



**ACADEMIC
COMPETITION
FEDERATION**

ACF NATIONALS 2022

PACKET 5

Packet by

Cornell A + Cornell B

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TOSSUPS

1. Acyl derivatives of this compound, such as 2A3 or NAI (“N-A-I”), are the only SHAPE (“shape”) re-agents that can probe RNA structure inside living cells. This compound precipitates zinc to reverse-stain an SDS-PAGE (“S-D-S-page”) gel. This compound’s conjugate base is the bridging ligand in glassy MOFs (“moffs”) that resemble zeolites (“ZEE-oh-lytes”). This compound is dialyzed (“DYE-uh-lyzed”) out of the elution buffer for a nickel-NTA column at the end of a protein purification protocol. Copper atoms in proteins are coordinated by either sulfides or the amino acid bearing this ligand, which also occupies the “proximal” site on hemoglobin’s iron atom, and is required for most enzyme acid-base chemistry. This amphoteric molecule is fused onto pyrimidines (“pye-RIM-ih-deenz”) to make purines. For 10 points, name this aromatic cyclopentadiene ring containing two nitrogen atoms, which is found in histidine’s side chain.

ANSWER: imidazole [or imidazolate; or imidazolium; or imidazolide]

<Chemistry>

2. In a play by this author, a character indignantly says that a porcelain vase, nylons, or anything a woman might have taken the trouble to pick out is better than the hundred-dollar payment she received. At the end of that play by this author, a character who repeatedly claims that her snake bracelet brings her bad luck wearily says, “Yes,” when a man asks her, “Is it true that I gave you a thrill?” A woman abruptly starts singing “What a crowd in Whitefriars Lane” in a play by this author, who wrote a play in which Senator Clarke convinces Lizzie to falsely accuse a black man of raping her. In a play by him, a woman stabs herself with a letter-opener to show it has no effect and laughs after saying “So here we are, forever.” For 10 points, name this French author of *The Respectful Prostitute* and a play in which Estelle, Inèz (“ee-NEZZ”), and Garcin (“gar-SAN”) are trapped in a room together.

ANSWER: Jean-Paul Sartre (“SAR-truh”)

<European Literature>

3. Robert Brewster, a U.S. ambassador to this country in the 1970s, opened arms sales to ease tensions from this country’s seizure of dozens of American fishing boats in the so-called “tuna war.” A leader of this country died in a plane crash in 1981 shortly after securing OAS arbitration of a border skirmish in its south called the Paquisha (“puh-KEE-shuh”) Incident. This country’s south is also still filled with landmines placed during a 1995 border conflict called the Cenepa (“seh-NEH-pah”) War. It challenged the Rio Protocol, which set the boundaries of its Oriente region, several times while led by Jaime Roldós Aguilera (“AGG-ih-LER-uh”) and the five-time populist president José María Velasco Ibarra. This present-day country was annexed in 1822 by Simón Bolívar after he met with José de San Martín in its chief port city. For 10 points, name this country which hosted the Guayaquil (“gwah-yuh-KEEL”) Conference.

ANSWER: Ecuador [or República del Ecuador, or Chawpipacha Ripuwlika, or Ekuator Nunka]

<World History>

4. This composer called for four chromonicas in the fifth movement of a song cycle for mezzo-soprano and four percussionists. This composer took inspiration from the flute music of the Iatmul (“ee-YAT-mull”) people of Papua New Guinea in composing a passage for four ocarinas in the second movement of his violin concerto. His cello sonata opens with the soloist playing two pizzicato chords connected by a glissando, and is divided into movements titled “Dialogo” and “Capriccio.” A *ricercare* (“rich-er-KAH-ray”) movement in the style of Frescobaldi concludes this composer’s *Six Bagatelles* for wind quintet. An orchestral piece by this composer opens with a tone cluster spanning more than five octaves. For 10 points, name this Hungarian avant-garde composer who used “micropolyphonic” textures in his piece *Atmosphères* and whose piece *Lux Aeterna* was used to accompany the monolith scenes in *2001: A Space Odyssey*.

ANSWER: György (Sándor) Ligeti (“LEE-geh-tee”)

<Classical Music>

5. Jenny McPhee’s translation of a memoir about this family kept the original-language nickname “Barbison” for an uncle who loves to say “Sulfuric acid stinks of fart!” An author who married into this family was widowed when her husband, Leone (“lay-OH-nay”), was tortured to death by Nazis for editing the anti-Fascist newspaper *L’Italia Libera* (“lee-TAH-lee-ah LEE-bay-rah”). An author from this family published an essay about becoming a writer, “My Vocation,” in the collection *The Little Virtues*, and depicted her childhood in Turin in *Family Lexicon*. A member of this family wrote a 1979 letter to Pope John Paul II that led the Vatican to open the Inquisition Archives to researchers. That historian from this family analyzed a 16th-century miller named Menocchio (“may-NOKE-yoh”) in a popular microhistory. For 10 points, name this Italian family that included author Natalia and her son Carlo, who wrote *The Cheese and the Worms*.

ANSWER: **Ginzburg** [accept Natalia **Levi**; accept Natalia **Ginzburg**; accept Carlo **Ginzburg**]

<Other Academic>

6. The back window of this work’s central panel was originally covered in gold leaf, but later painted over to show two heraldic shields in diamond-lattice stained glass. A long bench with small lion figurines on its arms sits in front of a fireplace in this triptych, which shows a recently-extinguished candle on a table at its exact center. Meyer Schapiro links the unusual objects at the right of this work to Augustine’s theory of the *muscipula* (“muss-KIP-oo-lah”) *diaboli*. In the left panel of this work, donors from Mechelen’s (“MECK-uh-lunn’s”) Engelbrecht family kneel before a door that opens onto the scene of this work’s central panel. This painting, which can be seen at the Cloisters, shows mousetraps next to Joseph as he works in his woodshop. In this work’s central panel, Mary sits reading as she is approached by the angel Gabriel. For 10 points, name this altarpiece attributed to Robert Campin.

ANSWER: **Mérode Altarpiece** [or **Mérode Triptych**; or **Annunciation Triptych**]

<Painting/Sculpture>

7. Some speculate that a king of these people name Cotison is the one who minted gold coins modeled on the Brutian denarius inscribed with the name Koson. Conventionally, these people name ornate spiral gold and silver bracelets whose ends are shaped like the heads of oxen, horses, or snakes. A local named Iorita (“yoh-REE-tah”) claimed to have helped excavate eighty skeletons of giants from a settlement built by these people named Argedava (“arr-guh-dah-vuh”). Roman historians name these people’s three great religious teachers as Zeuta, Decaeneus (“deh-KYE-nee-uss”), and Zalmoxis. Historians often regard these people and the Getae (“GHEE-tee”) as two different stages of the same culture unified by Burebista (“BOO-ruh-BEE-stuh”). Their warriors used a deadly two-handed blade called a falx (“falcks”) while defending their capital of Sarmizegetusa (“SAR-mee-zuh-guh-TOO-suh”). For 10 points, what people led by Decebalus (“deh-KEB-uh-luss”) were conquered in a campaign by Trajan (“TRAY-jun”)?

ANSWER: **Dacians** [or **Daci**; accept **Dacia**; accept **Getae** or **Gets** before “Getae”; accept **Dacian** bracelets; prompt on **Thracians** before “Thracians”]

<Ancient History>

8. This character “shifts from ham to ham / Stirring the water in his bath” at the end of a poem that begins “POLY-PHILO-PROGENITIVE / The sapient sutlers of the Lord / Drift across the window-panes.” A poem titled for this character contrasts Emerson’s quote that “The lengthened shadow of a man / Is history” with the silhouette of this character “straddled in the sun” and begins with the lines “Paint me a cavernous waste shore / Cast in the unstilled Cyclades (“SIH-kluh-deez”). This character is described as a “maculate giraffe” in a poem where “the lady in the cape” and “Rachel née Rabinovitch” plot against him. The prostitutes Doris Dorrance and Dusty feature in an unfinished verse drama titled for this character that puns on Milton’s *Samson Agonistes* (“AA-gun-ISS-teez”). For 10 points, name this “apeneck” (“ape-neck”) character who is “Erect” and “Among the Nightingales” in a series of poems by T. S. Eliot.

ANSWER: **Sweeney** [accept “**Sweeney** Erect”; accept “**Sweeney** Among the Nightingales”; accept or **Sweeney Agonistes**] (The first clue is from “Mr. Eliot’s Sunday Morning Service”)

<American Literature>

9. An “incumbent” one of these structures is replaced with an “invader” one in the method of toehold-mediated displacement. A class of proteins that binds to these structures is characterized by binding modes called 35, 56, and 65, that depend on salt concentration. In mitochondria, two of these structures are labeled H and L, or heavy and light. The dye OliGreen is used to quantitate these structures, which typically have an extinction coefficient of thirty-three micrograms per milliliter. The stability of a duplex formed from two of these structures is determined using high-resolution melting analysis, which gives the *T*-sub-*m*. These structures can be “printed” onto a CPG solid support to form a microarray. Two of these structures are separated by helicase. For 10 points, two of what thin, long molecular structures base pair to form DNA?

ANSWER: DNA **strands** [or **DNA**, or **nucleic acids**, or nucleic acid **strands**, or **primers**, or **nucleotides**, or **oligonucleotides**, or single-**stranded** DNA or **ssDNA**; accept any answer replacing DNA with RNA]

<Biology>

10. Recent outcries against this country’s arbitrary definition of “terrorist” were sparked by an incident in which police beat up a visiting jazz pianist. In February 2020, a series of ethnic riots broke out after an eighty-year-old man was beaten up in this country’s city of Masanchi (“mah-san-CHEE”), prompting 20,000 minorities to flee the Korday district. This country’s president gave the order “shoot to kill without warning” during an outbreak of unrest which began in Zhanaozen (“ZHANG-ow-ZANE”) and was quelled with the aid of CSTO soldiers. During that unrest, protesters in this country’s town of Embi threw out an unpopular mayor from the ruling Amanat Party. A doubling of the price of LPG gas from forty to eighty *tenge* (“ten-GAY”) prompted a series of January 2022 protests in this country, which is currently led by Kassym-Jomart Tokayev (“kah-SEEM-joh-MART toh-KAH-yeff”). For 10 points, name this Central Asian country whose capital was renamed to Nur-Sultan (“NOOR-sul-TAN”).

ANSWER: **Kazakhstan** [or Republic of **Kazakhstan**, or **Qazaqstan** Respublikasy, or Respublika **Kazakhstan**] (The jazz pianist is Vikram Ruzakhunov, who was visiting from Kyrgyzstan.)

<Current Events>

11. The signs of speed and this quantity specify the “quadrant” in which one class of devices operate, as prescribed by the relative masses of their cage and counterweight. A hysteretic (“HISS-tuh-REE-tic”) comparator controls changes in this quantity and the stator (“STAY-ter”) flux linkage in a method used by variable-frequency drives to provide “direct control” of this quantity. After start-up at the rated voltage, this quantity decreases to its “pull-up” value, then increases to a maximum “breakdown” value, on a namesake curve. This quantity peaks before power when plotted against RPM on a namesake curve describing the output of an induction motor. Like work, this quantity is measured in newton-meters or foot-pounds, since it combines a force with a lever arm. For 10 points, most electric motors convert electrical energy into what quantity, producing angular acceleration around a shaft?

ANSWER: **torque** (“tork”) [accept start-up **torque** or pull-up **torque** or breakdown **torque**; accept direct **torque** control or **torque** curve; prompt on **torque-speed** curve]

<Physics>

12. A gambling room in this novel has a “Death” table for those who want to play for money, and a “Life” table for those who don’t. At the beginning of this novel, one character is married to a madwoman who believes that she is Cosimo de’ Medici’s maid. That character from this novel flips a coin to decide whether to meet his brother, but it lands in the slot of a pinball machine. In this novel, a man whose sons are all named Abdul breaks his own rules by serving a bacon sandwich to Magid at an establishment that admits women for the first time on New Year’s Eve 1999. That establishment in this novel, O’Connell’s pub, finally agrees to hang a picture of Mangal Pande (“MUNG-gull PAN-day”), the ancestor of a man who prevents the assassination of scientists with the FutureMouse project. For 10 points, the friends Archie Jones and Samad Iqbal are the protagonists of what debut novel of Zadie Smith?

ANSWER: White Teeth

<British Literature>

13. This case established that courts should not have jurisdiction if embarrassment could result from “multifarious pronouncements” on a “single question.” A last-minute concurrence criticizes the “mental blindness” of determining the plaintiff’s standing *sub-silentio*, but remanding this case to a panel of three district court judges; that concurrence was written by Tom Clark. While agonizing over this case, Justice Charles Whittaker had a nervous breakdown, leading to his resignation. Altering the precedent of *Colegrove v. Green*, this case established six criteria for “political questions” that courts could not rule on. This case found a so-called “crazy quilt” that was created after the 1900 Census in Tennessee to be unconstitutional. It was upheld two years later in *Reynolds v. Sims*. For 10 points, what Warren Court case held that electoral districts must follow the “one person, one vote” principle?

ANSWER: Baker v. Carr [accept either underlined portion]

<American History>

14. Behavioral changes induced by this trait in economic games such as the dictator game are assessed in a paper partly titled “Fear and Loathing,” co-authored by Shanto Iyengar (“SHAN-toh EYE-yen-gar”). A 1996 probit analysis by Larry Bartels concluded that statements about declines in this trait in the U.S. were “wildly exaggerated.” Orientations, evaluations, and this trait are the three key variables of the Michigan model. According to Liliana Mason, “mega-identities” form when other traits have predictable associations with this one. Alan Abramowitz and Steven Webster have studied this trait’s “affective” or “negative” form. Since the early 1990s, the rise of this trait in the U.S. has sharply reduced both incumbency advantage and ticket-splitting behavior. For 10 points, identify this trait, the consistent support for one political faction.

ANSWER: partisanship [or partisan hostility, or partisan behavior, or partyism, or party loyalty, or party identity, or political polarization; or affective polarization, or group polarization; accept any answer indicating consistent support for, or identification with, or hostility toward, a political party or platform; accept any answer indicating polarized individuals; prompt on political identity or personal politics beliefs or cleavages]

<Social Science>

15. Attendees of weddings in this religion drink water mixed with juice from mashed raisins using a bowl called a *kupta*. The anthropologist E. S. Drower assembled a collection of manuscripts from this religion, including several detailing the exile of one of its sects from Harran (“har-RAN”). One of this religion’s texts, *The Thousand and Twelve Questions*, describes how the guardian Shitil (“SHEE-til”) came from the World of Light. Since this religion’s members are often called *subba* (“SOOB-buh”), they are sometimes considered the same group as the Sabaeans of the Qur’an. Its members wear white robes while they sign and douse themselves three times with water every Sunday. Abatur is one of the three emanations of the god Hayyi Rabi (“HIGH-yee RAH-bee”) described in this religion’s holy text, the *Ginza Rba* (“GEEN-zuh ruh-BAH”), which greatly venerates John the Baptist. For 10 points, name this Gnostic religion whose followers mainly live in Iraq.

ANSWER: **Mandaeism** (“MAHN-duh-ism”) [or **Mandeanism**, or **Mandaeen** religion, or **Mandai**; prompt on **Sabaeans** or **Sabianism** before “Sabaeans”; prompt on **Gnosticism**]

<Religion>

16. For several hundred years, part of this state’s lands were a “free county” due to rights won by its ruler Reginald III (“the-third”). In the Holy Roman Empire, a “circle” of realms named for this state included the “Generality Lands” pacified by the Guelders (“GHEL-ders”) Wars. One of this state’s princesses signed the “Great Privilege” restoring the rights of cities after her succession was affirmed by the Joyous Entry of 1477. The Spanish Habsburgs used a flag of a red “X” shape on a white background called this state’s “Cross.” The war of succession over its lands was settled by the Treaty of Senlis (“sahn-LEESS”), which concluded hostilities over the Seventeen Provinces and determined Mary the Rich’s inheritance. By the Treaty of Arras (“ah-RAHSS”), Maximilian I (“the-first”) gained the County of Flanders from this duchy, while the rest went to Louis XI’s (“the-eleventh’s”) France. For 10 points, what duchy (“DUTCH-ee”) was partitioned after the death of Charles the Bold?

ANSWER: **Burgundy** [or **Bourgogne**; accept **Burgundian** Circle, or **Burgundian** State, or War of the **Burgundian** Succession, or Cross of **Burgundy**, or Duchy of **Burgundy**, or Valois **Burgundy**; prompt on **Franche-Comte**; reject “France” or “Flanders”]

<European History>

17. *Description acceptable.* Benjamin Pierce and David Turner popularized this task’s bidirectional form, which incorporates synthesis. Ross Tate and Nada Amin showed that Java and Scala’s systems for this task are unsound, due to their use of implicit null pointers. Algorithms J and W implement this task in the Hindley–Milner system, whose inference rules are used for this task in Haskell. After building a parse tree, the compiler traverses it depth-first to perform this task during semantic analysis. Python allows “hints” for this task, but generally does not require explicit declaration, since it uses this task’s “duck” protocol. Programming languages with a “strong” system for this task may require explicit casting, rather than allowing implicit conversion. For 10 points, name this task exemplified by confirming that a variable declared as a float can actually be a float.

ANSWER: **typing** [accept **type** checking; accept any description of assigning, declaring, verifying, or enforcing data **types**; accept **type** inference or **type** safety; accept bidirectional **typing** or duck **typing** or static **typing** or dynamic **typing**]

<Misc. Science>

18. In a novel by this author, a character recalls Jesus's saying "wise as serpents and harmless as doves," before deciding to send three love letters that culminate in the demand "won't you shove aside the morality that blocks you?" While being interrogated by the police, a character created by this author uses a handkerchief stained with blood from a pimple to fake tuberculosis. The protagonist's opium-addicted soldier brother writes a "Moonflower Journal" and a novelist nicknamed M. C. or "My Chekhov," is loved by Kazuko, who takes care of her dying mother, in this author's novel *The Setting Sun*. The protagonist creates paintings inspired by Modigliani ("MOH-deel-YAH-nee") in the second of three "memoranda" in this author's novel about Ōba Yōzo, whose struggles with depression mirror the author's. For 10 points, name this Japanese author of the autobiographical novel *No Longer Human*.

ANSWER: Osamu Dazai ("dah-zye") [or Shuji Tsushima; accept names in either order]

<World Literature>

19. In an opera, one of these creatures is represented by the repeating figure D – D – B-flat – C in G minor. In another opera, one of these creatures introduces a theme that begins with two upbeat F-sharps, four A's, two C's, and one E all over an F-sharp tremolo. When the son of one of these creatures falls asleep during his night watch, he sees a vision of his father. One of these creatures is the first male character introduced in an opera that begins with 137 bars of E-flat major chords. In an opera, a journey into the realm of these creatures is accompanied by the clanging of eighteen anvils. One of these characters uses the Tarnhelm after forswearing love to attain some gold; another is killed with the sword Nothung ("NOH-toonk") by his foster-son, Siegfried ("ZEEK-freet"). For 10 points, Mime ("MEE-muh") and Alberich ("ALL-buh-rick") are members of what race that creates the title object in Wagner's *Ring Cycle*?

ANSWER: Nibelungs [or Nibelungen; accept dwarfs]

<Other Fine Arts>

20. In a response to this essay, one philosopher imagined a world whose three regions periodically freeze and unfreeze. This essay compares the impossibility of proceeding from Hegelian Being to Causality, bypassing the Absolute Idea, to the impossibility of proceeding from the number 17 to 26, bypassing 21. This essay uses the death of Queen Anne to show that all change is only a change of characteristics imparted to events by their presence in a certain system. The author of this 1908 essay further developed its ideas in the second volume of *The Nature of Existence*. This essay divides the title concept into a form that includes tense and one that includes only order, called the A-series and B-series. For 10 points, name this essay that argues that one cannot provide a non-circular, non-contradictory account of how events succeed each other, the most famous work of J. M. E. McTaggart.

ANSWER: "The Unreality of Time"

<Philosophy>

BONUSES

1. A pile of this substance weighing roughly 175 pounds, the weight of the artist's partner Ross Laycock, makes up the work *Untitled (Portrait of Ross in L.A.)*. For 10 points each:

[10m] Name this substance that is wrapped in cellophane in numerous pieces by conceptual artist and AIDS activist Félix González-Torres. It is often piled into a corner of a room and depleted by museum-goers over time.

ANSWER: **candy** [accept **sweets**; accept **chocolate**; prompt on **food**]

[10e] A light shade of this color recurs in González-Torres' work, such as in his 1989 installation of sheer curtains of this color. This color dominated Pablo Picasso's work from 1901 to 1904, including *The Old Guitarist*.

ANSWER: **blue**

[10h] González-Torres required a light blue background for a work titled for the "perfect" type of these people. That work features two identical clocks that fall out of sync over time until one of them dies, after which both are reset.

ANSWER: **lovers** [accept *Untitled (Perfect **Lovers**)*]

<Other Fine Arts>

2. Geneticist David Reich described a "ghost population" of ancient humans named for this river who likely introduced millet cultivation to East Asia. For 10 points each:

[10e] Name this oft-flooding river commonly called the "cradle of Chinese civilization."

ANSWER: **Yellow** River [or **Huang** He; accept **Yellow** River ghost population]

[10m] Along the Yellow river, the Dadiwan ("dah-dee-wahn") culture made pottery described by this term, referring to the thin lines in its surface. This term also characterizes Jōmon pottery in Japan, as well as the wares of a Northern European culture thought to have formed after the Indo-European expansion.

ANSWER: **corded** [accept **corde**s or **cording**; accept **corded** pottery or **Corded** Ware culture]

[10h] This chronologically-last culture of the prehistoric Yellow River developed the first large-scale bronze industry in China. It is often associated with the Xia ("sh'yah") dynasty.

ANSWER: **Erlitou** ("early-toh") culture [or **Èrlǐtóu** wénhuà]

<Ancient History>

3. Many contemporary African playwrights have taken inspiration from Greek tragedy. For 10 points each:

[10e] This Nigerian playwright of *The Lion and the Jewel* added a chorus of slaves in his adaptation of Euripides's *The Bacchae* ("BAH-kay"), which is subtitled "a communion rite."

ANSWER: Wole **Soyinka** ("WOH-lay show-YIN-kuh") [or Akinwande Oluwole Babatunde **Soyinka**]

[10h] This other Nigerian playwright adapted the title character of *Oedipus Rex* into Odewale ("OH-day-WAH-lay"), who banishes his brother Aderopo ("AH-day-ROH-poh") from his kingdom after accusing him of bribing the seer Baba Fakunle ("fah-KOON-lay").

ANSWER: Ola **Rotimi** (The play is *The Gods Are Not to Blame*.)

[10m] A director complains about his inability to get white actors for a performance of this play in the prologue to a Femi Osofisan ("uh-SHOW-vee-zun") adaptation. Two Robben Island prisoners put on a performance of this play in Athol Fugard, John Kani, and Winston Ntshona's ("un-CHAW-nah's") *The Island*.

ANSWER: **Antigone** [accept **Tegonni**: *An African Antigone*]

<World Literature>

4. To reduce this quantity and increase device switching speeds, silicon dioxide can be doped with fluorine or made more porous. For 10 points each:

[10h] Name this quantity, which is only 3.9 for silicon dioxide, but can reach values as high as 23 for hafnium dioxide.

ANSWER: **dielectric** constant [or **relative permittivity**; prompt on κ or k ; reject just “permittivity”]

[10e] In this most common class of transistor, high- k materials are used for the insulating layer separating the gate from the source and drain. A subtype of them is named for their metal–oxide–semiconductor, or MOS (“moss”), structure.

ANSWER: **field-effect** transistors [or **FETs** (“fetts”); or **unipolar** transistors; accept **MOSFETs** or metal–oxide–semiconductor **field-effect** transistors; prompt on **transistors**]

[10m] High- k dielectric layers are less prone to leakage currents because, for a given capacitance, they can have a larger value for this physical parameter than an equivalent silicon dioxide layer.

ANSWER: **thickness** [accept equivalent oxide **thickness** or oxide equivalent **thickness**; prompt on **size**]

<Physics>

5. A chapter titled for this term describes it as “the field of immanence of desire” and features a picture of a Dogon Egg. For 10 points each:

[10h] Give this term. Borrowed from Antonin Artaud’s (“ar-TOH’s”) play *To Have Done with the Judgment of God*, it describes a structure of components without imposed organization.

ANSWER: a **body without organs** [or **BwO**; or *corps sans organes*; or **CsO**]

[10m] The chapter “How Do You Make Yourself a Body Without Organs?” appears in this book, which begins with an introduction to the rhizome (“RYE-zoam”). This second volume in *Capitalism and Schizophrenia* comes after a book whose title is inspired by Freud.

ANSWER: A **Thousand Plateaus** (by Giles Deleuze and Felix Guattari) [or **Mille plateaux**]

[10e] A *Thousand Plateaus* describes a book by this thinker as the “great book of the Body Without Organs.” This Dutch philosopher described God as *natura naturans* in his *Ethics*.

ANSWER: Baruch **Spinoza**

<Philosophy>

6. This person is depicted by a sprightly B-major theme in the *Symphonia Domestica*. For 10 points each:

[10h] Name this real-life person who is depicted by a solo violin in a movement that follows one in which the music critic Doktor Dehring is depicted by tubas playing in parallel fifths.

ANSWER: Pauline Maria **de Ahna** [or **Paulina Strauss**; prompt on **Strauss**; prompt on **Strauss’s wife**; prompt on “The **Hero’s Companion**”; prompt “Des **Helden Gefährtin**”]

[10m] That depiction of Pauline is as the “companion” of the title character of this tone poem by Richard Strauss, which ends with the title character’s “Retirement from this World.”

ANSWER: *Ein **Heldenleben***, Op. 40 [or A **Hero’s Life**]

[10e] The bucolic theme representing the hero’s retirement is played by this double-reed woodwind, which is pitched a perfect fifth below an oboe. It plays the “Goin’ Home” theme in the Largo of Dvořák’s (“d’VOR-zhahk’s”) *New World Symphony*.

ANSWER: **English horn** [or **cor anglais**; reject “horn”]

<Classical Music>

7. Some of this book's stories, such as one about Dr. Karl Taube's murder, were inspired by Karlo Štajner's ("SH'TYE-ner's") memoir *7000 Days in Siberia*. For 10 points each:

[10h] Name this collection of seven short stories. Its author wrote "The Anatomy Lesson" to defend himself against charges leveled in *Narcissus without a Face*, which claims that it was plagiarized from Louis Réau's history of Russian art and a Roy Medvedev book on Stalinism.

ANSWER: A **Tomb for Boris Davidovich** [or **Grobnica za Borisa Davidoviča**]

[10m] This author, who fictionalized his father's death in Auschwitz in his novel *Hourglass*, wrote *A Tomb for Boris Davidovich*.

ANSWER: Danilo **Kiš** ("kish")

[10e] Kiš wrote a story about a woman who reads about her father's life in this type of book "of the dead." Denis Diderot attempted to capture all human knowledge in a book with this title.

ANSWER: **encyclopedia** [accept "The **Encyclopedia** of the Dead"; accept "**Enciklopedija** mrtvih"; accept **Encyclopédie**]

<European Literature>

8. Like the Breakers Palm Beach resort, this building was designed by the firm Schultze and Weaver during a 1920s "land boom." For 10 points each:

[10h] Name this tall building on Biscayne Boulevard that was an immigrant processing center from 1962 to 1974. It now houses the "Exile Experience" exhibit of Miami Dade College's Museum of Art and Design.

ANSWER: Miami **Freedom Tower** [or **Torre de la Libertad**, or **Miami Daily News** building, or **Miami News** and Metropolis building; reject "One World Trade Center"] (The Museum of Art and Design is affiliated with Miami Dade College.)

[10e] Miami's Freedom Tower processed many immigrants fleeing from the government of this dictator, who let the Mariel boatlift go.

ANSWER: Fidel **Castro** [or Fidel Alejandro **Castro** Luz]

[10m] This Ohio newspaper magnate had Freedom Tower built to house the Miami Daily News. Earlier, in 1920, this Democrat won Florida's six electoral votes while losing the presidency to Warren Harding.

ANSWER: James (Middleton) **Cox**

<American History>

9. This city is home to "skyways" between eighteen tall columns that house plants, generate solar power, light up at night, and flare out with baobab-esque steel branches at the top. For 10 points each:

[10m] Name this city where those "supertrees" stand in Gardens by the Bay. The Bayfront stop of its MRT subway also serves Marina Bay Sands, a casino whose three towers share a single roof deck 57 stories up.

ANSWER: **Singapore** [or **Singapura**, or **Xīnjiāpō**]

[10e] Another exhibit at Gardens by the Bay includes Lego sculptures of this genus of huge red Southeast Asian flower. The name of this parasitic flower derives from that of Singapore's founder.

ANSWER: **Rafflesia** ("ruh-FLEE-zhuh") [accept **Rafflesia** arnoldii; prompt on Sir Thomas Stamford **Raffles** by asking "What genus name comes from his surname?"]

[10h] Singapore's Sunseap Group plans to build floating solar farms in this city, which is across the Singapore Channel to the south. This booming city of over 1 million people is the largest in Indonesia's Riau Islands.

ANSWER: **Batam** [reject "Bataan"]

<Geography>

10. Wernicke (“WER-nick-ee”) en-cephalo-pathy can occur in patients who have an X-linked oncogene that codes for a protein similar to this enzyme. For 10 points each:

[10m] Name this enzyme in the pentose phosphate pathway, which catalyzes the transfer of a two-carbon fragment to form sedo-heptulose-7-phosphate. Its TPP cofactor is the intermediate acceptor of the carbon fragment.

ANSWER: **trans-ketolase** (The gene is TKTL1.)

[10h] TPP is released in a reaction catalyzed by this “middle” subunit of the pyruvate de-hydrogenase (“dee-hye-DRAH-juh-nase”) complex, which follows a reaction that requires a TPP cofactor. This subunit is the main auto-antigen in primary biliary cholangitis.

ANSWER: **E2** subunit of the PDC [or **dihydrolipoyl transacetylase**]

[10e] The formation of sedo-heptulose-7-phosphate via trans-ketolase occurs in the pentose phosphate pathway, which is particularly important in these cells that lack a nucleus and have large amounts of hemoglobin.

ANSWER: **erythrocytes** (“uh-RITH-ruh-sytes”) [or **red blood cells** or **RBC**]

<Biology>

11. In one poem, the speaker laments how “My best wits still their own disgrace invent” while “My very ink turns straight to [this person’s] name.” For 10 points each:

[10h] Name this person. In another poem, a door made of “Red porphyr” and a “front built of alabaster pure” represent features on this person’s face, which is compared to “Queen Virtue’s court.”

ANSWER: **Stella**

[10e] Although six of the poems in Philip Sidney’s *Astrophel and Stella* are in alexandrines (“alex-ANN-dreenz”), most of them are written in this English poetic meter also used in Shakespeare’s sonnets.

ANSWER: **iambic pentameter** [prompt on **iambic** or **pentameter**]

[10m] This author wrote a preface for the first edition of *Astrophel and Stella*, but his work was removed from later editions. This pamphleteer also wrote the novel *The Unfortunate Traveller*.

ANSWER: Thomas **Nashe** (“nash”)

<British Literature>

12. Organic cations (“CAT-eye-ons”) crystallize with these anions (“ANN-eye-ons”) in a class of efficient but unstable photovoltaic sensitizers for solar cells. For 10 points each:

[10e] Name these ions with a minus-one charge, formed from elements in Group XVII (“seventeen”) of the periodic table.

ANSWER: **halides** [reject “halogens” or; reject “halites”]

[10m] Metal-halide hybrids are unstable because light induces the ions to phase-separate, disrupting this octa-hedral crystal structure. Semiconductors with this structure, denoted ABX₃ (“A-B-X-3”), are popular materials in solar cell junctions.

ANSWER: halide **perovskites** (“puh-ROFF-skytes”)

[10h] To reduce ion migration, perovskite crystals in solar cells are often synthesized to maximize this dimension. A drawback is that perovskite films are often brittle, since yield stress varies inversely with this quantity’s square root.

ANSWER: **grain** size [or **grain** diameter; or **crystallite** size; or **crystallite** diameter; accept descriptive answers including the word **grain**, such as the distance between **grain** boundaries; prompt on **size** or **diameter**] (The equation is the Hall-Petch relationship.)

<Chemistry>

13. Low-value probabilities are simplified into “essentially nil” values according to this theory’s “editing” hypothesis. For 10 points each:

[10h] Name this theory of cognition developed by Valerie Reyna and Charles Brainerd that posits the existence of “verbatim” and “gist” processes of memory.

ANSWER: **fuzzy trace** theory [prompt on, but do not reveal, dual process model]

[10e] Tests of fuzzy trace theory suggest that children are less likely to have these sorts of memories than adults. Elizabeth Loftus’s “lost in the mall” experiment examined the formation of these memories.

ANSWER: **false** memories [or **incorrect** memories or **wrong** memories; accept **confabulations**; accept equivalent answers such as “memories of things that **never happened**”]

[10m] Fuzzy trace theory belongs to this class of theories which distinguish “implicit” and “explicit” elements of cognition. You may give either the name of these theories OR the nicknames of each of these theories’ components, coined by Keith Stanovich and Richard West and used in *Thinking Fast and Slow*.

ANSWER: **dual process** theories [or **dual process** models; accept **System 1** AND **System 2**; prompt on System 1 or System 2 by asking “what is the other component?”; reject “system”]

<Social Science>

14. Examples of these bodies govern most municipalities in Spain today, except for those led by more direct-democratic bodies called *consejos* (“kon-SAY-hohs”). For 10 points each:

[10m] Give the Spanish name of these parliaments. One of them assembled in Cádiz in 1810 and issued numerous liberal reforms, partly inspiring revolutions in Latin America.

ANSWER: **Cortes** (“KOR-tays”) [or **Cortes**; accept **Cortes** Generales or **Cortes** of Cádiz] (*Cortes* means “courts.”)

[10e] The institution of the Cortes is a legacy of these Germanic people, who ruled most of Spain before its conquest by Muslims. They sacked Rome while led by Alaric.

ANSWER: **Visigoths** [or **visigodos**, or **Visigothi**, or **Vesi**, or **Visi**; prompt on Goths]

[10h] The Cortes that this ruler of León summoned in the 1190s is considered Europe’s first parliament with representatives from all three estates. This ruler also founded the University of Salamanca.

ANSWER: **Alfonso IX** (“the-ninth”) of León [prompt on Alfonso]

<European History>

15. The Māori underworld goddess Hine-nui-te-pō was originally a “maiden” of this phenomenon named Hine-tītama, but fled to the underworld after realizing her husband was her father. For 10 points each:

[10m] Name this phenomenon. A Greek goddess of this phenomenon ruined the marriage of Procris and Cephalus, and with another lover, was the mother of the Ethiopian king who fought at Troy.

ANSWER: **dawn** [accept equivalents; accept **Dawn** Maiden; prompt on light]

[10h] Hine-nui-te-pō’s father was this forest god who, in some accounts of the Māori creation story, separated earth from sky. A possibly-separate deity with this god’s name and the epithet “hokahoka” is the father of all birds.

ANSWER: **Tāne**-mahuta [or **Tāne**-nui-a-Rangi; or **Tāne**-hokahoka; or **Tāne**-te-hokahoka]

[10e] This Polynesian culture hero died after climbing inside Hine-nui-te-pō’s vagina, where he was crushed by the obsidian teeth inside. This trickster is analogous to the Samoan figure Tī’itī’i (“TEE-ee-TEE-ee”).

ANSWER: **Māui**

<Mythology/Legends>

16. Answer the following about female figures revered by Hindus in the state of Rajasthan (“RAH-juss-TAHN”), for 10 points each.

[10e] In Rajasthan’s summer Teej festival, women welcome the monsoon season by venerating this deity, the mother of Ganesha and consort of Shiva.

ANSWER: Devi **Parvati** (“PAR-vuh-tee”) [prompt on Adi Shakti or Devi or Mahadevi]

[10m] Mirabai, a 16th-century woman from Rajasthan, composed several *bhajan* (“BUH-jun”) that are still popular today as part of this Hindu devotional religious movement. Her lifespan overlapped with Tulsidas, another proponent.

ANSWER: **bhakti** yoga [or **bhakti** movement; prompt on devotional yoga or yoga; prompt on worship of Vishnu/Krishna/Rama/Hanuman by asking “As part of what more general religious movement?”]

[10h] This warrior-sage of the bardic Charan (“CHAH-run”) caste lends her two-word name to a temple in Rajasthan near Deshnoke (“DESH-noke”), where visitors leave saucers of milk for the 25,000-or-so sacred rats living there.

ANSWER: **Karni Mata** [or **Mata Karni**; or **Riddhi** Bai; or Sri **Karniji** Maharaj; prompt on Kali Durga by asking “Which person often treated as an incarnation of her?”]

<Religion>

17. The Sant’Egidio (“SAN-tay-JEED-yoh”) platform failed to curb this conflict, which began after the army canceled 1991 elections in which the FIS party was poised to win a majority. For 10 points each:

[10h] Name this non-Latin-American conflict whose rampant massacres of civilians led to its nickname of “the dirty war.” President Liamine Zéroual (“lee-ah-MEEN zher-WAHL”) oversaw its middle period.

ANSWER: **Algerian Civil** War [or al-Ḥarb al-’**Ahliyah** al-**Jazā’iriyyah**; accept answers which indicate a **civil** war in **Algeria**; reject “Algerian War of Independence”]

[10e] This neighboring dictator and author of the Green Book backed Islamists during the early stages of the war.

ANSWER: Muammar **Gaddafi** [or Muammar **Qaddafi**]

[10m] This movement names a “group for preaching and combat” which was among the last Islamist terror groups to keep fighting the war. Egypt is a center of this conservative Islamist movement, which is named for imitating the first generations of Muslims.

ANSWER: **Salafist** movement [or word forms such as **Salafi** or **Salafism**; or **salafiyah**; accept the **Salafist** Group for Preaching and Combat]

<World History>

18. These two quantities are denoted by a wide T on geologic maps: one quantity is the compass bearing of the T’s crossbar, and the other quantity is the downward angle of its leg. For 10 points each:

[10h] Name these *two* quantities that describe the attitude of a planar surface. They name contrasting types of rock fractures along which motion is horizontal or inclined, respectively.

ANSWER: **strike** AND **dip** [accept answers in either order; accept **strike**-slip faults AND **dip**-slip faults; reject “strike and slip” or “dip and slip”]

[10m] Strike and dip are used to describe planar underground rock layers, which intersect the surface in “patterns” named for these features. These features are rock formations, typically bedrock, that have been exposed by weathering or erosion.

ANSWER: **outcrops** [accept **outcroppings**; accept **outcrop** patterns]

[10e] On the Earth’s surface, the strike line runs parallel to these curves, which connect points of constant elevation on a topographic map.

ANSWER: **contour** lines [or elevation **contours**; accept **isolines** or **isopleths** or **isarithms**]

<Misc. Science>

19. A story written in this format ends with a character and her father watching thousands of solar panels move to collect moonlight. For 10 points each:

[10h] Name this format. A story written in this format describes Lincoln's obsession with certain features in songs such as "Long Train Running" by the Doobie Brothers and "Supervixen" by Garbage.

ANSWER: a **PowerPoint** presentation [accept **slides** or **slideshow** or equivalents]

[10m] A PowerPoint presentation on "Great Rock and Roll Pauses" appears in this book, which opens with kleptomaniac Sasha stealing a wallet in the section "Found Objects."

ANSWER: A ***Visit from the Goon Squad*** (by Jennifer Egan)

[10e] Mindy recounts a lion attack in Kenya in a section of *A Visit from the Goon Squad* titled for one of these expeditions. While on one of these expeditions, Eckels screws up time by treading on a butterfly in Ray Bradbury's "A Sound of Thunder."

ANSWER: **safari** [prompt on **hunting** or big-game **hunting**]

<American Literature>

20. An egg-shaped globe depicting the coastline of British Columbia forms the middle section of a work of this type by Ellen Neel, whose relatives Mungo Martin and Charlie James also created these artworks. For 10 points each:

[10e] Name these wooden sculptures common in Pacific Northwest art. They often depict mythological figures like the Thunderbird and Raven.

ANSWER: **totem poles**

[10h] This Canadian sculptor created a small totem pole that depicts a Sea Wolf and Grizzly Bear. A bird perches on a chiton ("KYE-tuhn") shell from which people emerge in this man's *The Raven and the First Men*.

ANSWER: Bill **Reid** [or William Ronald **Reid** Jr.]

[10m] Bill Reid's mother was one of these First Nations people, whose artistic traditions include carving in argillite. A Reid sculpture named for their homeland shows the Mouse Woman among a crowd of figures in a canoe.

ANSWER: **Haida** ("HYE-duh") [or **Xaayda** or **Xaad**; accept *The Spirit of **Haida** Gwaii*]

<Painting/Sculpture>