

**Pre-ICT and Nationals Open/Minnesota Open 2019 (PIANO/MO): “What about bad subject matter? Or a bad title drop, even? That could kill a tournament pretty good.”**

Written and edited by Jacob Reed, Adam Silverman, Sam Bailey, Michael Borecki, Stephen Eltinge, Adam S. Fine, Jason Golfinos, Matt Jackson, Wonyoung Jang, Michael Kearney, Moses Kitakule, Shan Kothari, Chloe Levine, John Marvin, and Derek So, with Joey Goldman and Will Holub-Moorman.

**Packet 4 Tossups**

1. **The original designs for a highway in this city involved the destruction of its namesake Life Insurance Company, its largest black-owned business. Bill Dedman won the 1989 Pulitzer Prize for the series “The Color of Money” about redlining in this city. Its redlining was also described in Kevin Kruse’s *White Flight*. This city tripled in size under its 1952 “Plan of Improvement,” though it never annexed Sandy Springs, a community founded during the “cityhood” movement in its suburbs. This city was supposedly “too (\*) busy to hate” while its white majority was being maintained by Mayor William Hartsfield. In a 1964 Supreme Court case, the use of the Commerce Clause to implement the Civil Rights Act was upheld after a motel in this city refused to take black customers. In the ‘60s and 70s, many whites moved to Fulton, Gwinnett, and DeKalb counties from—for 10 points—what Georgia city?**

ANSWER: Atlanta [accept *Heart of Atlanta Motel v. United States*] <MB>

2. **At the end of a story by this author, the narrator says that he considers another man’s confusion to be “quite my revenge,” following a disappointing conversation with Drayton Deane. After writing an article in *The Middle*, one of this author’s narrators is told that he’s missed the “little point.” The Venetian lawyer Pochintesta writes “beautiful poems” in one work by this author that begins with the narrator remarking, “I had taken Mrs. Prest into my confidence.” The narrator of a story by this author writes a review of Hugh (\*) Vereker’s most recent novel and tries to become close with Gwendolen after her husband Corvick dies. Miss Tita reveals that she burned the title objects of a novella by this author after the narrator tries to steal them from Juliana’s desk. For 10 points, name this author who included “The Figure in the Carpet” and *The Aspern Papers* in the *New York Edition*.**

ANSWER: Henry James <JM>

3. **The Wigner–Kirkwood expansion can be derived from a result credited to this physicist about constructing wavefunctions from Wiener processes. In a textbook cowritten with A.R. Hibbs, this scientist devised a problem in which solutions to the Dirac equation are plotted on a 2D checkered grid. Wick rotating a partition function gives a wavefunction under a definition credited to this scientist. This physicist popularized a method in which a finite time interval is approximated by the product of infinite (\*) functional differentials, such that a ket at time zero is calculated by integrating at a future time over all possible kets, weighted by their propagators. As  $\hbar$  goes to zero, that method created by this physicist reduces to the Euler–Lagrange equation and predicts trajectories that minimize action. For 10 points, name this physicist who developed path integrals.**

ANSWER: Richard Feynman <AS>

4. A composer from this modern country used a swirl of violins and flutes around fast repeated notes in the trumpet to begin a 1955 symphony with the movements “Lento,” “Poco Allegro,” and “Lento.” That composer from this country titled his sixth and last symphony *Fantaisies Symphoniques*, and used jazz-inspired syncopated rhythms in his 1938 *Double Concerto for Two String Orchestras, Piano, and Timpani*. Another composer from this country had nine extra (\*) trumpets play fanfares in the outer movements of a piece that derived from music for the Sokol Gymnastic Festival. That composer from this country included the organ solo “Postludium” in a mass, and wrote the string quartets “Intimate Letters” and “The Kreutzer Sonata.” The *Glagolitic Mass* and a 1926 *Sinfonietta* were written by a composer from— for 10 points— what modern country home to Bohuslav Martinů and Leoš Janáček?

ANSWER: Czech Republic <JR>

5. A passage in this text often quoted in support of gay rights translates to “What seems unnatural is natural.” A poem from this text begins by invoking a time when “there was neither non-existence nor existence.” One of this text’s six consecutive “family books” describes the Battle of the Ten Kings. The term “henotheism” was first brought into wide use in commentaries on this book by Max Müller, who took 25 years to publish its first complete English edition. A hymn from this book is named after its meter, which has three lines of eight syllables each. The preamble (\*) “Om̐ bhūr bhuvah̐ svaḥ” opens this text’s hymn to the sun god Sāvitrī, the Gāyatrī Mantra. The Nāsādīya and Purusha Sūktas are found in the tenth and final of this book’s *mandalas*. Much of the *Samaveda* sets poems from this text to music. For 10 points, name this oldest Veda.

ANSWER: Rigveda <SK>

The title peasant of a story from this country fails to go through with killing a landowner’s spoiled son for killing his beloved dog with a rock. The Taymūr family, including the author of “’Abū ‘Arab,” is generally credited with introducing the short story to this country. A dramatist from this country created a character who, in a move ridiculed by his wife, declares himself king upon noticing he had the longest antennae and falls into an “uncharted cavern” that turns out to be ‘Ādil’s bathtub. Before introducing the Theater of the Absurd to this country with *The Fate of a* (\*) *Cockroach*, a man from this country wrote a sequel to the *Thousand and One Nights* from Shahryār’s perspective and retold the story of the Seven Sleepers in *People of the Cave*. In a novel from this country, ‘Ā’isha is hit by a car and breaks her collarbone, and Fahmy is shot in an anti-British rally. For 10 points, name this home of Tawfīq al-Ḥakīm and Naguib Maḥfouz.

ANSWER: Arab Republic of Egypt [or Jumhūriyyat Miṣr] <JG>

7. A commander who died at this battle had an epitaph misread as “if he weren’t dead, he’d still be alive,” leading such tautologies to be termed “lupalissades.” A commander who died at this battle was known as “The White Rose” and was the last active Yorkist pretender to the English throne. This battle’s losing side fortified itself in a hunting enclosure called the Mirabello Park rather than target vulnerable positions at Lodi. The initiative of Fernando d’Avalos’s (\*) arquebusiers at this battle decimated the “Black Band” led by Richard de la Pole and the losing side’s *gendarme* cavalry. This battle’s loser wrote to his mother that “all is lost to me, save honor and life” and tried to reverse its outcome in the War of the League of Cognac. This battle forced the Treaty of Madrid on a ruler captured at it. For 10 points, name this key battle of the Italian Wars, in which emperor Charles V’s forces captured king Francis I.

ANSWER: Battle of Pavia <JG>

8. A commentary on this text questions whether philosophical ideas can be transmitted in text by noting “Writing does not exhaust words, and words do not exhaust ideas.” That commentary on this text states that “what is below physical form is called a tool.” This text ends with sections headed “already fording” and “not yet fording.” The “Commentary on the Appended Phrases” begins by building on this text’s contrast between “creative” and (\*) “receptive” principles. Each section of this text includes a “judgement” followed by commentaries on the Greater and Lesser Images. This text was commonly used with milfoil stalks. This text associates *yīn* and *yáng* with broken and solid lines. For 10 points, name this Chinese classic consisting of 64 hexagrams used for divination.

ANSWER: I Ching [or Yijing; or Book of Changes or Classic of Changes; or Zhouyi] <JR>

9. David Cushing formulated his match-mismatch hypothesis to describe how these systems are influenced by phenological variation. The Baranov equation models the within-year decline in the output of these systems based on multiple sources of mortality. The Ricker and Beverton–Holt models, which were developed to model the dynamics of these systems, differ in assumptions about the stock-recruitment relationship. Trevor Branch and Ray Hilborn have disputed the relevance of Daniel Pauly’s finding that the mean (\*) trophic level of these systems has declined over time. The concept of maximum sustainable yield is most often used to guide harvesting from these systems. One of these systems off the coast of Newfoundland collapsed in 1992 due to overharvesting. For 10 points, name these aquatic systems from which people catch animals like haddock and cod.

ANSWER: fisheries [prompt on populations; prompt on answers that mention fish] <SK>

10. Passing by reference can only be done in this language by instantiating classes as environments. Leland Wilkinson’s “grammar of graphics” was most famously implemented in this programming language. Sweave documents are created using IDEs for this language. Strings are imported directly into this language as categorical variables under the unusual data type “factor.” Assignment statements in this programming language are made using a (\*) left-pointing arrow. Many popular packages in this language are lumped together in the tidyverse collection, which is accessible from the CRAN repository and include ggplot2, a graphing utility. This language, which is now part of GNU, was named for its inventors Ross Ihaka and Robert Gentleman. For 10 points, name this open-source, free programming language used for data analysis, which has a one-letter name.

ANSWER: R <AS>

11. This dynasty’s founder allegedly restored morale after a brutal loss by burying some of his troops on the battlefield with breathing straws, having them tell his other troops how nice heaven is, and then covering the straws. That loss for this dynasty, known as the Battle of al-Buḥayra, killed most of the advisors known as the Council of Ten. The Zayyānid and Hafsīd dynasties split from the rule of this dynasty, whose founder built a fortress at Tinnel after a retreat in the (\*) Cave of Iḡiliz. This dynasty’s distinctive combination of Zāhirī jurisprudence and Ash‘arī theology was formalized under its first politically established leader, ‘Abd al-Mu‘min. The Marīnids overthrew this dynasty, which originated as a puritanical religious movement among the Maṣmūda Berbers under the leadership of the alleged Maḥdī, Ibn Tūmart. For 10 points, name this dynasty that overthrew the Almoravids.

ANSWER: Almohad dynasty [accept al-Muwahhidūn] <JG>

12. Émile Zola called an early painting by this artist “anti-artistic,” “bourgeois,” and “neat as glass,” but later claimed that this artist would be the “boldest” among his peers. A 1976 essay by Peter Galassi examines this artist’s “space” and suggests that he traced his drawings from photographs. In 2011, the Boston MFA controversially deaccessioned eight paintings in order to purchase a painting by this artist that depicts a male nude (\*) drying himself from behind. This artist depicted a green wine bottle on the right-hand side of a Realist painting depicting three shirtless men working on the floor. In another painting by this artist, cobblestones dominate the bottom left quadrant, which is bounded by a green streetlamp in the center, behind a couple holding an umbrella. *The Floor Scrapers* was painted by—for 10 points—what Impressionist painter of *Paris Street, Rainy Day*?  
ANSWER: Gustave Caillebotte [kye-BOTT] <WJ>

13. A stone at the holiest site of this religious group has supposedly levitated for many centuries, a miracle which is invisible since a wall was built around it. A temple built by these people is named *Chermera*, or “forty men,” and has the conical roof that these people often use for tombs. Members of this group must make a six-day pilgrimage for the “Feast of the Assembly” to a holy site in the town of Lalish. This group’s “scriptures,” the *Black Book* and *Book of Revelation*, were forged by outsiders. A deity of these people put out the (\*) fires of hell with his tears after God gave him conflicting orders on bowing to Adam. A member of their Heptad of angels sounds enough like Iblis to give these people a reputation as “devil-worshippers.” Melek Taus the Peacock Angel is worshipped by—for 10 points—what group that includes many Kurds and is persecuted by ISIS?  
ANSWER: Yazidis [or Ezidis; or Yezidis; prompt on Kurds until mentioned] <JM>

14. Stefan Rahmstorf used a G·C·M to show that this phenomenon has multiple stable states. That paper built on predictions from a model of this phenomenon that estimates the flow through a capillary tube connecting two discrete boxes. Stommel and Arons used rotating basin experiments to test a model in which this phenomenon’s flow from localized sources is governed by conservation of potential vorticity. Heinrich events cause (\*) freshwater forcings that lead it to slow down. Along with the wind-driven Gulf Stream, the convective meridional overturning that drives this phenomenon causes much of the North Atlantic to be ice-free. Climate change may cause a “shutdown” in this phenomenon, which Wallace Broecker compared to a “global conveyor belt” transporting heat and nutrients. For 10 points, name this part of oceanic circulation driven by density differences caused by temperature and salinity.  
ANSWER: thermohaline circulation [or abyssal circulation; or deep circulation; accept meridional overturning circulation before it’s mentioned; prompt on global conveyor belt] <SK>

15. An allusion to this play titles an influential 1969 paper in *The Lancet* by Russell Barton and J.A. Whitehead. The protagonist of this play describes herself as “without a shred of pity—without a shred of regret—watching you go with glory in my heart!” Not including musicals, this play holds the Broadway record for longest-running show from outside the United States. A character in this play makes his servants Nancy and Elizabeth kiss a Bible and swear they haven’t removed a picture from his wall. Inspector Rough catches Manningham searching for ill-gotten jewels in this play, which was adapted into a George Cukor film that won (\*) Ingrid Bergman her first Oscar. In this play, Bella’s husband manipulates the title technology and pretends nothing happened in order to convince her she is going insane. For 10 points, what Patrick Hamilton play gave its name to a method of psychological abuse?  
ANSWER: Gaslight [accept Angel Street] (The *Lancet* paper introduced the modern term.) <DS>

16. In the first cookbook written by an American, Amelia Simmons gave instructions for separating the “callapach” and “callapee” of this food. The first organized dining club in the U.S., which included Alexander Hamilton and Aaron Burr, was a Hoboken club devoted to this food. 19th-century parties called “[this food] frolics” involved preparing seven different parts of this food in different ways. This food fell out of favour during Prohibition because its most iconic recipe requires Madeira or sherry. A cheap variety of this food was known as (\*) “Hoover chicken” during the Depression. One dish using this ingredient was overtaken in popularity by a similar dish that substitutes boiled calf heads for it. It’s not a snake, but edible types of this animal native to the U.S. are called “gopher,” “alligator,” and “diamondback.” For 10 points, name this animal eaten in an expensive soup that’s imitated in its “mock” variety.

ANSWER: turtles [or tortoises, or terrapins; accept mock turtle soup] <DS>

17. *Description acceptable.* Jan de Vries claims that *this* quantity increased in Europe with the availability of more “delightful” consumption goods like gin and clocks. Gary Hansen and Richard Rogerson showed that lotteries could rationalize differences in micro and macro values for an elasticity in this value. In data where this quantity is often observed to be zero, researchers can use a sample selection correction devised by James Heckman. This quantity is especially sensitive to changes in (\*) tax rates for married women. Real business cycle models use a very high elasticity of this quantity in order to explain unemployment fluctuations. This quantity has gradually decreased for men and drastically increased for women since the 1960s. The graph of this quantity will bend backwards when the income effect dominates the substitution effect. For 10 points, name this thing which, with its corresponding demand, determines wages.

ANSWER: labor supply [accept any description of time spent working, or labor force participation; prompt on employment rate; do not accept “unemployment;” do not accept “labor demand”] <SB>

18. A cage rearrangement involves rearranging bonds between *these two elements* in molecules like HSQ. Each step of the Stöber gel synthesis forms a bond between *these two elements*. Bonds between these two elements form the structure of cyclomethicones like D4 as well as the central pore of Z·S·M-5. Because the bond between these two elements is so polar, column packings are endcapped to remove acidic hydrogens. A bond between these two elements is cleaved when removing the protecting group T·M·S. A covalent (\*) network solid containing these two elements forms seven different polymorphs of tetrahedra. Aluminum and these two other elements constitute most zeolites. A gel compound composed of these elements is used as a desiccant and as the stationary phase of thin-layer chromatography. For 10 points, name these two elements that constitute most glass.

ANSWER: silicon AND oxygen [or Si and O] <AS>

19. This man once wrote Michael Jackson to tell him that their art was fundamentally “angry.” This man referred to his tendency to draw from eclectic influences his “outlaw style.” Through the 1930s, this man almost always collaborated with Hermes Pan. Critics debate whether this man’s blackface tribute to Bojangles Robinson was a racist parody or an unfortunate homage. In a film featuring tunes like “Think Pink!” and “How Long Has This Been Going On?” this man appeared as a (\*) fashion photographer alongside Audrey Hepburn. In a scene from *Royal Wedding*, this star of *Funny Face* seems to start dancing on the ceiling. This man starred in *Top Hat* and *Swing Time* alongside a woman who did all of his moves “backwards and in high heels.” For 10 points, name this American actor and dancing partner of Ginger Rogers.

ANSWER: Fred Astaire [or Frederic Austerlitz] <JM>

20. A title character of a romance in *this* language falls in love with a nude woman who hangs by her hair from the ceiling of an ogre's castle. From the 13th to 19th centuries, poetry in this language was dominated by a fifteen syllable iambic meter called "political verse." A medieval romance in this language centers on a "Twyborn Border Lord" born to a converted Arab emir and was developed from works called "akritic songs." A poem in this language is divided into the sections "Genesis," "Passion," and "Gloria," and is titled after a (\*) hymn to Mary. Another poem in this language notes that one man has "even got a scroll to give him, / loaded with titles, with imposing names" after asking "Why isn't anything going on in the senate?" The title people are called "a kind of solution" at the end of the poem "Waiting for the Barbarians" in—for 10 points—what language of Constantin Cavafy and Odysseus Elytis?

ANSWER: **Greek** [or **Elliniká**; accept **Modern Greek** or **Medieval Greek**; anti-prompt on any other answer more specific than Greek; anti-prompt on *demotiki* or *katharevousa* until mentioned] (The romances mentioned are, in order, *Kallimachos and Chrysorrhoea* and *Diogenes Akrites*.) <JG>

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**Packet 4 Bonuses**

1. In these devices, the mass-to-charge ratio equals twice the applied voltage times their namesake quantity squared over the distance to the detector squared. For 10 points each:

[10] Name this type of mass analyzer, frequently paired with MALDI [“MALL-dee”] setups in mass spectrometry. These devices have relatively low resolution normally but are especially good for separating biomolecules.

ANSWER: **time-of-flight** analyzer [or **TOF** analyzer]

[10] TOF/TOF [“toff toff”] cells used for tandem MS consist of two TOF [“toff”] analyzers separated by a cell where this process occurs. In the middle cell of a triple quadrupole spectrometer, the “lowercase” q of a QqQ apparatus, this process generates new ion fragments.

ANSWER: **collision** cells [or **collision-induced dissociation**; or **C-I-D**; or ion-ion **collisions**; or word forms]

[10] Molecular excitations in a collision cell are induced by electromagnetic radiation in this part of the spectrum. Radiation from this lowest-energy portion of the spectrum induces spin flips in NMR.

ANSWER: **radio** waves [or **radio** frequency; or **R·F**] <AS>

2. A silhouette-like sculpture by Alfredo Ceschiatti called *The Laras* sits in front of the presidential residence in *this* country’s capital. For 10 points each:

[10] Name this country also home to a cliffside contemporary art museum whose shape is often likened to a UFO. A gold-covered mural wall in the entrance hall to a presidential residence in this country declares that “this vast loneliness...will soon become the center of national decisions.”

ANSWER: Federative Republic of **Brazil** [or República Federativa do **Brasil**]

[10] Those buildings, the Palácio da Alvorada and the Niterói Contemporary Art Museum, were among the many buildings designed for Brasília by *this* modernist Brazilian architect.

ANSWER: Oscar (Ribeiro de Almeida) **Niemeyer** (Soares Filho)

[10] This other Brazilian modernist designed the São Paulo Museum of Art, whose glass hall hangs above-ground at the top of two red arches. She also built a “Casa de Vidro” in the jungle and a drum factory featuring concrete towers connected by aerial walkways.

ANSWER: Lina Bo **Bardi** [accept Achillina **Bo**] <JM>

3. In an account by Sir John Hawkins, the man central to this event stabbed himself in each leg with a pair of scissors to drain the fluid that had accumulated from dropsy. For 10 points each:

[10] Name this event, which concludes a book in which it was preceded by the central man saying “God bless you, my dear!” to Miss Morris. Dr. Richard Brocklesby reported that that man’s “fears were calmed and absorbed by... his trust in the merits and propitiation of Jesus Christ” during this event. A description is fine.

ANSWER: the **death** of Samuel **Johnson** [accept any reasonable equivalent]

[10] Johnson’s lifelong fear of death was a key motif in *this* Scottish writer’s account of *The Life of Samuel Johnson*. He recounted Johnson’s skepticism about the Ossian poems in his *Journal of a Tour to the Hebrides*.

ANSWER: James **Boswell**

[10] Johnson contributed the last two couplets to *this* poem by another author, which warns “Ill fares the land, to hastening ills a prey / Where wealth accumulates, and men decay.” It inspired a pessimistic poem by George Crabbe.

ANSWER: *The **Deserted Village*** (by Oliver Goldsmith. Crabbe’s poem is called “The Village”) <SK>

4. This man developed a 5-item questionnaire on which people rate their agreement with phrases like “In most ways my life is close to my ideal,” which he called the Satisfaction With Life Scale. For 10 points each:

[10] Name this extremely-cited Illinois psychologist, whose research finds that happiness tends to rise with income and then plateau above high five-figure incomes. His surveys measure a property he calls “subjective well-being.”

ANSWER: Edward F. **Diener**

[10] Diener is ostensibly a senior scientist at this organization. In the 1930s, its namesake founder George pioneered demographic sampling methods for high-quality public opinion polls.

ANSWER: **Gallup** Organization

[10] Happiness research by this Nobel Laureate discovered “durational neglect,” in which people remember only the peak and end happiness levels of experiences. His work suggests that people asked about income and happiness fall prey to the “focusing illusion.”

ANSWER: Daniel **Kahneman** [do not accept “Amos Tversky,” who died without receiving a Nobel and was also not involved in researching either of the things mentioned in this bonus part] <MJ>

5. Romans and Greeks generically referred to astrologers by the name of these people, as they were renowned for their ability in astral omens. For 10 points each:

[10] Name this semi-nomadic nation that Sennacherib defeated along with Elam at Halule. Sources often conflated this nation, whose tribes included the “Bit-Amukani” and the “Bit-Yakin,” with the Arameans.

ANSWER: **Chaldaeans** [accept **Chaldea**]

[10] Several Chaldaean leaders, including Marduk-apla-usur and Eriba-Marduk, ruled over *this* kingdom in the 8th century B.C. Nebuchadnezzar II ruled during the “Chaldean dynasty” of a “Neo-” empire of this kingdom.

ANSWER: **Babylonia**

[10] The Chaldaean tribes were heavily targeted by Assyrian rulers, including by *this* king of the Neo-Assyrian Empire and his son Sargon II. He became king of Babylonia in 728 B.C., one year before his death.

ANSWER: **Tiglath-Pileser III** [prompt on just **Tiglath-Pileser**] <MK>

6. In September 2018, the Supreme Court of India ruled 4 to 1 in favor of the legality of this government program, which is gradually being connected with bank accounts to facilitate Direct Benefit Transfers. For 10 points each:

[10] Name this identity card program in India. It gives each registered person a 12-digit number linked to biometric identifiers like a person’s thumbprint.

ANSWER: **Aadhaar** number [or **Aadhaar** card(s); or **Foundation** numbers/cards; or **UIDAI**; or **Unique Identification Authority of India**]

[10] This current Prime Minister of India dismissed Aadhaar as a “political gimmick” in a 2014 tweet, a few weeks before his BJP party swept to victory.

ANSWER: Narendra (Damodardas) **Modi**

[10] Hackers have targeted a large data center that the Aadhaar program keeps in *this* tech hub, the capital and most populous city in southwest India’s state of Karnataka.

ANSWER: **Bangalore** [or **Bengaluru**] <MJ>



7. The voltage leads the current by 90 degrees in these devices. For 10 points each:

[10] Name these circuit components that create e·m·fs proportional to and against the time derivative of current, according to Faraday's law. A solenoid is a simple one.

ANSWER: **inductors**

[10] The inductance of a solenoid equals the permeability of free space, times the cross sectional area, over the length, all times the square of what quantity?

ANSWER: **number of turns** of wire [or *N*; or the **number of times the wire is wrapped around the core**; or equivalent descriptions]

[10] Electromagnetic induction in transformers leads to resistive losses in the skin and proximity effects, so most transformers use this bundled, thin, insulated wiring where the skin effect is negligible in individual strands.

ANSWER: **litz** wire <AS>

8. The Gelati Monastery symbolized this country's medieval golden age, during which it fought off repeated Seljuk incursions and intermarried extensively with Muslim frenemies ruling nearby Shirvān. For 10 points each:

[10] Name this country that's often identified with Colchis, and which formed from Bagrationi kingdoms like Tao, Kartli, and Abkhazia. Its king David the Builder inaugurated a golden age by retaking Tbilisi from Arab emirs.

ANSWER: Kingdom of **Georgia** [or **Sakartvelo**]

[10] The Georgian golden age, and *patronqmob*a feudal system, reached its height under *this* ruler. After divorcing the scheming Yury Bogolyubsky, this queen married her main military commander, the Alan noble David Soslan.

ANSWER: **Tamar** the Great [accept **Tamara**]

[10] Before Mongol invasions ended its golden age, medieval Georgia was weakened when Tbilisi was sacked by *this* fugitive Khwārezmian prince, who dealt Genghis Khan's forces a rare major defeat at the Battle of Parwān.

ANSWER: Jalāl al-Dīn **Mingburnu** [or **Manguberdi** or **Meñburun**; prompt on Jalāl al-Dīn] <JG>

9. Defenders of the Neo-Documentary Hypothesis have controversially tried to preserve this source on purely plot-continuity-based grounds. For 10 points each:

[10] Name this source, historically distinguished by critical scholars citing its use of the plural word for God in place of the deity's proper name, thus distinguishing it from the similar Yahwist or J source.

ANSWER: the **E**lohist source

[10] Many scholars merge the J and E sources, since they can't be reliably separated outside of *this* book of the Torah. This book contains the stories of Abraham and Isaac as well as the account of Joseph and his brothers.

ANSWER: **Genesis** [or **Bereshit**]

[10] The classic J·E·P·D formulation of the Documentary Hypothesis was first codified by *this* man in his *Prolegomena to the History of Israel*. Scholars today do not put much store by this man's theory that the sources can be dated and used to demonstrate the development of Jewish religion over time.

ANSWER: Julius **Wellhausen** <JM>

10. This novel features several long speeches by Albert Douglas, a radio host who believes that the military is planning to take over America. For 10 points each:

[10] Name this novel, in which the Air Force serviceman Calvin begins to receive death threats from conspiracy theorists accusing him of being a crisis actor in the videotaped murder of the title character.

ANSWER: Sabrina

[10] Nick Drnaso's *Sabrina* is the first novel of *this* type to be nominated for the Man Booker award. Other books of this type include Alison Bechdel's *Fun Home*.

ANSWER: graphic novels [or comic books]

[10] The only graphic novel so far to win the Guardian First Book Award is this author's *Jimmy Corrigan, the Smartest Kid on Earth*.

ANSWER: Chris Ware <DS>

11. The "Romanze" second movement from one of these pieces was a royal favorite, leading it to be nicknamed "The Queen." For 10 points each:

[10] Name this group of pieces, one of which features the oboe in a "clucking" repeated-note theme. The bagpipe-like opening of the last movement of the first of these pieces has caused it to be nicknamed "The Bear."

ANSWER: Paris Symphonies

[10] The Paris Symphonies were written in the 1780s by *this* "Father of the Symphony."

ANSWER: (Franz) Joseph Haydn

[10] *This* virtuoso violinist born in Guadeloupe commissioned the Paris Symphonies. This man, sometimes called the "Black Mozart," was a major composer of *Symphonies Concertantes* to show off his own skill.

ANSWER: Chevalier de Saint-Georges [or Joseph Bologne] <JR>

12. Alexandra Kollontai wrote a firsthand account of the best-known event of this man's life, from which he took refuge in Maxim Gorky's house. For 10 points each;

[10] Name this priest. After his connections to the *Okhrana* were revealed, he was ambushed and hanged in a rural cottage.

ANSWER: Georgy (Apollonovich) Gapon

[10] Gapon led protestors who were killed on Bloody Sunday in *this* year. Sergei Witte's reforms, which responded to the Russian Revolution that started in this year, did not prevent the Bolshevik Revolution twelve years later.

ANSWER: 1905 [prompt on '05]

[10] Gapon was killed by members of the Socialist Revolutionary Party, which later split into factions that included the Trudoviks under *this* man. He was deposed as prime minister of the Provisional Government in the October Revolution.

ANSWER: Alexander (Fyodorovich) Kerensky <SE>

13. Many drugs in this class are thought to function by inhibiting a farnesyl synthetase in the mevalonate pathway. For 10 points each:

[10] Identify this class of drugs named for their characteristic P-C-P bond. They are predominantly used to treat osteoporosis by inhibiting bone resorption.

ANSWER: bisphosphonates [or diphosphonates; do not accept or prompt on "bisphosphate" or "diphosphate"]

[10] Bisphosphonates primarily inhibit the activity of these cells, which compete against osteoblasts to increase blood calcium levels.

ANSWER: osteoclasts

[10] The monoclonal antibody denosumab is also used to treat osteoporosis, but instead works by inhibiting the RANK ["rank"] ligand, a protein in this superfamily. Another monoclonal antibody, adalimumab, inhibits a protein in this superfamily in a bestselling drug for rheumatoid arthritis.

ANSWER: T·N·F superfamily [or tumor necrosis factor superfamily; or T·N·F-alpha] <AS>

14. This character assumes the identity of Robert Zwelinzima in order to gain a work-seeker permit and stay in Port Elizabeth. For 10 points each:

[10] Name this title character of a 1972 play that was written collaboratively with the same team as its author's play *The Island*.

ANSWER: **Sizwe Banzi** [accept either underlined portion; accept *Sizwe Banzi Is Dead*; accept *Sizwe Bansi Is Dead*]

[10] One of the writers behind *Sizwe Banzi Is Dead* and *The Island* was *this* South African playwright, who also wrote "*Master Harold*"...and the Boys.

ANSWER: (Harold) Athol (Lanigan) **Fugard**

[10] Fugard wrote those plays with John Kani and *this* other South African actor and playwright. He also played Gabriel Nkoke in Michael Hastings's one-act play *Full Frontal*.

ANSWER: Winston **Ntshona** <WJ>

15. Feminist approaches to this discipline were advanced by scholars like Gillian Rose and Katherine McKittrick. For 10 points each:

[10] Name this field which studies the interactions between people, communities, and their environments.

ANSWER: **human geography** [prompt on partial answer]

[10] This Chinese-American professor at the University of Wisconsin, Madison advanced a vision of "humanistic geography," which has a critical character rather than the optimistic character of human geography. His books include *Topophilia* and *Landscapes of Fear*.

ANSWER: Yi-Fu **Tuan** [or **Duàn** Yifù]

[10] Tuan is perhaps best-known for a book in which *this* concept is the first title word. Gaston Bachelard took a phenomenological approach to architecture in a book titled for the *Poetics of* this concept, while Henri Lefebvre described its social construction in a book on the *Production of* it.

ANSWER: **space** [accept *Space and Place*] <JM>

16. Nancy Cartwright rejects Carl Hempel's covering-law account of *these* entities on the grounds that it relies on implausible *ceteris paribus* constraints. For 10 points each:

[10] Identify these things that "lie" according to the title of one of Cartwright's books. That book favors a simulacrum account of explanation.

ANSWER: **laws of physics** [prompt on scientific laws or laws of nature]

[10] Cartwright's claim that causal explanations, but not theoretical explanations, have "truth built into them" is a partial version of *this* thesis that our best theories describe entities that actually exist in the world. Hilary Putnam's "no miracles" argument supports it.

ANSWER: scientific **realism**

[10] Duke philosopher Alex Rosenberg has assessed the status of laws in *this* social science discipline. Milton Friedman argued that theories in the "positive" form of this discipline should be judged by the accuracy of their predictions rather than their assumptions.

ANSWER: **economics** [accept more specific answers like **microeconomics**] <SK>

17. Data from this project is analyzed by distributed computing in the MilkyWay@home project. For 10 points each:  
[10] Name this project whose fifteenth data dump occurred in December 2018. It aims to map distant galaxies from a two-and-half meter telescope at an observatory in New Mexico.

ANSWER: **Sloan Digital Sky Survey** [or **SDSS**; prompt on partial answer]

[10] The SDSS can pick up these objects at redshifts as large as  $z = 7$  since they are so luminous. They are active galactic nuclei where gas is accreting into a black hole, releasing energy.

ANSWER: **quasars** [or **quasi-stellar object**; or **OSO**]

[10] The key data dumped in 2018 were the results of an extended survey detecting these signals, which occur roughly on the scale of the distance between galaxies. They correspond to matter dispersion in the early universe and have been used to estimate the equation-of-state for dark energy.

ANSWER: **baryon** oscillations [or **baryon acoustic** oscillations; or **B·A·Os**] <AS>

18. In a sensational trial contesting the will of her aunt Sylvia Howland, this woman produced a previously unknown signature, which a statistical analysis by Benjamin Peirce [PURSE] and his son Charles Sanders Peirce suggested had a 1 in 2.66 *sextillion* chance of being authentic. For 10 points each:

[10] Name this financier, a Gilded Age woman nicknamed “The Witch of Wall Street” for her vast wealth and extreme miserliness.

ANSWER: Henrietta “Hetty” **Green** [or Henrietta Howland **Robinson**; or **Henrietta Howland**]

[10] Despite her nickname, Hetty Green mostly lived alone in *this* non-New York state, where Confederate troops engaged in bank robbery during the St. Albans Raid. This was the fourteenth state to join the Union.

ANSWER: **Vermont**

[10] Much of Hetty Green’s wealth came from this industry, whose main targets were hit by harpoons from ships based in Nantucket or New Bedford. Its products included spermaceti, baleen, and an oil rendered from blubber.

ANSWER: **whaling** industry [or **whale oil** industry; accept any answer involving the hunting of **whales**] <MJ>

19. This poet was nearly shot to death by his rival Gaspare Murtola, with whom he also exchanged sonnets. For 10 points each:

[10] Name this Italian Baroque poet who lends his name to a highly ornate style of poetry that uses elaborate metaphors and numerous rhetorical devices.

ANSWER: Giambattista **Marino** [or Giovan Battista **Marini**; accept **Marinism**]

[10] Marinism is characterized by the use of *this* rhetorical figure, which presents two ideas that represent its namesake contrast. As its name suggests, this figure of speech juxtaposes two opposites, as in the biblical “Many are called, but few are chosen.”

ANSWER: **antithesis**

[10] Marino’s most famous poem is an epic titled for *this* mythological figure. In his own lifetime, Shakespeare’s most popular published work was a poem titled for this handsome man and his divine lover, Venus.

ANSWER: **Adonis** [accept *L’Adone* or *Venus and Adonis*] <JR>

20. Paintings often classed in this genre include Adriaen Brouwer's depiction of a black-hatted man who grimaces after tasting *The Bitter Potion*. For 10 points each:

[10] Name this genre of close-ups of people with exaggerated facial expressions on neutral backgrounds. *The Lute Player*, by Dirck van Baburen, is another painting in this genre, whose name comes from a word meaning "face."

ANSWER: **tronie** [prompt on portrait; do not accept or prompt on "self-portrait"]

[10] *Tronie* paintings became common in a "Golden Age" for painters in this republic, perhaps inspiring such face-dominated paintings as Frans Hals's *The Laughing Cavalier* and Jan Vermeer's *Girl with a Pearl Earring*.

ANSWER: **Netherlands** [or **Dutch** Republic; or **United Provinces**; or **Holland**]

[10] Another *tronie*-esque Frans Hals painting, *Malle Babbe*, depicts a laughing old woman with *this* creature on her shoulder. Several of these animals appear above an artist at his desk in a 1799 etching.

ANSWER: **owls** [prompt on birds] (The etching is *The Sleep of Reason Produces Monsters* by Francisco Goya.)

<MJ>