

FLopen 2020

Packet N: novice_team_packet_submission_generator.exe

Edited by: Taylor Harvey and Jonathen Settle

Written by: Mateo Javier Acosta, Mike Bentley, Nicholas Dai, Anthony Delgado, William Grossman, Shawn Jarrard, Zachary Knecht, Leo Law, Lalit Maharjan, Tracy Mirkin, Khanh Nguyen, Grant Peet, Ani Perumalla, Jason Zappulla, and the editors

Tossups

1. **Deterministic scattering in quantum dots or other mesoscopic cavities with long dwell times suppresses this phenomenon. Using Landauer’s formula, the dependency of the zero-temperature spectral density of this phenomenon on the transmission probabilities $T_{\text{sub-}n}$ is shown to be: the sum over n of the product of $T_{\text{sub-}n}$ and the quantity one minus $T_{\text{sub-}n}$. Walter Schottky proposed measuring the elementary charge with this phenomenon after he observed it in a (*) vacuum tube.** This type of noise dominates in nonequilibrium conditions with high frequency current fluctuations. When assumed to be Poissonian, this type of noise’s spectral density varies linearly with current. Unlike thermal noise and flicker noise, this type of noise is white and temperature independent. For 10 points, name this type of noise caused by the discreteness of electrical charge. ANSWER: **shot noise** [accept **shot** noise after “noise” is read; prompt on noise until “noise” is read; prompt on white noise until “white” is read; prompt on Poisson noise until “Poissonian” is read]
<Physics, LM>

2. **This author’s love of *Pilgrim’s Progress* led him to title many of his essays with Bunyan-esque phrases like “Mr. High-Mind’s Party” and “Recalling Mr. Fearful-for-Truth.” This author coined the contemporary usage of the term “the Establishment” in a review of a biography of William Cobbett. This historian asserted that Marinus van der Lubbe acted alone in his introduction to Fritz Tobias’s account of the Reichstag fire. This rival of Hugh Trevor-Roper rejected the (*) Nuremberg Thesis in a book arguing that the failures of British and French foreign policy enabled Hitler. This historian presented his “railway thesis” on the origins of World War I in his book *War by Timetable*. For 10 points, name this British historian of diplomatic history who wrote *The Origins of the Second World War* and *The Struggle for Mastery in Europe*, whose surname is usually preceded by three initials.** ANSWER: A. J. P. **Taylor** [or Alan John Percivale **Taylor**]
<Historiography/Archeology, TH>

3. **In a play, a character who works as a sandwich artist at Subway but formerly had this profession asks Professor Aman to translate a phonetic phrase for him. In a play titled for a man with this profession, the Black investigator Davenport conducts a series of interviews to uncover the racially motivated murder of Waters; that play won the 1982 Drama Pulitzer for Charles Fuller. The aspiring actor Elliot Ortiz suffers from a limp acquired during his time as a member of this profession in Quiara Alegria Hudes’s play (*) *Water by the Spoonful*. A man of this profession rapes Ian and eats his eyes in Sarah Kane’s play *Blasted*. In a German expressionist play, a character with this profession is prescribed an all-pea diet by a doctor and stabs his lover Marie to death for sleeping with the Drum Major. For 10 points, name this profession of Georg Büchner’s character Woyzeck.** ANSWER: **soldier** [accept **military** personnel; accept specific military ranks like **general**, **officer**, **sergeant**, or **colonel**; accept **marine**; accept *The **Soldier**’s Play*]
<Drama, TH>

4. In the opening bars of this symphony's second movement a solo horn plays the 6/8 melody (read slowly) E, E, dotted F, short G, E before being joined by the clarinet. Dr. Richard Fellingner saved the score of this non-Russian symphony from an apartment fire while its composer was manning a bucket line. The first theme of this symphony's *Allegro giocoso* third movement consists of a truncated, syncopated, descending scale which the kettledrums, (*) triangle, and piccolo articulate on the weak beats. This symphony, which was composed over two vacations in Müzzuschlag, borrows from Bach's Chaconne in D minor for the ostinato bass line for the *passacaglia* and 34 variations that make up its fourth movement. For 10 points, name this E minor final symphony of a composer who also wrote *A German Requiem*.

ANSWER: Johannes **Brahms**' Symphony No. **4** in E Minor [accept **Brahms**' **4th** Symphony]
<Classical Music, TH>

5. The government of this country partnered with the Israeli firm Neema to issue the SOV, the world's first sovereign cryptocurrency. In 2014, activist Kathy Jetnil-Kijiner received a standing ovation at the U.N. after she read a poem stating that her seven-month-old baby would outlive this country. The U.S. Department of Energy stores large amounts of radioactive debris under a concrete dome on this country's Runit Island. Tyson Foods employs a large diaspora of people from this country living in (*) Springdale, Arkansas, who immigrated there thanks in part to the Compact of Free Association, signed alongside Palau and the Federated States of Micronesia. Either Kiribati ("KEE-ree-bass") or this country will likely be the first to be fully submerged due to rising sea levels. Majuro is the capital of, for 10 points, what Pacific island country where the U.S. tested the hydrogen bomb on Bikini Atoll?

ANSWER: **Marshall** Islands [or Republic of the **Marshall** Islands; or Aolepān Aorōkin **Majel**]
<Zeitgeist, TH>

6. *Two answers required.* After constructing dominance frontiers and placing phi-functions, renaming is done by performing this process on one of these data structures that dominates the CFG to convert to minimal SSA form. For L-attributed grammars, this process on this data structure only needs to be run one time to compute attribute values. During semantic analysis, symbol tables are built while running this process on this data structure. Type-safety is statically checked by performing this process on this data structure. The difference between top-down and bottom-up (*) parsing is the direction this process is done to one of these data structures called the AST. The order that root, left, and right are inspected differentiate preorder and postorder forms of this process on this data structure. For 10 points, name this process of touching every node of undirected, connected, acyclic graphs.

ANSWER: **tree traversal** [accept **AST traversal** or **abstract syntax tree traversal**; accept **walking**, **visiting**, or **searching** instead of **traversal**; accept word forms, like **traverse** for **traversal** or **walk** for **walking**; prompt on **graph** in place of tree]
<Other Science: Computer Science, JS>

7. Stefano Gualeni has presented digital environments like *Necessary Evil* as versions of these things that challenge the prevailing text-only presentation of them. A logical taxonomy of these things puts them into categories such as prefactual, semi-factual, and hindcasting. Roy Sorenson's 1992 book presenting an "evolutionary" model of these things rejects Ernst Mach's enthusiasm for them. Yale philosopher Joshua Knobe elucidated his namesake effect while conducting a series of these events concerning a (*) CEO who either helps or harms the environment. Daniel Dennett's writings refer to a subclass of these events as intuition pumps. Judith Jarvis Thompson presented one of these involving a violinist in her paper "A Defence of Abortion." For 10 points, name these real or imaginary events used to test philosophical intuitions, exemplified by the trolley problem.

ANSWER: thought experiments [accept experimental philosophy; prompt on quiz, survey, polls or questionnaires; prompt on ethical dilemmas; prompt on video games by asking "what sort of philosophical situation is presented in those video games?"]

<Philosophy, TH>

8. The classical depiction of urinating boys called *pueri mingentes* was first revived in the Renaissance by a sculpture of this scene. A nude figure clutching a sword with two hands appears in Franz Stuck version of this scene, which is missing one of its common participants. Mantegna's version of this scene frames the action with pink curtains. Vitaliy Komar and Alexander Melamed painted a version of this scene set "on the (*) Red Square," which features a depiction of Joseph Stalin. One model used for this scene also modeled for the artist's earlier *Pallas Athene* and depicts the subject wearing a large golden neckbrace. The most famous version of this scene may have been inspired by the annulment of Agostino Tassi's rape conviction. For 10 points, Caravaggio and Artemisia Gentileschi famously painted what scene that shows a woman killing an Assyrian general?

ANSWER: Judith beheading Holofernes [accept any answer containing both Judith and Holofernes, like Judith with the head of Holofernes] (The sculpture in the first clue is by Donatello.)

<Painting/Sculpture, SJ>

9. In a novel set in this country, a coded radio telegram conveys that the "King of America" with a "grandfather face" desires the death of "a tall, thin man." In the final section of a novel, the foul-mouthed parrot Methuselah is killed on this country's independence day, and Ruth May states that she doesn't fault her sisters for failing to prevent her death due to a mamba bite. A poem named for this country contains (*) directions like "all the 'o' sounds very golden" and "to the tune of 'Hark, ten thousand harps and voices.'" A river "[cuts] through the jungle with a golden track" in a poem named for this country, whose citizens resist being baptized in a crocodile-infested river by American missionary Nathan Price in Barbara Kingsolver's *The Poisonwood Bible*. For 10 points, Vachel Lindsay's poem about what African country mentions the "yell of Leopold's ghost?"

ANSWER: Congo [accept "The Congo"; accept Democratic Republic of the Congo or Republic of the Congo; accept DRC or RDC; accept Congo-Kinshasa or Congo-Brazzaville; accept Belgian Congo; accept Zaire]

<Other Literature, AP>

10. A ruler of this dynasty relied on commander John Axouch after offending Hungary by giving refuge to Prince Álmos. That ruler of this dynasty's first campaign against the Danishmendids was prematurely ended by the plotting of his brother Isaac. Michael Psellos convinced a ruler from this dynasty to resign to the Monastery of Stoudios after an illness left him severely depressed. A ruler of this dynasty adapted the ancient (*) Greek titles of *sebastos* and *autokrator* into a rank given to his older brother. A ruler from this dynasty enlisted Venetian support in the Golden Bull of 1082 after losing the Battle of Dyrrhachium. That ruler from this dynasty earlier sent representatives to councils at Piacenza and Clermont to request aid against the Seljuks, manifesting in the First Crusade. For 10 points, name this Byzantine dynasty whose rulers included Alexios I.

ANSWER: **Komnenos** [accept Alexios I **Komnenos**, Isaac I **Komnenos**, or John II **Komnenos**; accept **Comnenus** in place of **Komnenos**]

<Post-500 Euro History, GP>

11. Generous ransoms of “gold and well-wrought iron” are promised as part of pleas for mercy that end by invoking these objects, although none of them succeed. Milman Parry advanced the idea that certain ornamental descriptions of these objects, such as “balanced” or “hollow,” weren't used for their literary merit but rather for their metrical acceptability. Within a larger work, a passage nicknamed for these objects is preceded by the supposition that not even (*) “ten tongues and ten mouths” would be sufficient to describe the individuals who used them. The eventual arrival of one man's forces near these objects inspires another soldier's greatest moment of *atē* (“AY-tee”), or self-delusion, in which he sends his treasured companion to fight in his armor in his stead. For 10 points, Book 2 of *The Iliad* enumerates a “catalogue” of what vehicles used to transport the Greek to Troy?

ANSWER: Argive **ships** [accept **boats**; accept **ships** that are hollow, swift, black, round, or well-benched]

<Mythology, TM>

12. A theory of reactions with this property was extended to account for the effect of individual vibrational modes, as well as their zero-point energies, by Markus. A theory of reactions with this property assumes that energy redistribution across a set of loosely coupled oscillators occurs faster than reaction. Energy must be stored in the right normal mode for reactions with this property to occur according to RRK theory. Hard-soft acid-base theory predicts that reactions with this (emphasize) *kinetic* property will occur at the (emphasize) *more* electronegative part of an ambident (*) nucleophile. A mixture of products with inversion and retention of stereochemistry characterizes a class of reactions with this property that almost always uses a weak nucleophile. Reactions with this property are either isomerizations or decompositions. For 10 points, name this property of having one reactant.

ANSWER: **unimolecular** reaction [prompt on first-order until it is read; prompt on descriptions like one molecule or one reactant until “one reactant” is read] (The hard-soft acid-base theory clue is Kornblum's rule)

<Chemistry, JS>

13. **Joshua Cushman was a member of a group of six congressmen strongly opposed to this legislation, and claimed it would result in a “pestiferous mischief” that would “take deep root in that luxuriant soul.” A speech by Felix Walker during debates about this legislation is the origin of the word “bunk” to describe inflated rhetoric. The debates concerning this legislation also led John Randolph to coin the term (*)** doughface to refer to pliant politicians. In a letter to John Holmes, an elderly Thomas Jefferson described this legislation as the “knell of the Union.” The Tallmadge Amendment was not added to this legislation, though thanks to the Thomas proviso, it did prevent slavery north of the 36-30 parallel with the exception of one territory. Maine became a free state because of, for 10 points, what 1820 legislation that also admitted a namesake midwestern slave state?

ANSWER: **Missouri** Compromise [prompt on Tallmadge amendment until it is read] (The term “bunk” is derived from Felix Walker’s constituency of Buncombe County, North Carolina.)

<US History, TH>

14. **While talking over a counter, a character in this novel says that being in a certain city makes him feel “all the time to come,” in contrast to a city where he feels “all the time gone by.” In this novel, an older Belgian man concludes that another character chose to leave his idyllic village because “one can’t stay in the Garden of Eden forever.” This novel’s protagonist leaves Brooklyn after getting in a drunk driving accident and settles in a city where he is disgusted by an elderly (*) transvestite named The Flaming Princess. After returning from Spain, Hella breaks up with this novel’s protagonist after he has a bender and sleeps with several navy sailors. At the end of this novel, the protagonist tears up an envelope informing him of the execution of his lover for murdering Guillaume (“gee-YOHM”). David’s relationship with an Italian bartender is chronicled in, for 10 points, what novel by James Baldwin?**

ANSWER: ***Giovanni’s Room***

<Long Fiction, WG>

15. **The massive Barthelasse Island in this river provides views of a nearby building home to an annual arts festival founded by Jean Vilar. *Gardians* use a distinctive breed of white horses to herd bulls that feature alongside *razeteurs* (“raz-TUR”) in a type of bullfight popular in this river’s delta. Roman ruins near this river include the **Triumphal Arch of Orange** and the (*) Pont du Gard aqueduct. According to AOC rules, Hermitage (“air-mee-TAZH”) and Condrieu wine grapes must be grown in the delta of this river. The futuristic La Confluence neighborhood in Lyon separates the Saône (“sohn”) from this river. The Gacholle lighthouse is located in this river’s delta on the *Digue* (“deeg”) à la Mer, a dyke that protects the Camargue from the Mediterranean Sea. For 10 points, name this river that passes through Avignon in southern France.**

ANSWER: **Rhône** River

<Geography, GP>

16. A complex of Translin and Trax that regulates this pathway is called “component 3 promoter of [a complex in this pathway],” or C3PO. In this pathway, a molecule is loaded such that one end is in a PAZ domain, and the seed region near the other end is in a binding pocket partially formed by a Mid domain. The CLRC complex is recruited to form heterochromatin by the RITS complex, which is structurally similar to a key complex in this pathway. RdRP amplifies this pathway, during which exportin-5 transports the products of a complex made of DGCR8 and (*) Drosha. A guide strand is loaded into a RISC by a protein complex containing TRBP, Dicer, and an Argonaute protein in this pathway discovered in *C. elegans* by Fire and Mello. For 10 points, name this gene silencing pathway that degrades its namesake nucleic acid before it is used in translation. ANSWER: **RNAi** [or **RNA interference**; prompt on RNA silencing or post-transcriptional gene silencing; prompt on gene knockdown; prompt on gene repression; reject gene “knockout”] (C3PO is the component 3 promoter of RISC.)
<Biology, JS>

17. A Philip Wicksteed paper uses Euler’s theorem to show that payments in accordance with a principle described by this word lead to a certain type of “exhaustion.” Knut Wicksell’s work influenced a theory of wages described by this term, which states wages will equal the value of the marginal amount of labor in competitive markets. It’s not “revolution,” but this word follows “marginal” in an orthodox 19th century theory of distribution championed by economists like Friedrich von Wieser and J. B. Clark that focuses on (*) diminishing returns. A quantity described by this word and symbolized capital A multiples capital and labor in the Cobb–Douglas function. This word describes a measure of total outputs over total inputs in its “total factor” form. For 10 points, name this economic measure whose labor form is used to measure the effectiveness of a worker. ANSWER: **productivity** [accept marginal **productivity**; accept theory of marginal **productivity** or marginal **productivity** theory of wages/distribution; accept total factor **productivity**; accept **productivity** coefficient; prompt on marginal or word forms until “marginal” is read]
<Social Science: Economics, TH>

18. An author from this country rued that unlike Odysseus, he would never be able to “touch [the] sacred shore” or be laid to rest on the island of his birth in the poem “To Zakyntos.” A different author from this country composed a 108-verse ode in just three days titled “The Fifth of May” following the death of Napoleon Bonaparte. The speaker of a poem from this country describes how fear “overwhelms” his heart as he gazes beyond a hedge on a (*) “lonely hill.” In 2013, Michael Caesar authored an English translation of a tome of miscellaneous notes from this country whose title translates as “heap of thoughts.” This is the home country of an author who included the poems “To Sylvia” and “The Infinite” in his collection *Canti*. Another poet from this country included 366 poems in his collection of “scattered rhymes.” For 10 points, name this home country of Giacomo Leopardi and Petrarch. ANSWER: **Italy** [or **Italia**] (“A Zacinto” is by Ugo Foscolo, and “The Fifth of May” is by Alessandro Manzoni.)
<Poetry, AP>

19. Rachele Gilmore wore a hot pink dress and a tall crown in her Met debut singing a soprano role in this opera, during which she interpolated a high A-flat 6. In this opera, the servant Frantz sings the aria “Jour et nuit je me mets en quatre” (“zhoor ay NWEÉ zhuh muh MAY sawn KAT”) as he laments his lack of talent in singing. This opera was originally written for just four performers: a mezzo, tenor, soprano, and baritone, with the latter two each playing four roles. In act 3 of this opera, (*) Dapertutto offers the courtesan Giulietta a diamond to seduce the title character and steal his reflection. This opera’s duet “Belle nuit, ô nuit d’amour” takes the form of a barcarolle. A stiff character who sings this opera’s aria “Les oiseaux dans la charmille” (“layz-WAH-zo dahn lah shar-MEE”) must be rewound several times to keep her singing. For 10 points, name this opera about the author of the story “The Sandman,” composed by Jacques Offenbach.

ANSWER: *The Tales of Hoffmann* [or *Les Contes d’Hoffmann*]

<Other Arts: Auditory, LL>

20. Opposition forces against this leader kidnapped Formula One legend Juan Manuel Fangio before a Grand Prix in a capital city to debunk this leader’s claims of a “calm” political atmosphere. This leader sent threatening letters to newspapers saying they could publish what they wanted through “a friendly sort of subtle censorship.” This leader escaped his office through a hidden staircase during a failed assassination attempt that was announced as a success over national radio by (*) José Antonio Echeverría. This leader hosted a conference which included an appearance by Frank Sinatra and the Tampa delegation of Santo Trafficante. As a gift for lowering the American-owned ITT Corporation’s tax rates, this leader received a solid gold telephone. For 10 points, what U.S.-backed dictator was opposed by the 26th of July Movement during the Cuban Revolution?

ANSWER: Fulgencio Batista [or Fulgencio Batista y Zaldívar]

<World History, AD>

21. A polemical work by this writer compares the teaching of Valentinus to the poisonous “bite” of a scorpion. In *De penitentia*, this theologian analogized baptism and penance to “two planks” that can save sinners from shipwreck. This writer’s follower Cyprian would frequently exclaim “show me the master,” referring to this writer’s books. This thinker’s *On the Resurrection of the Flesh* attempts to reconcile (*) Montanist doctrine with that of the scripture. This author of the *Apologeticus* was the first major thinker to endorse traducianism, the idea that the soul is produced in the bodies of one’s parents, a position that led to his condemnation at the Council of Nicea. This writer’s opposition to Greek philosophy led him to rhetorically ask “what has Athens to do with Jerusalem?” For 10 points, name this Carthagian church father, the first to write in Latin and use the term the Trinity.

ANSWER: Tertullian [or Quintus Septimius Florens Tertullianus]

<Religion, TH>

22. A planned extension of this project to the Virgin Islands was designed to “root like a cactus to a rocky peninsula.” A 2018 exhibition at the Chicago Architecture Biennial documented an abandoned clone of this project intended for San Juan’s Hato Rey neighborhood that conformed to Title 236 requirements. This building was constructed after Sandy Van Ginkel convinced his student to submit his master’s thesis to a design contest, although it was reduced from a planned 1,000 (*) units. The book *For Everyone a Garden* documents the architect’s extension of this project to his native Israel. This building is made up of 354 stacked concrete boxes that form 158 apartments and was built for a “Man and His World”-themed event along the Saint Lawrence River. For 10 points, name this building created for the Montreal Expo of 1967 by Moshe Safdie.

ANSWER: Habitat 67

<Other Arts: Visual, MB>

Bonuses

1. This leader was the first head of Proletkult, an organization promoting proletariat culture through workshops, theaters, and journals in early Soviet Russia. For 10 points each:

[h] Name this Bolshevik leader who also founded the field of tektology, a forerunner of systems theory.

ANSWER: Alexander **Bogdanov** [or Alexander Aleksandrovich **Bogdanov**; accept Alexander **Malinovsky**]

[e] Bogdanov was an early rival of this Bolshevik leader who led Soviet Russia and the Soviet Union from 1917 to 1924. He wrote the *April Theses*.

ANSWER: Vladimir **Lenin** [or Vladimir Ilyich **Ulyanov**]

[m] Another patron of the Proletkult, Anatoly Lunacharsky, oversaw the nationalization of these places as head of Narkompros. The highly successful *likbez* campaign primarily used these places.

ANSWER: **schools** [accept more specific answers like primary, secondary, or tertiary **schools**; accept **colleges** or **universities**] (*Likbez* was the campaign to end illiteracy.)

<Other History, TH>

2. The operators corresponding to this vector and the angular momentum operators generate $SO(4)$ (“S-O-four”), which is the origin of the n-squared degeneracy of the hydrogen atom. For 10 points each:

[m] Name this vector that is a constant of motion for any two-body problem governed by a one-over-r potential.

ANSWER: **LRL** vector [or **Laplace–Runge–Lenz** vector; accept **Laplace**, **Runge**, or **Lenz** by themselves or any combination thereof; accept **eccentricity** vector]

[e] Two-body problems governed by a one-over-r potential are named for this scientist. The second of this scientist’s namesake laws says that the vector from the Sun to a planet covers equal areas during equal time intervals.

ANSWER: Johannes **Kepler**

[h] In general relativity, the N -body problem, and thus the two-body problem, is studied using this approximation scheme. A weak-field expansion, a slow-motion expansion, and a near-field expansion are combined in this approximation scheme that had to be carried out to the 2.5 level to accurately explain the Hulse–Taylor binary.

ANSWER: **post-Newtonian** approximation [or **post-Newtonian** expansion; accept **PN** or **1PN** or **2.5PN**]

<Physics, LL>

3. This national team has the most Copa América titles, ahead of Brazil and Argentina. For 10 points each:

[e] Name this national team whose best performance at the World Cup in the modern era is their fourth place finish in South Africa behind the devastating front three of Diego Forlán, Edinson Cavani, and Luis Suárez.

ANSWER: **Uruguay** [accept **La Celeste**]

[h] At the other end of the pitch, the Uruguay national team has been anchored by this center-back pairing ever since Diego Lugano declined. These two center-backs also played their club football together at Atlético Madrid for five seasons between 2013 and 2019. Name both.

ANSWER: Diego **Godín** (“go-DEEN”) [or Diego Roberto **Godín** Leal] AND

José María **Giménez** (“hee-MEN-ess”) [or José María **Giménez** de Vargas; or Josema **Giménez**]

[m] Uruguay’s defeat at the hands of France in the Russia 2018 World Cup was partly due to a huge gaffe by keeper Fernando Muslera, who plays for this Turkish club. Wesley Sneijder spent four years at this rival of Fenerbahçe (“fey-NER-bah-che”) after leaving Inter in 2013.

ANSWER: **Galatasaray** [or **Galatasaray** Spor Kulübü]

<Pop Culture, JS>

4. In a play from this dynasty, the maid Hóngniáng helps the two main characters have a secret marriage, only to be found out by Madama Cuī. For 10 points each:

[m] Name this Chinese dynasty during which the “most popular comedy in Chinese literature,” *Romance of the Western Chamber*, was written. The comedic variety performance art of *zaju* flourished during this dynasty, exemplified by the plays *The Chalk Circle* and *The Injustice of Dou E*.

ANSWER: **Yuan** dynasty

[h] This modern Chinese performing art typically involves two fast-talking men giving a pun and allusion-heavy comedy routine in which they regularly interrupt each other. The duos that perform in this form are made up of a leading *dougen* and the supporting *penggen*.

ANSWER: **xiangsheng** [accept **cross talk**; prompt on **face and voice**]

[e] Xiangsheng has been compared to this type of performance art practiced by Asian comedians Zhou Libo, Ronny Chieng, and Ali Wong. Richard Pryor and George Carlin are best known for performances of this type.

ANSWER: **stand-up** comedy [prompt on **comedy**]

<Drama, ND>

5. Jay Newhard attempted to resolve this paradox by noting that the word “loud” can be either heterological or autological depending on how it is uttered. For 10 points each:

[h] Name this paradox from the philosophy of language that hinges on whether the word heterological, meaning inapplicable to itself, is itself heterological. Answering in the positive or the negative both lead to contradictions.

ANSWER: **Grelling–Nelson** paradox [accept **Weyl**’s paradox; prompt on **Nelson**’s paradox]

[e] By treating each adjective as a set of objects containing all objects described by that adjective, Grelling’s paradox can be equated to the paradox named for this British thinker who presented his theory of definite description in “On Denoting.”

ANSWER: Bertrand **Russell** [or Bertrand Arthur William **Russell**, 3rd Earl Russell]

[m] Newhard’s treatment of the Grelling paradox makes the distinction between words as types and words as these things, which describe an individual instance rather than a set of similar things. C. S. Pierce (“**purse**”) noted that the word “letter” demonstrated ambiguity between types and these things.

ANSWER: **tokens** [accept type-**token** distinction; accept type-**token** ambiguity]

<Philosophy, TH>

6. Along with a younger contemporary, this inventor created a physautotype believed to be the first photograph of a still life, his *Set Table*. For 10 points each:

[m] Name this French inventor who used an eight-hour exposure to create the earliest surviving photograph, his 1826 *View from the Window at Le Gras*.

ANSWER: Nicéphore **Niépce** (“nee-say-FOR nyeps”) [or Joseph Nicéphore **Niépce**]

[e] Niépce collaborated with this other early French photographer, who lends his name to the first publicly-available form of photography, which utilized photosensitive silver-copper plates.

ANSWER: Louis **Daguerre** [or Louis-Jacques-Mandé **Daguerre**; accept **Daguerreotype**]

[h] Daguerre is credited with the first photographic image of a human, who appears in the bottom left corner of his 1839 image *Paris Boulevard*. The person in the image unexpectedly appeared despite the long exposure time because he was performing what activity?

ANSWER: getting a **shoeshine** [accept answers like getting his **shoes cleaned** or **shoes polished**]

<Other Arts: Visual, TH>

7. Jeffrey Peires's *The Dead Will Arise* describes the mass starvation caused in part by a millenarian movement among these people. For 10 points each:

[e] Name this Bantu ethnic group that lived in the land east of the Cape Colony in modern day South Africa. Nelson Mandela was descended from people of this ethnic group, who speak a language featuring three click sounds.

ANSWER: **Xhosa** [or **AmaXhosa**]

[h] This teenage prophet was largely responsible for the Xhosa famine of 1856 when she encouraged the populace to slaughter all of their cattle as a kind of ultimate sacrifice that would usher in the apocalypse.

ANSWER: **Nongqawuse** (“non-kah-WOO-say”)

[m] The devastation of the Xhosa population by the 1850s famine strengthened the position of this kingdom established by Moshoeshe (“muh-SHWAY-shway”) in 1822. This kingdom sandwiched between Natal and the Orange Free State fought four wars against the British before agreeing to the Convention of Aliwal North, making it a British protectorate.

ANSWER: Kingdom of **Lesotho** (“luh-SOO-too”) [accept **Basotho**land]

<World History, TH>

8. “How much” questions apply to one of these two groups of nouns, while “how many” questions apply to the other. For 10 points each:

[m] Name these two types of nouns. Native speakers innately understand the distinction between these two types of nouns, exemplified by beans on one hand and corn on the other. Confusion over the arbitrariness of the distinction between these two noun groups may lead non-native speakers to ask “how many corn?” or “how much beans?”

ANSWER: **mass** nouns [or **non-count** nouns; or **uncountable** nouns] AND

count nouns [or **countable** nouns]

[h] East Asian languages like Chinese treat all nouns as mass nouns and thus make use of these features to quantify the amount of a noun. These words or affixes may be called “mensural numeral” if they count out small numbers of things, such as *glasses* of water or *pounds* of beans.

ANSWER: noun **classifiers** [accept mensural numeral **classifiers**; prompt on **measure** words or **counter** words]

[e] Confusion between mass and count nouns in English leads to a common grammar mistake in which this word, which quantifies mass nouns, is substituted for “fewer,” particularly in supermarket signs reading “ten items or [this word].”

ANSWER: **less**

<Social Science: Linguistics, TH>

9. Answer the following about histology of muscle tissue, for 10 points each.

[e] Myofibrils appear striated because of alternating, overlapping filaments made up of these two proteins. These two proteins play a role in sarcomere shortening during muscle contraction. Name both.

ANSWER: **actin** AND

myosin

[m] Using the 100x oil immersion objective, the alternating pattern of A-bands with these light bands can be visualized in the striations. Z-lines bisect these bands.

ANSWER: **I**-bands [or **isotropic** bands]

[h] A myoclonic epilepsy linked to mutations in MT-TK is diagnosed by visualizing these features with Gomori trichrome stain. Accumulation of mitochondria below the plasma membrane of muscle cells causes these features.

ANSWER: **red ragged fibers** [or **ragged red fibers**]

<Biology, JS>

10. Answer the following about literary doppelgängers, for 10 points each:

[e] A Mesopotamia-obsessed history professor discovers his doppelgänger while watching a film in this author's novel *The Double*. This Portuguese author also wrote the novel *Blindness*.

ANSWER: José **Saramago** [or José de Sousa **Saramago**]

[m] Ged has an evil doppelgänger known as “the nameless one” in a novel by this author. An ambassador travels across an ice sheet on the genderfluid planet of Gethen in another novel by this author.

ANSWER: Ursula K. **Le Guin** (“luh gwin”) (The novels described are *A Wizard of Earthsea* and *The Left Hand of Darkness*.)

[h] The thespian Pauline Anstruther is haunted by her doppelgänger in this author's “theological detective” novel *Descent into Hell*. This member of the Inklings also wrote about a bunch of Platonic archetypes disrupting life in an English village in his novel *The Place of the Lion*.

ANSWER: Charles **Williams** [or Chales Walter Stansby **Williams**]

<Long Fiction, WG>

11. This word names a 1989 high modernist piece for four part mixed choir and orchestra by Charles Wuorinen. For 10 points each:

[h] Give this word that is the first in a 45-page polemic by Harry Partsch that argues that J. S. Bach's employment of equal temperament tuning led to the impoverished sense of tonality in Western Classical music.

ANSWER: **genesis** [accept **Genesis** of a Music]

[e] Wuorinen's choral piece *Genesis* uses two of these instruments to represent the voice of God, an idea borrowed from Stravinsky's *The Flood*. This instrument has the lowest pitch of the string instruments in the standard orchestra.

ANSWER: double **bass**

[m] Wuorinen's *Genesis* opens with a *fortissimo* atonal melody on this word. Sections named for this word follow the Introit in Mozart and Fauré's Requiems.

ANSWER: **Kyrie** eleison

<Classical Music, TH>

12. This poet's lines “In the night came the sound of wind and rain / who knows how many flowers fell?” are often students' first exposure to literary Chinese, due to his poem's placement at the beginning of Chinese language textbooks. For 10 points each.

[h] Name this Tang dynasty poet who wrote the poem “Spring Dawn.” This older contemporary of Wang Wei primarily wrote five-character poems describing landscapes.

ANSWER: **Meng** Haoran [accept **Meng** Hao-jan]

[e] This other poet wrote “A Present for Meng Haoran” in which he expresses his admiration for Meng. He is better known for writing “Quiet Night Thoughts.”

ANSWER: **Li** Bai [or **Li** Po; or **Li** Bo]

[m] Li Bai also wrote a poem titled “Seeing off Meng Haoran for Guangling at Yellow Crane,” which is one of these structures. A Hart Crane poem titled for one of these structures opens “The bell-rope that gathers God at dawn / Dispatches me as though I dropped down the knell.”

ANSWER: a **tower** [accept **lóu**; accept “The Broken **Tower**”; accept a bell **tower**; accept Yellow Crane **Tower**; prompt on multi story **building** or tall **building**]

<Poetry, LL>

13. The radius of this region equals the cube root of the following: three times the photon emission rate all divided by four pi times the recombination coefficient times the number density squared. For 10 points each:

[h] Identify this region surrounding a young O or B type star. This region is derived by assuming all photons are absorbed, but a sizable number of them do manage to escape in reality.

ANSWER: **Strömgren** sphere [prompt on **HII** (“H-two”) regions; prompt on **emission nebulae**]

[e] Inside the Strömgren sphere, photons emitted by the star with an energy greater than or equal to 13.6 eV (“E-V”) cause hydrogen atoms to undergo this process. The energy of this process is the energy required to remove an electron.

ANSWER: **ionization**

[m] Photons that ionize have wavelengths below that of the short-wavelength end of this emission line series. On quasar spectra, clouds between us and the quasar create large clusters of an emission line in this series that are used to study density fluctuations.

ANSWER: **Lyman** series [accept **Lyman**-alpha; accept **Lyman**-alpha forest]

<Other Science: Astronomy, TH>

14. Supporters of a ruler with this name deserted him and followed his sons at the “Field of Lies.” For 10 points each:

[e] The Carolingian Empire fractured following the death of a ruler with what name and the epithet “the Pious?” That ruler was the first of eighteen kings of France with this name.

ANSWER: **Louis** [or **Louis** the Pious; or **Louis** I]

[h] Seeing it as a premonition of his demise, Louis the Pious issued the decree *Ordinatio Imperii* shortly after surviving this sort of event, in which several members of his court died while leaving mass. A description is acceptable.

ANSWER: the **collapse** of a wooden **gallery** connecting a cathedral and palace [accept **destruction**, **cave-in**, **disintegration** or any other reasonable synonym for **collapse**; accept **roof**, **walkway**, **colonnade**, **passageway**, **hallway** or **arcade** for **gallery**]

[m] Familial infighting following the death of Louis the Pious culminated in this treaty signed by Lothair I, Louis the German, and Charles the Bald. This 843 treaty split the Carolingian Empire into three independent kingdoms.

ANSWER: Treaty of **Verdun**

<Post-500 European History, GP>

15. This city’s Palazzo Pubblico is home to such frescoes as *The Allegory of Good and Bad Government*. For 10 points each:

[m] Name this city, the birthplace of Ambrogio Lorenzetti and Simone Martini. This city’s cathedral contains Donatello’s *The Feast of Herod*.

ANSWER: Republic of **Siena**

[h] Simone Martini was the brother-in-law of this artist with whom he collaborated on an Annunciation scene depicting the Saints Margaret and Ansanus. A Madonna by this artist was the first to receive a canonical coronation from the Pope.

ANSWER: Lippo **Memmi**

[e] Perhaps the most well-known version of a *Maestà* is by this Siennese artist whose *Rucellai Madonna* was once incorrectly attributed to his teacher Cimabue by Giorgio Vasari.

ANSWER: **Duccio** di Buoninsegna

<Painting/Sculpture, SJ>

16. A Montana state park near the town of Ulm contains possibly the largest example of a *pishkun*, a term translating as “deep kettle of blood” that describes sites where these animals were hunted. For 10 points each:

[e] Name these animals hunted at namesake “jumps” like Head-Smashed-In and Camp Disappointment where Native American tribes herded them to fall to their deaths off the edges of cliffs.

ANSWER: **buffalo** [accept **bison**]

[h] U2 used this artist’s photograph *Untitled (Buffalo)*, which depicts a buffalo jump, as the cover for their single “One.” In 2010, the Smithsonian was criticized for removing this artist’s film *A Fire in My Belly* from an exhibition due to complaints by conservative politicians.

ANSWER: David **Wojnarowicz** (“voy-nuh-ROH-vich”)

[m] This US state contains Bonfire Shelter, the southernmost site of buffalo mass hunting. Mary Ann “Molly” Goodnight, the wife of businessman Charles, helped prevent the extinction of bison by personally preserving a herd and breeding them to produce “cattalo” in this state in the late 1800s.

ANSWER: **Texas**

<Other Academic, AP>

17. The symbol of this movement has a big swastika in its middle that is surrounded by four smaller ones with four Taiji symbols in between. For 10 points each.

[e] Name this religious movement founded by Li Hongzhi. The central philosophy of this primarily Chinese religious movement is based on truthfulness, compassion, and forbearance.

ANSWER: **Falun Gong** [accept **Falun Dafa**]

[m] The central practice of Falun Gong combines meditation with this traditional Chinese exercise which cultivates and balances the life-force within the body. Falun Gong practitioners have been criticized for falsely claiming that this practice can cure diseases like cancer.

ANSWER: **qigong** [accept **chi gung**; prompt on Tai Chi]

[h] The simplest qigong exercise involves doing this action while in the relaxed normal stance. Two notable practitioners of a different religious tradition associated with this action live at Sabbathday Lake.

ANSWER: **shaking** [accept **Shakers** or being **shook**] (The two last living Shakers in the US live at Sabbathday Lake in Maine.)

<Religion, LL>

18. This speech given at the Brown's Indian Queen Hotel assured that all sinecures would be eliminated from the federal government. For 10 points each:

[h] Name this speech that stated "the conditions of our military will become a matter of anxious solitude." This speech reaffirmed neutrality in foreign affairs and was a sharp two hours long, in contrast to the length of the speech given by the previous office holder.

ANSWER: John **Tyler**'s **inauguration** speech [accept the **inaugural** speech of John **Tyler**; accept answers like John **Tyler**'s speech upon **becoming president**; prompt on partial answers]

[m] Tyler's cabinet attempted and failed to repeal this financial system that controlled the money supply of the United States starting during the presidency of Martin Van Buren. An early version of this system was proposed by the French diplomat Condy Raguet.

ANSWER: **independent treasury** [prompt on **treasury**]

[e] In 1842, Tyler signed into law the controversial "Black" one of these protectionist taxes that replaced *ad valorem* rates. One of these taxes known as one of "abominations" added a 30 percent increase on import fees in the South in the late 1820s.

ANSWER: **tariff** [accept **Tariff** of Abominations or Black **Tariff**]

<US History, JZ>

19. Laplace's principle of insufficient reason supports E. T. Jaynes's argument that the most natural choice for a probability distribution is one that maximizes this quantity under moment constraints. For 10 points each:

[e] Identify this quantity first introduced to information theory by Shannon. It represents uncertainty or disorder.

ANSWER: information **entropy** [or Shannon **entropy**]

[m] The maximum entropy distribution with no constraint besides support within a finite, closed interval is this distribution. This distribution's variance equals one twelfth times the length of its support interval squared.

ANSWER: continuous **uniform** distribution [or **rectangular** distribution]

[h] Jaynes's principle can be reformulated to say that the maximum entropy distribution is the one that minimizes this entropy measure between it and the uniform distribution. This entropy measure cannot truly be used as a distance between distributions because it does not satisfy the triangle inequality.

ANSWER: **KL divergence** [or **Kullback-Leibler divergence**; or **relative entropy**; accept **directed divergence**; accept **discrimination information**]

<Other Science: Mathematics, LL>

20. A book by this critic documenting the history of women's writing in America highlights largely forgotten authors of the 1850s such as Harriet Elizabeth Spofford and Maria Susanna Cummins. For 10 points each:

[h] Name this critic whose project of analyzing literature in a "woman's frame" led her to coin the term "gynocriticism." She discussed the depiction of hysteria in *The Female Malady*.

ANSWER Elaine **Showalter** [or Elaine **Cottler**]

[m] Showalter's history of women's writing in American is named for one of these groups of people, and shares its name with a Susan Glaspell story adapted from her play *Trifles*.

ANSWER: a **jury** [accept "A **Jury** of Her Peers"]

[e] Showalter argues that women's writing in the 1850s should be considered to be among the contributions to the first one of these periods in American literature. Langston Hughes and Countee Cullen were part of one of these periods named for Harlem.

ANSWER: **renaissances** [accept American Literary **Renaissance**; accept Harlem **Renaissance**]

<Short Fiction, TH>

21. Many black-and-white “collagraphs” by printmaker Belkis Ayón depicting ghostly, mouthless figures were inspired by ritual attire worn by the male-only Abakuá secret society in this country. For 10 points each:

[e] Name this country. Much of Ana Mendieta’s “earth-body” art was inspired by Santería, a religious tradition from this Caribbean country.

ANSWER: **Cuba** [accept Republic of **Cuba**]

[m] Several figures with crescent-shaped faces resembling Santería masks appear amidst rows of sugarcane in this Wifredo Lam painting that mingles Afro-Cuban motifs and Cubism.

ANSWER: *The **Jungle*** [or *La **Jungla***]

[h] In Guillermo Cabrera Infante’s novel *Three Trapped Tigers*, Bustrofedón describes this real-life event in seven styles, including as an Afro-Cuban ritual reminiscent of *El Monte*, a study of Afro-Cuban religion by Lydia Cabrera.

ANSWER: the **assassination** of Leon **Trotsky** [or the **murder** of Leon **Trotsky**; or the **death** of Leon **Trotsky**; prompt on **assassination**, **murder**, or **death** by asking “of whom?”]

<Other Academic, AP>

22. Mullaly, Kitayama, and this psychologist developed the term “selfway” to describe characteristic patterns of engaging in society that lead to repeated reconstructions of the self. For 10 points each:

[h] Name this psychologist who, in another collaboration with Kitayama, used contrasting independent and interdependent self-schemas to understand psychological functioning in different contexts. This Stanford psychologist founded the “do tank” SPARQ (“spark”).

ANSWER: Hazel Ruth **Markus**

[m] Markus’s concept of the selfway is similar to this concept put forth by Pierre Bourdieu. Embodied cultural capital becomes this unconscious “feel for the game” that shapes subjects’ attitudes and actions.

ANSWER: **habitus**

[e] Pierre Bourdieu’s book *Distinction* argues that differences in cultural aesthetic tastes among these groups of people leads to further social stratification between them. Dennis Gilbert’s work on these groups in the United States divides them into six distinct groups including upper middle and working poor.

ANSWER: social **class** [accept economic **class**]

<Social Science: Other, JS>