing villages devastated by the Black Death. After Thomas von Westen forcibly Christianized these people in the 18th century, the pietist Laestadian movement spread among them in the mid-19th century. Protests against the construction of the (*) Alta hydroelectric power station strengthened activism for these people's rights and led to the 1989 formation of their first parliament. A 1997 speech included an official apology for the suppression of these people's culture and language by King Harald V. These people's traditional *siida* communities have been reorganized as reindeer herding corporations. For 10 points, name this ethnic group indigenous to the Kola Peninsula and northern Scandinavia.**

ANSWER: **Sámi** people [or **Sámit**, **Saemich**, **Sáme**, **Sämmiliih**, **Sä'mmla**, **Saam'**; accept **Lapps**, but note that term is now considered offensive]

<DE - History: European>

This poet responded to Guido Orlandi's enquiry sonnet "Whence does love move and where is it born?" with a canzone that depicts love "Seated in midst of darkness, skirting the light." For 10 points each:

[10m] Name this medieval Italian poet who wrote "Donna me prega" and was one of the major writers of the *dolce stil novo* or "sweet new style."

ANSWER: Guido **Cavalcanti**

[10h] Cavalcanti's metaphorical response to Orlandi's question is that "Love its form acquires / from the shadow cast by" this object. Cecco d'Ascoli's *Acerba* rebukes Cavalcanti for associating love with this object.

ANSWER: the planet **Mars**

[10e] This poet's *Convivio* refers to the more traditional account that Eros is the son of Venus. This friend of Cavalcanti wrote of how "Love hath so long possessed me for his own" in *La Vita Nuova*.

ANSWER: **Dante Alighieri** [accept either underlined portion]

<SK - Literature: European>

20. **Felsenstein's method of independent contrasts assumes this model in order for standardized contrasts to be IID. A trait distribution consistent with expectations under this mathematical model defines a value of one for Pagel's lambda or Blomberg's K. Cavalli-Sforza and Edwards proposed the evolutionary use of this model, which is modified into an Ornstein-Uhlenbeck model by adding an attracting term. This mathematical model describes trait evolution under infinite alleles models without (*) selection.** Under this model, the expectation of the trait distance between species is proportional to the square root of their divergence time. This is the null model in single-particle tracking experiments. This continuous-time model, which predicts that mean-squared displacement is proportional to the square root of mobility, describes non-directed motion of microscopic objects like proteins. For 10 points, name this stochastic process first proposed to describe how pollen grains move in fluid.

ANSWER: **Brownian motion** [or **BM**; accept **Wiener** process; accept **random walk**; prompt on **diffusion**]

<SK - Science: Biology>

Dizzy Gillespie embellished this composition—whose author performed it on the record *Genius of Modern Music*—and Cootie Williams added an 8-bar interlude that is usually omitted today. For 10 points each:

[10m] Name this widely recorded standard that begins (read slowly) rising short B flat, E flat, F, B flat, falling long G flat over C half-diminished. A 1957 Miles Davis album named for this song added the word "about" to its title.

ANSWER: "**Round Midnight**" [or "**Round** About **Midnight**"]

[10e] "Round Midnight" is by this prolific composer and idiosyncratic pianist whose penchant for janky rhythms and dissonant harmony can be heard in the compositions "Epistrophy" and "Straight, no Chaser."

ANSWER: Thelonious (Sphere) **Monk**

[10h] One of Monk's compositions is named for this bebop patron, a hip European noble whose largesse inspired a number of jazz standards bearing her name, including tunes titled for her "Tempo" and her "Dream."

ANSWER: Baroness (Kathleen Annie) **Pannonica** (de Koenigswarter) [prompt on **Nica**; accept **de Koenigswarter** or (Kathleen Annie) **Pannonica** Rothschild]

<JM - Arts: Jazz>

21. **To parody one of this author’s works, Bret Harte wrote about characters who melodramatically lament that they have run out of credit at the bar in his poem “The Willows.” Aldous Huxley’s “Vulgarity in Literature” dismissed that work by this author as “a carapace of jeweled sound” akin to wearing diamond rings on every finger. In one poem, this author describes “an alley Titanic / Of cypress” that is found “down by the dank tarn of Auber, / In the (*) “ghoul-haunted woodland of Weir.” This author described a “saintly soul” that “floats on the Stygian river” in another poem that was originally titled, “A Paean.” That poem by this author asks Guy De Vere “Hast thou no tear?” and begins with the line “Ah broken is the golden bowl!” In another poem, this author bemoaned the “chilling and killing” of the title maiden who now rests in a “sepulchre by the sea.” For 10 points, name this American poet who lamented his lost loves in “Ulalume,” “Lenore,” and “Annabel Lee.”**

ANSWER: Edgar Allen **Poe**

<JM - Literature: American>

This cultural phenomenon suppressed by the government’s *Bansha no goku* program led to Hanaoka Seishū performing the first breast cancer surgery under general anesthesia. For 10 points each:

[10m] Name this late Edo Period trend of translating and studying European texts, especially scientific ones, entering through Dejima island. It contrasts with a movement associated with Motoori (“moh-toh-OH-ree”) Norinaga.

ANSWER: **rangaku** [or **Dutch Learning**; prompt on Western Learning] (Motoori was one of the leading lights of *kokugaku* or “National Learning,” i.e. Japanese classicism.)

[10h] The *rangaku* scholar Sakuma Shōzan was murdered by Kawakami Gensai, an infamous one of these nativist activists behind the Ikedaya Riot and the assassination of Ii Naosuke. Their top assassins were the “four *hitokiri*.”

ANSWER: *Ishin* **Shishi** [prompt on rōnin or ex-samurai and equivalents]

[10e] The *shishi* Itō Hirobumi later became Prime Minister under this Emperor, who ended the *bakufu* and sent the Iwakura Mission to gather information on Western legal and military practices.

ANSWER: **Meiji** [accept **Mutsuhito**]

<JG - History: World>

22. **Several female creators of these works formed a collective called “Wimmen’s,” spelled with an “I” and two “M”s. Robert Hughes labeled a creator of these works the “Bruegel of the last half of the twentieth century.” Works of this type called *Forbidden Knowledge* and *Greaser* were created by Leonardo DiCaprio’s father George. A misanthropic creator of these works moved to a village in southern France with his old-time record collection and his wife Aline Kominsky, as depicted in a 1995 documentary by (*) Terry Zwigoff. In the 1960s, Trina Robbins, Barbara “Willy” Mendes, and Gilbert Shelton spearheaded an “underground” movement of these works alongside the creator of *Keep On Truckin’* and *Zap*, R. Crumb. Will Eisner and Jack Kirby contributed to this medium’s earlier “Golden Age.” For 10 points, name these books consisting of panels of drawings and dialogue, which are made by DC and Marvel.**

ANSWER: **comic** books [or **comics**; or **comic** strip; accept underground **comix**; prompt on cartoons]

<TM - Arts: Misc>

Donald Rubin developed a method to handle this phenomenon based on pooling estimates over multiple data sets, which the `mice` package in R implements using chained equations. For 10 points each:

[10h] Name this phenomenon that, in a trio of confusingly similar acronyms, is often assumed to occur “at random,” “completely at random,” or “not at random.”

ANSWER: **missing** data [or **missingness**; accept equivalents like **missing** entries or **missing values** in a dataset]

[10e] A popular though dubious approach to filling in missing data is just to replace it with this value for the rest of the data. The sample value of this quantity, denoted by a bar over a variable, converges to its true value by the law of large numbers.

ANSWER: sample **mean** [or **expected value**; or **expectation** value; or sample **average**]

[10m] A common method of parameter estimation when data are missing is this iterative algorithm used in the presence of latent variables. This algorithm alternates between two namesake steps that both involve the complete data log-likelihood.

ANSWER: **EM** algorithm [or **expectation-maximization** algorithm]

<TM - Science: Other>