Tossups

1. A three-part source on this city's history was discovered in and named after Kostroma's Hypatian Monastery. This city contains a grave to the prince Askold on a hill blessed by Saint Andrew the First-Called, who prophesied ("PROFF-uh-sighed") its founding. To avenge the death of her husband, a queen of this city had a party of Drevlians locked in a bathhouse and burned alive. While intervening in this city's succession crisis, Bolesław ("bo-LESS-waff") the Brave legendarily struck his sword on its Golden Gate. A ruler of this city professed his dislike of Islam by saying that "drinking is the joy of" his people, as recounted in Nestor's *Primary Chronicle*. After being conquered by Oleg of Novgorod in 882, this city became the seat of the Rurikid dynasty. For 10 points, name this city on the Dnieper River, now the capital of Ukraine.
ANSWER: **Kiev** [or **Kyiv**; accept **Kiev**an Rus] (Olga of Kiev is the queen who locked the Drevlians in the bathhouse.)
<European History>

2. The universe is partitioned into one of these objects and a surrounding "system" in the Page–Wootters conditional probability picture. According to a postulate named for these objects, accelerating observers pass through a sequence of momentarily co-moving reference frames. The Poincaré ("pwann-kah-RAY")–Einstein procedure matches the reading on a distant one of these devices to the average of two readings on a local one. Four of these devices were flown around the world in the 1971 Hafele ("HAY-fuh-luh")–Keating experiment, which showed that their readings vary with gravitational potential in a way predicted by general relativity. One of these devices called NIST-F1 ("nist-F-one") monitors hyperfine transitions in cesium-133 atoms. For 10 points, name these devices whose atomic variety counts electronic transitions to record the time.
ANSWER: **clock**s [accept atomic **clock**s; accept **clock** postulate; accept **timepiece**s or **timer**s]
<Physics>

3. A director from this non-African country made a film in which the ghosts of shipwrecked construction workers possess people's bodies while demanding payment for building a tower. A man who nearly caused his subordinate's death in a salt flat dances in a nightclub to the song "The Rhythm of the Night" in a film from this country, which loosely adapts *Billy Budd*. In a film from this country, women sing and clap to a Latin chant as a woman stares at her lover, whose dress catches on fire. A singer waits to learn if she has cancer in a film from this country titled *Cléo from 5 to 7*. The 2019 films *Atlantics* and *Portrait of a Lady on Fire* are from this home country of directors Claire Denis ("duh-NEE") and Agnès ("on-YES") Varda. For 10 points, Catherine Deneuve and Brigitte Bardot are actresses from what country?
ANSWER: **France** [or **French** Republic; or République **française**] (The film in the second sentence is Denis's *Beau Travail*.)
<Other Arts (Visual)>

4. In this novel, one character lies down to contemplate blue and yellow, the only harmless things she can think of. Footprints appear by a stream in a passage in this work that repeats "The rest is weather" and "It was not a story to pass on." In this novel, a tombstone "pink as a fingernail" has one word on it, which was paid for with ten minutes of sex. A man in this novel follows a path of flowering trees and repeats "Red Heart" to a woman who walks fully clothed out of water, as rust falls away from his "tobacco tin" heart. This novel's protagonist has scars like a "chokecherry tree" on her back. This novel describes a house haunted by a "baby's venom" with the line "124 was

spiteful." For 10 points, name this Toni Morrison novel named for Sethe's ("SETH-uh's") infant daughter, whom she killed to save from slavery.
ANSWER: _**Beloved**_
<American Literature>

5. This company selected Robert Holland as its CEO in 1995 after he submitted a 32-line poem to its "Yo! I'm Your CEO!" essay contest for the position. When Pillsbury blocked this company from vending its products in Boston, it started a campaign called "What's the Doughboy Afraid Of?" In 2014, this company's CEO attended governor Peter Shumlin's signing of the United States's first GMO labeling law, which was opposed by their parent company Unilever. In 2016, this company's founders were arrested at the Democracy Awakening protests outside the Capitol, and earlier that year it released a product named for Bernie Sanders. For 10 points, name this Burlington-based ice cream brand that produces novelty flavors like Phish Food and Cherry Garcia.
ANSWER: **Ben and Jerry**'s (The flavor is Bernie's Yearning.)
<CE/Geo/Other/Pop Culture>

6. Tim Whitmarsh titled an essay for Achilles having this physical trait. In Book 1 of the _Iliad_, Zeus is away at a feast hosted for the gods by a people whose name refers to this physical trait. In a romance by Heliodorus of Emesa, a naked painting causes Chariclea ("care-ih-KLEE-uh") to be born without this trait. According to Ovid, two swarms of birds fought at the funeral of a king who ruled people named for this trait. Martin Bernal analyzed Greek origins in a book titled for Athena having this trait. Memnon leads a people named for this physical trait to Troy. One group acquires this trait when Phaethon loses control of Helios's chariot. This physical trait distinguishes men from women in a pottery style predating red-figure. For 10 points, the Greeks based the name "Aethiopia" upon what trait?
ANSWER: having **black skin** [or being **black** or having **dark skin** or equivalents; or **burnt**; or **black** figure; accept "**Black** Achilles" or _**Black**_ _Athena_; prompt on non-white or equivalents; prompt on Ethiopian] (The Heliodorus work is _Aethiopica_; the Greek name for the Ethiopians derives from the word for "burnt.")
<Mythology>

7. The sampling processes ROSE ("rose") and SMOTE ("smote") perform augmentation for this task on imbalanced inputs. The maximum number of points that can be "shattered" by this task is the Vapnik–Chervonenkis dimension. The non-linear version of one algorithm for this task uses a radial basis function to apply a "kernel trick." Results of this task are visualized with a confusion matrix whose elements include precision and recall. An algorithm for this task tries to find a "maximum-margin hyperplane." The perceptron algorithm accomplishes the "binary" form of this task. Clustering is the [emphasize] _unsupervised_ counterpart to this task, which can be performed by SVMs or _k_-nearest neighbors, and is [emphasize] _contrasted with_ the continuous-output task of regression. For 10 points, what machine learning task involves labelling elements of a data set into discrete groups?
ANSWER: **classification** [or word forms like **classify**ing; accept binary **classification**; accept image **classification**; accept data **augmentation** until "augmentation" is read; anti-prompt on nonlinear support vector machine or nonlinear SVM; prompt on (supervised) machine learning or ML; prompt on logistic regression by asking "what task is the output of logistic regression being used for?"; prompt on regression until "continuous-output" is read; prompt on prediction or labeling or word forms; do not accept or prompt on "clustering" or "sorting"]
<Other Science (Computer Science)>

8. In a novel, Mick finds this author working in a bar after faking his death. A character created by this author titles a novel in which Antony Lamont from _At Swim-Two-Birds_ writes about Daisy Buchanan from _The Great Gatsby_; that novel is by Gilbert Sorrentino. Marshall McLuhan's _War and Peace in the Global Village_ is structured around ten one-hundred-letter words evoking thunder in a novel by this author. This author and Henry Carr feud over a staging of Oscar Wilde's _The Importance of Being Earnest_ in Tom Stoppard's _Travesties_. The last line of one of this author's novels forms a sentence with its first line, which opens "riverrun, past Eve and Adam's." For 10 points, the

line "yes I said yes I will yes" ends Molly Bloom's soliloquy in a novel by what author of *Finnegans Wake* and *Ulysses*?

ANSWER: James **Joyce** (The first sentence is from *The Dalkey Archive*; the novel in the second sentence is *Mulligan Stew*, named for Buck Mulligan.)
<British Literature>

9. For this city's cathedral, Narciso Tomé created a "transparent" sacramental altar. In one painting of this city, a hospital floats on a cloud as St. Ildefonsus receives a chasuble ("CHAZ-yoo-bull") from the Virgin Mary. The artist's son may have drafted the detailed plan of this city in the foreground of that work. An artist sued this city's cathedral over a painting with the Three Marys present and the heads of a crowd above Jesus clothed in bright red. A hospital in this city commissioned a painting in which nudes against yellow and green cloths appear to the left of a blue-clad John the Baptist raising his arms in the foreground. In a painting of this city, a cathedral steeple rises above a line of buildings amid green hills beneath a stormy sky. For 10 points, El Greco painted a *View of* what Spanish city?

ANSWER: **Toledo** [accept **Toledo** Cathedral or *View and Plan of **Toledo*** or *View of **Toledo***] (Jesus appears in red in El Greco's *The Disrobing of Christ*; John the Baptist appears in blue in El Greco's *Opening of the Fifth Seal*.)
<Painting/Sculpture>

10. Mel and Norma Gabler compiled a 54-foot-long roll of shame about these things. Alice Moore initiated a violent conflict in Kanawha County, West Virginia, over some of these objects. Sociologist James W. Loewen wrote a 1995 book on lies in 12 of these works. The "directly and sharply" test originated when Susan Epperson filed against Arkansas concerning one of these items. The endorsement and Lemon tests were used in the case *Kitzmiller v. Dover* about one of these works concerning "pandas and people." The Tennessee Butler Act was violated when John Scopes taught evolution from a work of this type, *Civic Biology*. For 10 points, what works, which include *The American Pageant*, are often used to teach US history?

ANSWER: **textbook**s [accept history **textbook**s or biology **textbook**s; prompt on *Of Pandas and People* or *Civic Biology* by asking "what type of work is that?"; prompt on books] (*Kitzmiller v. Dover* was known as the "Dover Panda Trial.")
<American History>

11. It's not apoptosis, but Bax forms pores at sites of one variety of this process dependent on Drp1. The E protein of the Min operon system drives the oscillatory motion of its CD complex to spatially constrain this process. SulA ("sul-A") or cephalexin-mediated inhibition of polymerization of ZipA-anchored FtsZ results in failure of this process and filamentation. Nucleoid occlusion prevents a contractile Z-ring from bisecting chromosomes during this process. Unusually for a eukaryote, *S. pombe* ("POM-bay") reproduces via this process, which lends the species its common name. A septum separates two halves of an elongated cell in this process. For 10 points, name this form of asexual reproduction that results in two identical daughter cells.

ANSWER: **binary fission** [accept **mitochondrial fission** until "Drp1" is read, but prompt after; prompt on fission, fission yeast, cytokinesis, or cell division; do not accept or prompt on "mitosis" or "meiosis" or "multiple fission"]
<Biology>

12. John McDowell's *Mind and World* opens by discussing this book's claim that "thoughts without content are empty, intuitions without concepts are blind." This book contrasts walking around a house with watching a ship float downstream in its "Second Analogy." The preface to this book suggests that the assumption that "all our knowledge must conform to objects" has failed, thus beginning its author's "Copernican revolution." This book argues that the "pure concepts of the understanding" apply to our experiences by using the "transcendental deduction." This book attempts to discover how synthetic *a priori* judgements are possible. Transcendental idealism is introduced in, for 10 points, what metaphysical treatise, the first of Immanuel Kant's Critiques?

ANSWER: The ***Critique of Pure Reason*** [or ***Kritik der reinen Vernunft***; accept Kant's ***First Critique*** until "first" is read]
<Philosophy>

13. Deng et al. modeled the "heterogeneity" of people who interact with these products. One example of these products, HELOCs, allows an additional credit line. The Richard and Roll model uses seasonality and burnout to calculate CPR for these products. Alt-A forms of these products can have high LTV ratios, and securities backed by these products are grouped by CDOs. Racially-biased maps were created by HOLC, which bought these products in the 1930s. NINJA or NINA types of these products were restricted by the Dodd–Frank Act. These products traded by Fannie Mae and Freddie Mac can have fixed or adjustable rates. An increase in low-quality "subprime" types of these products began the Great Recession with many foreclosures. For 10 points, name these loans used to pay off homes.
ANSWER: **mortgage**s [or **mortgage** prepayments or **mortgage** loans; prompt on loans; prompt on homes or houses before HELOCs]
<Social Science>

14. In a play by this author, a man can only stutter "magnet – telephone – magnet" to support his claim that "we live in a technical age." In that play by this author, a man gives a confusing rant saying "A is not just A… F can be Q or even Y or R!" In a play by this author, a couple is ashamed of their "bourgeois intellectual" son Peter. This author created a dissident writer who works at a brewery in a quartet of plays that includes *Protest* and *Audience*. A man who plays chess by himself hears an argument about the size of "Large Dance Floor A" and meets Maxy Falk at the title event, which is hosted by the Liquidation Office in a play by this author. For 10 points, name this Czech playwright of *The Memorandum*, who described Hugo Pludek's descent into bureaucracy in *The Garden Party*.
ANSWER: Václav ("VAHTS-lav") **Havel**
<European Literature>

15. The slow movement of a symphony by this composer starts with 15 measures of pizzicato strings and harp in B-flat minor and triple time; then a plaintive English horn enters. Camille Saint-Saëns ("kuh-MEE san-SAWNS") stormed off the stage after playing in the premiere of this composer's Piano Quintet in F minor. A four-movement violin sonata by this composer contains a Recitativo-Fantasia third movement and was dedicated to Eugène Ysaÿe ("oo-ZHEN ee-ZYE"). Instruments made by Cavaillé-Coll ("KAH-vah-yay-CULL") were frequently played by this man, a longtime organist at the Basilica of St. Clotilde before he taught Ernest Chausson and Vincent d'Indy ("van-SAWN dan-DEE") at the Paris Conservatoire. For 10 points, name this Belgian-born French composer who used cyclic form in his Symphony in D minor.
ANSWER: César **Franck** ("SAY-zar fronk")
<Classical Music>

16. A work by this man describes rivals who save each other after charging unaccompanied from their camp during a siege. This author describes a group of people who have a calendar in which nights precede days, believe that writing is a crutch to memory, and build "figures of vast size" that are burned with human sacrifices. A work by this man begins by describing the Helvetii ("hell-VET-tee-ee") migrating to the southwest, where they fight the Battle of Bibracte ("bib-RACK-tee"). This author describes a circumvallation and contravallation at the siege of Alesia, where he defeats Vercingetorix ("vur-sin-GET-or-iks"). This man's best-known work declares that a certain region is "divided into three parts" and recounts his invasion of Britain. For 10 points, what author of *Commentaries on the Gallic Wars* was killed on the Ides of March?
ANSWER: Gaius Julius **Caesar** (The rivals are Vorenus and Pullo.)
<Other History>

17. Patricia Watson showed that lutetium methyl complexes exchange these structures in a reaction named for them, while platinum chloride "activates" them in the Shilov system. The Wheland intermediate is a "complex" named for these structures. A cheletropic ("KEEL-uh-tropic") reaction either adds or removes exactly two of these structures at a single site. Hyperconjugation allows toluene's methyl group to act as an *ortho*/*para* director by delocalizing electrons from these structures. One of these structures moves to carbons *i* and *j* in a pericyclic *i*-comma-*j* reaction named for them and "-tropic." The electron density in these structures has continuous rotational symmetry and lies on-axis. For 10 points, name these covalent bonds formed by head-on overlapping orbitals, which may be accompanied by one or more pi bonds.
ANSWER: **sigma** bonds [or **sigma** orbitals; accept **single** bonds until "pi" is read; accept **sigma**-bond metathesis or **sigma** complexes or **sigma**tropic reactions; prompt on carbon–hydrogen bonds or C–H bonds by asking "what more general class do those bonds belong to?"; prompt on covalent bonds]
<Chemistry>

18. Workers in this industry traditionally relied on a whistling technique known as *isobue* ("ee-so-BOO-eh"). The walled city of Zubarah was briefly the world's busiest port for this industry, and this industry was so vital to the Sulu Sultanate that a "Royal and Hashemite" order was named for its main product. Mikimoto Kokichi created the "cultured" variety of this industry's main product, causing demand for Japanese professionals known as *ama*. Muharraq, which contains a historic district for this industry, was replaced by Manama as a capital due to its displacement by the oil industry. Workers in this industry tie their feet to rocks to prevent them from resurfacing, unlike in scuba. For 10 points, the early economies of the Persian Gulf relied on what industry, whose products are obtained by diving for oysters?
ANSWER: **pearl** fishing [or **pearl**ing; or **pearl** hunting; or **pearl** diving; prompt on fishing or diving; prompt on oysters or oyster diving]
<World History>

19. A recurring image in this text is the "dust of the saints," which its speaker begs to become or to be blessed with. The command "Do not break anyone's heart; these are all precious jewels," is issued by the *shaykh* Baba Farid, one contributor to this text. Another section of this text explains how even demons, demigods, Buddhas, and Brahma could not describe the divine being, which its opening section describes as "fearless, without hate." After its first section, this text consists of sixty *raaga*s in *Sant Bhasha*, a mixture of Lahnda, Sindhi, and Persian. The opening of this text written in Gurmukhi ("gurr-MOO-kee") script states "*Ik Onkar*" ("ick OWN-car"), or "There is one God"; that Mul Mantar summarizes the teachings of Guru Nanak. For 10 points, name this current and eternal guru of Sikhism, its holy scripture.
ANSWER: Sri Guru **Granth** Sahib [or the **Adi Granth**; prompt on the Sikh Holy Book]
<Religion>

20. An author with this first name created a talkative insurance salesman who comes home from an apocalyptic vigil to find his son dead in a house fire. In that novel by an author with this first name, the 90-year-old protagonist wanders into the woods while trying to avoid being sent to a nursing home in the fictional town of Manawaka. The author of *The Stone Angel* has this same first name as an author who created the hybrid species "rakunk" in a novel in which two lab partners hack into Uncle Pete's computer account to watch porn and play the game Extinctathon. That author wrote the 2019 novel *The Testaments* as a sequel to a novel in which the Republic of Gilead subjugates women. For 10 points, give this first name of the author of *Oryx and Crake* and *The Handmaid's Tale*.
ANSWER: **Margaret** [accept **Margaret** Laurence or **Margaret** Atwood]
<World/Other Literature>

Bonuses

1. This writer described a series of three dreams with elements such as an exotic melon and a book of poetry open to the line "What path shall I take in life?" For 10 points each:
[10m] Name this philosopher who had those dreams while sleeping next to an oven in Ulm, Germany. In a later work, he wondered whether he could be dreaming about sitting next to a fire in his dressing gown.
ANSWER: René **Descartes**
[10e] Descartes described the influence that his night in Ulm had on his philosophy in a "Discourse on" this concept. Francis Bacon formulated the "scientific" type of this process.
ANSWER: **method** [accept scientific **method**; or *Discourse on **Method***; or *Discourse on the **Method** of Rightly Conducting One's Reason and of Seeking Truth in the Sciences*; or *Discours de la **Méthode** Pour bien conduire sa raison, et chercher la vérité dans les sciences*]
[10h] Descartes's revelations on that night began with the observation that, like laws, works in this field are better when created by a single person. Descartes also compared his method to a person in this field digging trenches in sand.
ANSWER: **architect**ure [or **build**ing; accept **town** or **urban plan**ning]
<Philosophy>

2. In the Q'eqchi' ("kek-CHEE") Maya language, examples of nouns with this property include the words for throats, hearts, shadows, and names. For 10 points each:
[10h] Name this cross-linguistic category of obligatorily-possessed nouns. Body parts are frequently members of this closed class of nouns, which become morpho-syntactically marked when non-possessed.
ANSWER: **inalienable** possession [prompt on alienability]
[10m] Besides body parts, this is the other common class of inalienable nouns. Lewis Henry Morgan divided systems of terminology for this concept into six types, which may include affinal ("uh-final") relations.
ANSWER: **kinship** terminology [or **kin** terminology; prompt on familial relationships or family members]
[10e] In many languages, inalienable nouns take definite articles instead of possessive articles when they are the objects of verbs with this property. Unlike "eat," "devour" is obligatorily one of these verbs, since it requires an object.
ANSWER: **transitive** verbs [prompt on transitivity] (The phenomenon in the first clue doesn't apply in English, but in Spanish, for example, "Me corté el dedo" is grammatical while "Me corté mi dedo" is not. This is because "dedo" is understood to be obligatorily possessed by the implied subject, "yo.")
<Social Science>

3. This character remains silent at a mock trial and refuses to execute Leggo Beast for storming his house and shooting his wife. For 10 points each:
[10h] Name this character who survives being shot by a group of gunmen led by Josey Wales. This man manages to broker peace between Papa-Lo and the don of the Eight Lanes in a 2014 novel.
ANSWER: Bob **Marley** [or **Bob** Marley; or the **Singer**]
[10m] This contemporary author of *The Book of Night Women* and *Black Leopard, Red Wolf* fictionalized the attempted assassination of Bob Marley in his *A Brief History of Seven Killings*.
ANSWER: Marlon **James**
[10e] *A Brief History of Seven Killings* is mostly set in this home country of Marlon James and Bob Marley.
ANSWER: **Jamaica**
<World/Other Literature>

4. The mitochondrial inner membrane's impermeability to NADH necessitates this system. For 10 points each:
[10h] Name this system that transports electrons generated by glycolysis into the mitochondria by cycling its two namesake molecules. One of those molecules is antiported against alpha-ketoglutarate; the other, against glutamate.

ANSWER: **malate–aspartate** shuttle [prompt on malate shuttle]
[10e] The mitochondria uses NADH supplied by the malate–aspartate shuttle as the main reducing equivalent in this process. During this process, a proton gradient powers the generation of ATP from ADP.
ANSWER: **oxidative phosphorylation** [or **OXPHOS**; accept **chemiosmosis**; accept **electron transport chain**, **electron transport system**, **ETC**, or **ETS**; prompt on cellular respiration; do not accept or prompt on "Krebs cycle" or "TCA cycle"]
[10m] In the malate shuttle, malate dehydrogenase interconverts malate with this molecule, which then binds an amino group to yield aspartate. This molecule and acetyl-CoA ("uh-SEE-til co-A") react in the Krebs cycle's first step to yield citrate.
ANSWER: **oxaloacetate** [or **oxaloacetic acid**; or **OAA**]
<Biology>

5. Archaeologists often point to this Mesoamerican civilization as a "mother culture." For 10 points each:
[10e] Name this civilization whose major archaeological sites include San Lorenzo and La Venta. Jade facsimiles of their iconic colossal heads were found amongst the Mayans.
ANSWER: **Olmec** civilization [or **Olmec**s]
[10h] The prevalence of this motif, which depicts a cleft head with turned lips, provides evidence for the mother culture hypothesis. It is named for a fusion of humans with a certain animal, as theorized by Mathew Stirling.
ANSWER: **were-jaguar**s [prompt on jaguars]
[10m] Were-jaguars and fire-serpents were extensively uncovered at the site of San Jose Mogote, considered to be the origin of this civilization. Its grand city of Monte Alban ("MON-tay AHL-bahn") features courts for playing ball game.
ANSWER: **Zapotec** civilization [or **Zapotec**s]
<World History>

6. This novel begins: "The author assures the reader that he will not have to die if he reads this book." For 10 points each:
[10h] Name this Serbian novel by Milorad Pavić ("PA-veech"), which comes in "male" and "female" versions that differ in one crucial passage. It purportedly consists of three encyclopedias, one for each Abrahamic religion.
ANSWER: *Dictionary of the Khazars* [or *Dictionary of the Khazars*: *A Lexicon Novel*; or *Hazarski rečnik*]
[10m] In this other Serbian novel by Ivo Andrić ("EE-voh AHN-drich"), a man has his ear nailed to the title structure, which Mehmed Paša Sokolović builds on the place he was taken from his mother.
ANSWER: The *Bridge on the Drina* [or Na *Drini ćuprija*]
[10e] In *The Bridge on the Drina*, Mehmed is forced to convert from Christianity to this faith, which names the middle part of *Dictionary of the Khazars*. The central family in *Palace Walk* and *Sugar Street* practices this religion.
ANSWER: **Islam** [or **Muslim**s; accept specific answers like **Shia** or **Sunni** Islam]
<European Literature>

7. Name some things related to musical settings of the Latin text "Lux aeterna." For 10 points each:
[10e] A *Lux Aeterna* section is sometimes included in this type of work, which sets to music a liturgy for the dead. Johannes Brahms wrote a "German" one of these pieces.
ANSWER: **requiem** [or **requiem** mass; accept *A German **Requiem***]
[10m] This composer used micropolyphony in his *Lux Aeterna*. He also wrote a set of piano pieces called *Musica Ricercata* ("ree-chair-KA-ta"), whose first movement consists almost exclusively of the pitch "A."
ANSWER: György **Ligeti** ("JURJ LIG-uh-tee")
[10h] Another *Lux Aeterna* was written by American composer Morton Lauridsen, who is better known for this motet with a text describing Christ's Nativity. Tomás Luis de Victoria also wrote a motet with this title.
ANSWER: "**O Magnum Mysterium**" [or "**O Great Mystery**"]
<Classical Music>

8. Some of these statues instructed travelers to "think just thoughts" and "not deceive a friend." For 10 points each:
[10h] Name these pillars that were capped by a bust and, if male, given genitals. Unknown culprits, perhaps from a *hetaireia*, defaced these sacred statues just before an important campaign, scaring the superstitious populace.
ANSWER: **herm**s [or ***hermai**; or **herma**; or **hermes**; accept "mutilation of the **herms**"]
[10m] The herms were mutilated shortly before this campaign, which eventually resulted in the recall of Alcibiades, its primary advocate and leader. Command was then given to Nicias, who had opposed this campaign from the start.
ANSWER: **Sicilian Expedition** [accept, but DO NOT REVEAL, **Athens's campaign in Sicily** during the Peloponnesian War, or equivalents; prompt on Siege of Syracuse]
[10e] The Sicilian Expedition occurred during this war. In this war, Sparta and its allies defeated the forces of the Delian League, which was led by Athens.
ANSWER: Second **Peloponnesian** War [do not accept or prompt on "First Peloponnesian War"]
<Other History>

9. This prophet has the same name as another prophet who was "murdered between the sanctuary and the altar" by King Jehoash of Judah. For 10 points each:
[10h] Name this eleventh minor prophet, whose namesake book predicts Christ's entry into Jerusalem on a donkey. A priest with the same name became mute due to his disbelief towards a prophecy foretelling his wife's pregnancy.
ANSWER: **Zechariah** [or **Zachariah** or **Zachary** or **Zacharias**; accept **Zechariah ben Johoiada**]
[10e] Zechariah was also the name of the father of this cousin of Jesus, who baptized Christ in the Jordan River.
ANSWER: **John the Baptist** [prompt on John]
[10m] Yet another Biblical figure named Zechariah was the son of King Jeroboam, who created two of these objects at Bethel and Dan. Earlier, Moses forced the Israelites to drink the powdered remains of one of these objects.
ANSWER: **golden calf** [or **golden calves**; prompt on calf or calves; prompt on idols or statues]
<Religion>

10. In simultaneous thermal analysis, this technique is paired with thermogravimetric ("thermo-gravi-metric") analysis, also known as TGA. For 10 points each:
[10m] Name this technique that linearly increases the temperature of both a reference material and a sample, measuring the disparity in heat capacity between them.
ANSWER: **differential scanning calorimetry** [or **DSC**; prompt on calorimetry]
[10e] Differential scanning calorimetry can measure properties like enthalpy of vaporization, making it useful for detecting these phenomena. These general physical phenomena include melting and freezing.
ANSWER: **phase transition**s [or **phase change**s; or **state change**s; prompt on partial answer]
[10h] DSC has two main types: heat-flux DSC, in which one furnace heats both the sample and the reference, and a type in which this quantity is "compensated" between separate sample and reference furnaces.
ANSWER: **power** [accept **power**-compensated DSC or **power**-compensation DSC]
<Chemistry>

11. This author wrote "I saw a man pursuing the horizon" in a poetry collection that he intended to be published in all capital letters. For 10 points each:
[10m] Name this author who wrote about a creature eating his heart "because it is bitter / And because it is my heart" in that collection. This author also wrote "Do not weep, maiden, for war is kind."
ANSWER: Stephen **Crane** (The collection is *The Black Riders*.)
[10h] In this 560-page poem, all caps are used to represent lines like "IF… U GIVE ME… HA HA YR SOULS" from the voices of spirits like Ephraim, Mirabell, and "God B" speaking to "DJ" and "JM."
ANSWER: *The **Changing Light at Sandover*** [prompt on "Voices from the Other World" or "The Book of Ephraim" or *Divine Comedies* or *Mirabell: Books of Number* or *Scripts for the Pageant* by asking "which larger work were they part of?"] (by James Merrill)

[10e] This Imagist author repeatedly capitalized the word "USURA" in an antisemitic section of his modernist epic, *The Cantos*.
ANSWER: Ezra **Pound**
<American Literature>

12. In a Los Angeles Opera staging of this work, dancers in suspenders stand on scaffolding in front of LED circles. For 10 points each:
[10m] Name this opera in which lines like "These are the days my friends" intersperse a chorus of counting numbers. A bus driver narrates a story of love at the end of one of this opera's five "Knee Plays."
ANSWER: ***Einstein on the Beach***
[10e] *Einstein on the Beach* was written by this American composer of the operas *Satyagraha* and *Akhnaten*.
ANSWER: Philip **Glass**
[10h] In a one-person Philip Glass opera titled for "1000 Airplanes" in one of these locations, the narrator describes meeting aliens. A Brazilian-influenced ballet by Darius Milhaud ("dar-YOOS mee-YO") is titled for a certain farm animal in this location.
ANSWER: on the **roof** [or equivalents; accept *1000 Airplanes On the **Roof***; accept *The Ox on the **Roof**: The Nothing-Doing Bar* or *Le bœuf sur le **toit**]
<Other Arts (Auditory)>

13. A leader of this country attempted to make it the "happiest barrack in Europe" through his implementation of Goulash Communism. For 10 points each:
[10e] Name this country. At the end of communist rule in this country, Imre Nagy ("EEM-ray NAWJ"), who had fought for democracy in this country in 1956, was reburied.
ANSWER: **Hungary** [or People's Republic of **Hungary**; or ***Magyarorszag***]
[10h] Hungarian communism ended following one of these events in which Hungarians and East Germans charged a fence on the Austrian border. Gyula Horn cut that fence during the "Pan-European" one of these events in 1989.
ANSWER: **picnic**s [accept Pan-European **Picnic**]
[10m] After the picnic, democracy came about through one of these orderly discussions in 1989. The Hungarian version of these events were inspired by ones organized by Solidarity in Poland.
ANSWER: **Round Table** Talks [or **Round Table** Agreements]
<European History>

14. Mobile particles from these substances coat the surface of their container, leaving behind a thin "sheath." For 10 points each:
[10m] Name this type of substance. Ignoring thermal effects, electron oscillations in this substance give their name to a frequency equal to [read slowly] the square root of "$e$-squared $n$ over epsilon-naught times $m$-sub-$e$."
ANSWER: **plasma** [accept **plasma** oscillations or **plasma** frequency]
[10e] The aforementioned sheath, and the length scale on which plasmas screen out charge imbalances, are both named for this Dutch physicist. He also gives his name to a common unit of electric dipole moment.
ANSWER: Peter **Debye** ("duh-BYE") [or Peter Joseph William **Debye**; accept **Debye** sheath or **Debye** length]
[10h] By the Bohm sheath criterion, ions entering a Debye sheath have a speed greater than a limit that depends only on Boltzmann's constant $k$, the temperature $T$, and the ion mass $m$. Give that limit, in terms of $k$, $T$, and $m$.
ANSWER: **square root** of "***kT* over *m***" [or "***kT* over *m***" all to the **one-half power**; or equivalents of $\sqrt{(kT/m)}$; accept answers with ***k* times *T*** in place of "$kT$"; accept answers with **divided by** or **upon** in place of "over"]
<Physics>

15. This horse is described with a body "bright and dappled as though flecked with petals of red roses on saffron," and a price of "Iran itself." For 10 points each:

[10h] Name this horse who kills a lion during the first of seven trials in the course of defeating Div-e-Sepid ("DEEV-eh-seh-PEED"). This horse perishes alongside his master due to Shaghad's treachery.
ANSWER: **Rakhsh**
[10m] This hero tames Rakhsh and continually rescues Kay Kavus ("kai ka-VOOSE"). This hero meets Princess Tahmina when Rakhsh disappears on a hunting trip, and belatedly recognizes the bracelet he left with Tahmina after breaking a hero's back.
ANSWER: **Rostam** [or **Rustam**] (Rostam recognizes the bracelet after killing his son, Sohrab.)
[10e] Rakhsh and Rostam appear in this national epic of Iran, written by Ferdowsi.
ANSWER: ***Shahnameh*** [or the ***Book of Kings***]
<Mythology>

16. At the end of the play *Present Laughter*, Garry tells Liz "You're not coming back to me, dear, I'm coming back to you" before the two of them do this action. For 10 points each:
[10h] Name this action that characters do at the end of several comedies by a certain playwright. At the end of another such play, Amanda and Elyot do this action as their respective spouses argue violently with each other.
ANSWER: **tiptoe**ing offstage [or **creep**ing offstage; or **leaving** the stage **quietly**; or equivalents; prompt on exiting the stage or equivalents]
[10m] This author of *Present Laughter* and *Private Lives* often ended his plays by having characters tiptoe away from a chaotic situation. In a play by this author, Madame Arcati summons Charles's dead wife Elvira at a séance ("SAY-once").
ANSWER: Noël **Coward** (The play is *Blithe Spirit*.)
[10e] Coward's play *Blithe Spirit* set the record for the longest-ever run at the West End, a record that has since been broken by this author's play *The Mousetrap*. This author also wrote *And Then There Were None*.
ANSWER: Agatha **Christie**
<British Literature>

17. Canova supposedly claimed he would give ten years of his life to have sculpted Christ with one of these objects, which Giuseppe Sanmartino created, allegedly through alchemy, for the Sansevero Chapel. For 10 points each:
[10h] Name these objects. Antonio Corradini's sculpture of a woman wearing one of these objects for the chapel might refer to a metaphorical one, for which Pierre Hadot ("ah-DOH") titled an essay "On the History of the Idea of Nature."
ANSWER: **veil** [accept ***Veil**ed Christ* or the **Veil** of Isis; accept **shroud**] (Corradini's *Modesty* also stands in the Sansevero Chapel; a woman wearing the "Veil of Isis" is often used as a visual metaphor for Nature.)
[10m] The Risorgimento was allegorized by veiled women in sculpture, as well as paintings of this action at the foot of some stairs by Francesco Hayez. Proto-Cubist limestone blocks depict this action in another work.
ANSWER: **kiss**ing [accept *The **Kiss*** or *Il **Bacio*** or *Le **Baiser***] (See Pietro Rossi and Raffaelle Monti's veiled women; the last clue refers to Brâncuşi's *The Kiss*.)
[10e] This Baroque sculptor created *Truth Unveiled by Time* after he was blamed for cracks in a pair of towers. His *Ecstasy of St. Teresa* features a backdrop of gilded rays.
ANSWER: Gian Lorenzo **Bernini**
<Painting/Sculpture>

18. Answer the following about various structures named Stone Bridge, for 10 points each.

[10e] Stone Bridge was a site of fierce fighting during this first major battle of the Civil War. Barnard Bee gave Thomas Jackson the nickname "Stonewall" during this battle.
ANSWER: **First** Battle of **Bull Run** [or **First** Battle of **Manassas**; prompt on Battle of Bull Run or Manassas; do not accept or prompt on "Second Battle of Bull Run" or "Second Battle of Manassas"]
[10m] At least 80 people were killed when the Stone Bridge caught on fire during this disaster. Because Philander Knox argued that this disaster was an Act of God, the South Fork Fishing and Hunting Club paid no damages.
ANSWER: **Johnstown Flood** [or **Great Flood of 1889**]
[10h] In a major logistical feat, Henry Knox led an artillery train, famously described by this adjective, over Stone's Bridge while hauling guns from Fort Ticonderoga to Boston.
ANSWER: **noble** [accept Henry Knox's "**noble** train of artillery"]
<American History>

19. After measuring the near-zero parallax of several stars, this astronomer concluded that either the stars were very far away, which he deemed impossible, or the Earth was stationary. For 10 points each:
[10e] Name this Danish astronomer. Johannes Kepler used data from this man's Uraniborg observatory to arrive at more accurate conclusions about planetary motion.
ANSWER: Tycho **Brahe** [or Tyge Ottesen **Brahe**]
[10m] In the 1990s, the *Hipparcos* space telescope made the first large-scale survey of stellar parallaxes. This successor to *Hipparcos* offers vastly improved resolution, reporting parallaxes to within 7 microarcseconds ("micro-arc-seconds").
ANSWER: *Gaia*
[10h] To compute parallaxes, one must align a star field with positions in a star catalogue, a task sometimes named for "solving" these physical objects. Blink comparators once allowed users to visually compare two of these things.
ANSWER: photographic **plate**s [or glass **plate**s; accept **plate** solving; prompt on photographs or negatives; do not accept or prompt on "photographic film"]
<Other Science (Astronomy)>

20. In 1968, this engineer demonstrated GUI ("GOO-ee") windows, video conferencing, hypertext, and collaborative real-time editing in his "Mother of All Demos," using his most famous invention. For 10 points each:
[10h] Name this human–computer interaction engineer who invented the computer mouse.
ANSWER: Douglas **Engelbart**
[10m] Typing the "lo" in "login" crashed the first demo of ARPANET, which adopted this transport-layer protocol on "flag day." This protocol is more robust than UDP and uses a three-way handshake with SYN ("sin") and ACK ("ack") flags.
ANSWER: **TCP** [or **Transmission Control Protocol**; accept **TCP/IP**]
[10e] In probably the most embarrassing tech demo ever, this founder of Microsoft triggered the Blue Screen of Death while attempting to show off Windows 98.
ANSWER: Bill **Gates** [or William Henry **Gates** III]
<CE/Geo/Other/Pop Culture>