1. **This leader befriended Tomochichi, the chieftain of the Yamacraw tribe, whose warriors helped this man at Gully Hole Creek after a voyage on the ship *Ann*. After the death by smallpox of his friend Edward Castell, this man worked with the Earl of Egmont in a group of twenty-one Trustees to co-found a place to which he** (*) physically brought the Methodists John and Charles Wesley for a brief voyage. This man led an attack against St. Augustine during the War of Jenkins' Ear, during which he won the Battle of Bloody Marsh against the Spanish. He established a layout of square "wards" and banned rum in a settlement intended for the resettlement of debtors' prisons. For 10 points, name this founder of Savannah and the Georgia colony.
ANSWER: James Edward **Oglethorpe**

<Bentley>

2. **In this painting, a harpist and two other musicians sit to the left of a figure in yellow who holds some keys. The parish priest who commissioned it may be the figure in the white translucent gown with his back to the viewer in its bottom right. The artist's signature can be found on the handkerchief of a young boy, who was modeled after the artist's own illegitimate son. A kneeling** (*) John the Baptist looks up towards Jesus while Mary, seated across from him, stares down at this painting's title figure. That title figure is supported by the elaborately-robed Saints Augustine and Stephen. This work is located in the Church of Santo Tome in Toledo. For 10 points, name this El Greco masterpiece where the title nobleman dies and is welcomed into Heaven.
ANSWER: *The **Funeral** of the Count of **Orgaz*** [or *The **Burial** of the Count of **Orgaz***]

<Bentley>

3. **The first completely automated type of this device was invented by the creator of the "Digesting Duck," Jacques Vaucanson. Users of these devices in Lyon in the 1830s began the Canut revolts. Before computers, Joseph Jacquard designed one of these devices which inspired Charles Babbage's idea for an "analytical engine" programmed with punch cards. John Kay's improvement to this device meant only one person was needed to operate it, and Edward** (*) Cartwright sold his version of this machine to manufacturers in Manchester. The Frame Breaking Act also made violence against these objects illegal. The flying shuttle improved these machines, which unemployed men destroyed in the Luddite uprisings. For 10 points, name these machines used for weaving textiles.
ANSWER: **loom**s [or power **loom**s; accept **frame** looms until "Frame Breaking" is read]

<Bailey>

4. **The title character of one of this man's novels hears a woman he names Goneril convince Captain Steerforth to kill a man while aboard the *SS Caliban*. The protagonist of another of his works refuses to divorce Brenda so he need not sell Hetton Abbey. In that novel by this man, a trip to South America results in Tony** (*) Last being captured and forced to read Dickens aloud. This author of the *The Ordeal of Gilbert Pinfold* created an alcoholic son of the Marquis of Marchmain who tries to join a monastery in Carthage. That novel by this man focuses on Sebastian Flyte, who befriends the narrator, a painter named Charles Ryder. For 10 points, name this British author of *A Handful of Dust* and *Brideshead Revisited*.
ANSWER: Evelyn **Waugh** [or Arthur Evelyn St. John **Waugh**]

<Bentley>

5. A person with this status is obliged to fast on the Fourteenth of Nisan in Judaism. Another Jewish rite named for these people takes place 31 days after birth and requires that five shekels be given to a *kohein* for their sake; that ritual is the "Redemption" of a person with this status. (*) Reuben loses the rights of this status by sleeping with Rachel's maid, Bilhah. The Book of Genesis notes that Jacob gained his name by clutching at a rival's heel to try and gain this status. Jews with this status were protected from death by lamb's blood painted on their doors in Egypt. For 10 points, identify this status of the Egyptian children killed by the angel of death during the Tenth Plague.

ANSWER: **firstborn** son [or equivalents, such as the **first male child**; prompt on **son**s]

<Bollinger>

6. A combination of two earlier models of this thing that incorporates vibration and rotation is the so-called collective model. A correction term in a formula for these things adds or subtracts a term equal to 11.18 MeV over A to the one-half for even-even and odd-odd types of them, respectively. That formula, developed by Carl Friedrich von Weizsaecker, incorporates empirical data and assumes that this thing behaves as an incompressible liquid drop, and is used to calculate the binding energy of these things, which is the energy needed to (*) split them into multiple parts. These things are more stable when their constituents are present in so-called "magic numbers". Its existence was confirmed by the results of the gold foil experiment. For 10 points, what part of the atom consists of protons and neutrons?

ANSWER: atomic **nuclei** [or atomic **nucleus**; prompt on **atom**s]

<Voight>

7. The second movement of Khachaturian's *Masquerade Suite* is one of these pieces, as is the Elgar-inspired first movement of Shostakovich's first violin concerto. It's not a serenade, but Benjamin Britten dedicated a song cycle for tenor, seven instruments, and strings named for this genre to Alma Mahler. Another composition of this type for wordless female choir and orchestra, whose movements are titled (*) "Clouds", "Festivals", and "Sirens" and were inspired by Whistler paintings, was composed by Claude Debussy. Piano pieces of this type were first composed by John Field, whose work inspired a set of 21 of these pieces composed by Frederic Chopin. For 10 points, name this type of musical composition that depicts nighttime.

ANSWER: **nocturne**s

<Lee>

8. Llinas and Nicholson found that, in alligators, cells in this structure have dendritic spikes originating from a massive, 2D dendritic arbor. The red nuclei receive signals from the motor cortex and this part of the brain. Damage to this structure is checked with the vestibuloocular reflex. Signals from it originate in its vestibular, fastigial, intersposed, and dentate nuclei, known collectively as its (*) deep nuclei. Like the hippocampus, this part of the brain receives signals from mossy fibers. Its cortex is comprised of Purkinje cells. This structure sits behind the pons. For 10 points, name this part of the brain important for balance and motor control, whose name means "little brain."

ANSWER: **cerebellum**

<Lee>

9. **A poem written in this language begins with a word meaning either "on a many-colored throne" or "of a many-colored mind". Another poem in this language claims "the fox knows many things, but the hedgehog knows one big thing". A third poem in this language ends with a force of crabs preventing the annihilation of frogs by mice, and is attributed to an author who began another of his poems with the word** (*) "rage". That poem in this language includes an ekphrasis about a shield in its 18th book. The Five Ages of Man are related in *Works and Days*, a didactic poem written in this language by the author of *Theogony*. For 10 points, name this language in which the "Hymn to Aphrodite" was written by Sappho, and which was also used by Hesiod and Homer.
ANSWER: Ancient **Greek** [or **Koine** Greek]

<Jose>

10. **This country teaches preschool, primary, and secondary school students in three different languages, respectively, with the first used being a Germanic language that shares its name with this country and has nine different pronunciations for the letter "g." This country, whose population is almost twenty percent immigrants from Portugal, is divided into Oesling and Gutland regions, and is separated by the Sauer, Our, and** (*) Moselle rivers from Germany. This smallest founding member of the European Economic Community is a constitutional monarchy headed by Democratic Party prime minister Xavier Bettel and Grand Duke Henri. For 10 points, name this country which makes up a longstanding economic union with Belgium and the Netherlands.
ANSWER: Grand Duchy of **Luxembourg**

<Weiner>

11. **These people ruled during the life of Yunus Emre, a key poet for their language. According to Edward Gibbon, one of their leaders died trying to fire an arrow as his foot slipped, letting a Khwarezmian stab him. Their rulers used a book on governance whose writer, eventually assassinated by the original Assassins, was the vizier Nizam al-Mulk. These victors at Dandanaqan refounded the city of Konya, where they let the new Mevlevi order of** (*) whirling dervishes grow. Decades after Tugrul led them, these Sunni Muslims defeated Romanus IV Diogenes' Byzantines under the command of Alp Arslan at Manzikert. For 10 points, name these semi-nomadic people who settled the Middle East and Anatolia in the 11th century, before the Ottomans supplanted them.
ANSWER: **Seljuk** Turks [or **Seljuk** Sultanate, empire, etc.; prompt on "Turks"; prompt on "Sultantate of Rum"]

<Jackson>

12. **This hero's wife murdered his illegitimate son Chrysippus, the lover of the Theban king Laius. A lover of Poseidon, he married his daughter Eurydice to Perseus' son Electryon. This man passed a curse on to the House of Atreus because he treacherously hurled a son of Hermes off a cliff. This king of Pisa won** (*) Hippodamia's hand by having Myrtilus rig a chariot race against King Oenomaus. The Olympians gave this man an ivory shoulder after re-attaching the body parts cooked into a meal by his father. For 10 points, name this son of Tantalus who legendarily lent his name to the peninsula containing Sparta.
ANSWER: **Pelops**

<Bollinger>

13. **A character in this work, who owes another twelve dollars, gives him thirty-two instead but is aghast to return the next day to find the money untaken. The narrator of this work loves to repeat the name of the late John Jacob Astor and pays off the grub-man at the Tombs to procure his friend dinner. The subject of this story supposedly once worked in the (*)** Dead Letter Office, and this story ends with a lawyer exclaiming "Ah, humanity!" The narrator of this story employs Turkey and Nippers in addition to the title character, who repeats that he "would prefer not to" do anything. For 10 points, identify this short story about a lazy copyist by Herman Melville.
ANSWER: "**Bartleby, the Scrivener**: A Story of Wall Street"

<Gerr>

14. **In this country, inventive uses for a commonly-used fencing material led to a saying about its so-called "Number 8 wire" mentality. The first Standardbred horse to win a million dollars, Cardigan Bay, was from this country, whose indigenous art often features symbols representing uncurling silver ferns. In 1893, it became the first modern country to enact female suffrage. Highly-regarded (*)** Sauvignon Blanc is produced in the Marlborough region of this country. A 2011 earthquake in this country caused a period of "Marmageddon", in which locally-made Marmite was temporarily unavailable. Its non-native settlers are referred to as "Pakeha." For 10 points, name this country whose inhabitants are known as "Kiwis."
ANSWER: **New Zealand** [or **Aotearoa**]

<Carson>

15. **Because this compound has a quadrupole but no dipole moment, it forms the prototypical system for T-stacking in solution. In a Frost circle, this compound's HOMO has energy "alpha plus beta". This compound can be used as an entrainer to break the ethanol-water azeotrope because it forms a ternary azeotrope at 64.9 degrees Celsius. This compound, which has an index of hydrogen deficiency of (*)** 4, is the main target of EAS reactions. In line notation, a circle is drawn inside of this compound to indicate resonance. A phenyl group is this compound without a hydrogen atom. Because it is planar and has six pi electrons, it is the simplest neutral aromatic compound. For 10 points, name this compound drawn as a hexagon with three double bonds, with formula C6H6.
ANSWER: **benzene** [or **C6H6** before it is read]

<Silverman>

16. **At one point in this novel, the protagonist curses a servant named Acte for breaking "the magic of enchantment" while he is calling a woman "my divinity." In this book, Crispus says a woman's soul has been poisoned for pursuing an earthly love. The protagonist hires a traitorous charlatan named Chilon Chilonides to find a woman, and a female character in this novel has a "noble savage"-type giant bodyguard named (*)** Ursus. That female lead is the daughter of a barbarian king who is hated by the cruel Poppaea, the wife of an incompetent ruler. The main characters of this novel are Ligia, a Christian, and her lover, a Roman patrician named Marcus Vicinius. For 10 points, name this Henryk Sinkiewicz novel set during the reign of Nero.
ANSWER: *Quo Vadis: A Narrative of the Time of Nero*

<Cheyne>

17. **Nicholas Mackintosh's predictions about attentional changes in this phenomenon were contradicted by the Pearce-Hall model. Kamin blocking, which inhibits this phenomenon, can be explained with the Rescorla-Wagner model of it. Latent inhibition limits the efficacy of this phenomenon, whose second-order variety involves three cognitive steps. An experiment co-led by Rosalie Raynor showed how it often causes (*)** stimulus generalization. This method of learning was demonstrated in an experiment where a loud noise led a baby to fear all white, furry objects. John Watson's "Little Albert" experiment echoed one in which dogs were taught to drool at the ring of a bell via this phenomenon. For 10 points, name this psychological phenomenon discovered by Ivan Pavlov.
ANSWER: **classical conditioning** [accept **Pavlovian conditioning** until "Pavlov"; prompt on **conditioning**]

<Kothari>

18. **The first person to observe these structures was the Third Earl of Rosse, who sketched them after using the Leviathan of Parsontown. Depending on how well-defined they are, they can be classified as "grand design" or "flocculent". Vera Rubin examined numerous HII regions in these objects to conclude that they must be held by dark matter to explain their rotation. Although not Saturn's rings, density wave theory can be invoked to explain their rotation. These objects may be found on the (*)** tines, but not the base, of Hubble's tuning fork diagram. They are classified as "barred" if a strip of stars lines their center. For 10 points, name this type of galaxy of which the Milky Way is an example.
ANSWER: **spiral** galaxies [prompt on **galaxies**]

<Jose>

19. **A pope of this name organized a multinational crushed by Humphrey of Hauteville and Robert Guiscard at the battle of Civitate. A later pope of this name liked parading around on his pet white elephant Hanno. This papal name was shared by a man who invoked the Donation of Constantine in a letter to the Patriarch of Constantinople, touching off the East-West Schism, and a pontiff who discussed the plight of the working class in the (*)** 1891 encyclical *Rerum Novarum*. This name's tenth papal holder, who was once named Giovanni Medici, issued *Exsurge Domine* in response to the *95 Theses,* while the third such pope crowned Charlemagne "King of the Romans." For 10 points, give this papal name whose first possessor persuaded Attila to spare Italy.
ANSWER: **Leo**

<Gupta>

20. **The heroine of this opera instructs her servant to extinguish a torch as a signal that it is safe for another character to approach. The prelude to this opera begins with a pianissimo passage in the cellos that is often called the "grief", "longing", or "suffering" motif. Kurwenal and Melot are both killed in its third act, which takes place at Kareol in (*)** Brittany. The prelude to its first act introduces a chord made of the notes F, B, G sharp, and D-sharp, which is often named after its male protagonist. It closes with the singing of the "Liebestod" aria by the heroine, an Irish maid who was kidnapped as a bride for King Marke. For 10 points, name this opera whose two title characters fall in love after drinking a magic potion, a work of Richard Wagner.
ANSWER: *Tristan and Isolde* [or *Tristan und Isolde*; or *Tristan and Isolda*; or *Tristran and Ysolt*]

<Rosenberg>

21. **In one poem, this author imagines an activity that is "good both going and coming back" and envisions a boy "too far from town to learn baseball" who "one by one" "subdued his father's trees." Trees that "bend to left and right" cause this author to imagine that "some boy's been swinging them." This poet offered a definition of home as "the place where, when you have to go there, They have to take you in" in a poem in which** (*) Mary and Warren discuss the return and demise of the farm hand Silas. This author described holding a pane of ice "against the world of hoary grass" in "After Apple-Picking." For 10 points, name this poet of "The Death of the Hired Man" and "Birches" who claimed "Good fences make good neighbors" in "Mending Wall."
ANSWER: Robert Lee **Frost**

<Mehigan>

22. **The pathogen causing this disease has a polypeptide, rather than polysaccharide, capsule made of glutamic acid. That pathogen secretes a cell-binding protein called the protective antigen, an adenylate cyclase called the edema factor, and a matrix metalloproteinase called the lethal factor. Jean Joseph Toussaint made a vaccine against this disease with potassium dichromate. The (*)** Ames strain causes this disease. It comes in pulmonary, gastrointestinal, and cutaneous types. The germ theory of disease was proven when Louis Pasteur cultured this disease's causative agent, a member of *Bacillus* first discovered by Robert Koch. It produces long-lasting endospores. For 10 points, name this disease, which was spread through bioterrorist attacks in 2001.
ANSWER: **anthrax**

<Lee>

23. **As part of this work's namesake "mania," over 500,000 British women signed the Stafford House address to its author. Caroline Lee Hentz wrote about a "bride" in response to this work, which also inspired *The Sword and the Distaff* by William Gilmore Simms. This work was spurred by legislation challenged in *Ableman v. Booth*, the so-called "Bloodhound law", and drew on its author's experience teaching in Cincinnati. It probably inspired Stephen (*)** Foster's "My Old Kentucky Home," which accompanied hugely popular minstrel shows adapting this work. When visiting the White House, its author was apocryphally called "the little lady who made this big war." For 10 points, name this 1852 novel featuring Topsy and other slaves, by Harriet Beecher Stowe.
ANSWER: ***Uncle Tom's Cabin***, or *Life Among the Lowly*

<Ray>

24. **Using a primitive polynomial, this type of output can be obtained from a linear feedback shift register. An algorithm that produces an output with this property has a period of 2 to the 19,937th power minus one. Running this kind of quicksort can bound the worst-case runtime against malicious inputs. This kind of output is produced by the Mersenne Twister, and it is often necessary to "seed" functions that produce this type of output when using said functions. These kinds of inputs are necessary to perform (*)** Monte Carlo algorithms, and this kind of process can be modeled using a Markov chain. The N in NP describes this type of polynomial. For 10 points, name this synonym of nondeterministic that describes numbers with no predictable pattern.
ANSWER: pseudo**random**ness [or **nondeterministic** until it is read]

<Jose>

1. The number of these devices in an integrated circuit doubles approximately two years according to Moore's law. For 10 points each:

[10] Name these semiconductor devices that underlie most modern electronics, coming in BJT and - more commonly - MOSFET varieties.

ANSWER: **transistor**s

[10] The first working transistor was made from this polycrystalline semiconductor found below silicon on the periodic table.

ANSWER: **germanium** [or **Ge**]

[10] Schottky diodes consist of a junction between this type of material and a semiconductor. Matching the work function of this material to the underlying semiconductor forms an ohmic contact.

ANSWER: **metal** [prompt on **conductor**]

<Voight>

2. Ornate dragon heads at the front of these vehicles were used to blow out a sulfurous smoke. For 10 points each:

[10] Name these large boats with heavily armored roofs over the deck, commissioned by Admiral Yi Sun-Sin under the Joseon dynasty.

ANSWER: **turtle ship**s [or **geobukseon**]

[10] Turtle ships defended this peninsula from an attempted Japanese invasion by Toyotomi Hideyoshi. It is now divided at the 38th parallel.

ANSWER: **Korea**n peninsula

[10] This fourth emperor of the Joseon dynasty is credited with developing the phonetic Hangul writing system in the 1400s, though *yangban* elites resisted the change.

ANSWER: **Sejong** the Great

<Jackson>

3. This is the woman Jacob intends to marry in the Book of Genesis. For 10 points each:

[10] Name this woman whose older sister is substituted for her the first time Jacob gets married. She later marries Jacob and has two sons.

ANSWER: **Rachel**

[10] This was Rachel's first son. His half-brothers sell him into slavery after taking his colorful coat.

ANSWER: **Joseph**

[10] When Joseph's half-brothers came to Egypt, he tested them by planting one of these objects in his brother Benjamin's sack.

ANSWER: silver **cup**

<Reinstein>

4. A report from the first Roberts Commission helped build support for this practice, for which facilities such as Manzanar were built. For 10 points each:
[10] Name this American policy during World War II, which began after Executive Order 9066 and relocated over a hundred thousand people without trial.
ANSWER: **Japanese**-American **internment** camps [accept equivalent answers indicating that people of **Japanese** ethnicity within America were **intern**ed during World War II]
[10] The ruling in this Supreme Court case upheld the constitutionality of Japanese internment. It was brought by a florist with given name Fred.
ANSWER: _**Korematsu** v. United States_ [or _United States v. **Korematsu**_]
[10] The _Korematsu_ ruling argued that interment met this strongest threshold of judicial review, which is often applied in discrimination cases rather than the weaker rational-basis standard.
ANSWER: **strict scrutiny**

<Nutter>

5. Answer the following about modern French drama, for 10 points each.
[10] This philosopher updated the _Oresteia_ in his play _The Flies_ and imagined Hugo Barine assassinating the Illyrian Hoederer in _Dirty Hands_. His play _No Exit_ contains the proclamation "Hell is other people!"
ANSWER: Jean-Paul Charles Aymard **Sartre**
[10] Though he wrote a romantic adventure entitled _Chantecler_, which follows the exploits of a Gallic rooster, this playwright is better known for writing about a long-nosed knight, an epitome of panache, who secretly writes letters and loves Roxane.
ANSWER: Edmond Eugène Alexis **Rostand**
[10] The early absurdist playwright Alfred Jarry wrote a series plays about Ubu, the insane king of this nation. In Pedro Calderon de la Barca's play _Life is a Dream_, the king of this nation, Basilio, imprisons his son in a tower.
ANSWER: **Poland** [or Republic of **Poland**; or Rzeczpospolita **Polska**; or **Polonia**; or **Pologne**]

<Jose>

6. Identify the following regarding Leonardo da Vinci paintings, for 10 points each.
[10] In this fresco in the refectory of Santa Maria della Grazie, the twelve apostles form four groups of three flanking Jesus, who sits at the center of a long table.
ANSWER: _The **Last Supper**_ [or _Il **Cenacolo**_; or _L'**Ultima Cena**_]
[10] The faces of the figures in Leonardo's _Madonna of the Rocks_ display this subtle blending of tones to provide definition without abrupt outlines, which is also prominent in the _Mona Lisa_. It takes its name from an Italian word meaning "to evaporate like smoke".
ANSWER: **sfumato**
[10] Leonardo's portrait of Ludovico Sforza's mistress Cecilia Gallerani depicts her cradling one of these white animals in her left arm and stroking it with her right.
ANSWER: an **ermine** [or a **stoat**; or _Lady with an **Ermine**_]

<Jose>

7. ASHRAE names refrigerants based on the number of atoms of carbon, hydrogen, and this element. For 10 points each:
[10] Name this element which has one of the highest reduction potentials. Unless bonded to itself as a diatomic gas, it always exists in a minus-one oxidation state.
ANSWER: **fluorine** [or **F**]
[10] Fluorine also has the highest value on the Periodic Table for this quantity. The difference in this quantity between two atoms determines a bond's polarity.
ANSWER: **electronegativity**
[10] According to Pearson's HSAB theory, a fluoride ion would be expected to be this kind of base, because it has a small atomic radius, high charge density, and low polarizability. A proton is an example of this kind of acid.
ANSWER: **hard** base [or word forms]

<Silverman>

8. A regent with this name known as the Chamberlain briefly ruled the Byzantine Empire after the death of John I, and a rightful emperor of this name founded the Macedonian dynasty in the 9th century. For 10 points each:
[10] Give this name. The second Byzantine emperor to hold this name was known as the Bulgar-Slayer after his vigorous campaigns in the Balkans.
ANSWER: **Basil** [or **Basil**eios]
[10] Basil I commissioned changes to this set of documents. Partially written by Tribonian, it was promulgated by the husband of Theodora to standardize judicial precedent across the empire.
ANSWER: **Justinian**'s legal **code** [or **Codex Justinianus**; or **Corpus Juris Civilis**; or **Body of Civil Law**; or **Digest**a seu Pandectae; or **Institute**s of **Justinian**]
[10] Basil II signed a truce with this Islamic dynasty, whose "mad caliph" al-Hakim ordered the razing of the Church of the Holy Sepulchre.
ANSWER: **Fatimid** caliphate

<Bentley>

9. The second movement of this work imitates the sound of a shepherd's dog. For 10 points each:
[10] Name this violin concerto in E major, whose opening movement depicts the singing of birds and a thunderstorm.
ANSWER: *Violin Concerto in E major, **Op. 8 No. 1** **RV 269**, "**La primavera**"* [or "**Spring**"; accept any underlined portion]
[10] "Spring" is the first of the *Four Seasons* violin concertos, which appear in this Italian Baroque composer's *The Contest Between Harmony and Invention*.
ANSWER: Antonio **Vivaldi**
[10] Vivaldi also composed a setting of this Catholic hymn about the Virgin Mary's sorrows during the crucifixion. Giovanni Battista Pergolesi wrote another famous setting of this hymn in 1736.
ANSWER: "**Stabat Mater**"

<Lawrence>

10. The annoying Aunt Norris suggests the adoption of this character by Lady Bertram. For 10 points each:
[10] Identify this character, who rivals Mary Crawford for the affections of Edmund while living at the estate of Mansfield Park.
ANSWER: **Fanny** **Price** [accept either underlined name]
[10] This other Jane Austen character is convinced by Lady Russell to dump the dashing Captain Wentworth, though she ultimately ends up with him anyway.
ANSWER: **Anne** **Elliot** [accept either]
[10] This title character of another Austen novel is an obnoxious wannabe matchmaker who interferes in the lives of many of her friends before eventually marrying George Knightley.
ANSWER: **Emma** **Woodhouse** [accept either]

<Schindler>

11. This location mostly encompassed a street named for Husein Gradascevic, who became known as "the Dragon" for resisting Mahmud II. For 10 points each:
[10] Identify this major boulevard in a European capital where signs reading "PAZI!" warned of constant danger during an extended siege by Serbs in the 1990s.
ANSWER: **Sniper**'s **Alley** [or **Ulica Zmaja od Bosne**; prompt on "Sarajevo"]
[10] Sarajevo was home to Sniper Alley during a war named for this republic. It suffered the Srebrenica massacre after it declared independence from Yugoslavia along with its constituent Herzegovina.
ANSWER: **Bosnia** [or **Bosnia**n War]
[10] The Bosnian War was ended by this agreement, signed at Wright-Patterson Air Force Base near its namesake U.S. city. Bosnia's copy of this agreement was embarrassingly lost in 2008.
ANSWER: **Dayton**-Paris agreement [or **Dayton** Accords; or **General Framework Agreement for Peace in Bosnia and Herzegovina**; prompt on "Paris Protocol"]

<Ray>

12. Answer the following about the work of Carl Runge, for 10 points each.
[10] Runge developed a method with Kutta for approximating the solutions to the "ordinary" variety of these equations, which relate a function and its derivatives.
ANSWER: ordinary **differential** equations
[10] With Laplace and Lenz, Runge gives his name to the LRL vector, which is conserved in all orbital problems involving this many bodies, which is an unsolved problem if another body is added. A common application is a binary star system.
ANSWER: **two** bodies
[10] Runge's theorem creates a sequence of rational functions which converge to a function of this type. These complex-valued functions are complex-differentiable at every point in their domain.
ANSWER: **holomorphic** functions [or **analytic** functions]

<Schindler>

13. In September 2013, the Moro National Liberation Front captured an island on this city as the Bangsamoro Republik. For 10 points each:

[10] Name this island, where the "sardine capital" of Zamboanga City was retaken by government forces at the end of the month.

ANSWER: **Mindanao**

[10] Mindanao is the southernmost island in this Asian country. The Malacañang Palace is the official residence of its President.

ANSWER: Republic of the **Philippines** [or Republika ng **Pilipinas**]

[10] Under this president of the Philippines, the government agreed to a peace deal with the Moro Islamic Liberation Front in January 2014. This member of the Liberal Party won the presidential election of 2010 over Joseph Estrada after the death of his mother.

ANSWER: Benigno Simeon Cojuangco **Aquino III** [or **Noynoy Aquino**; prompt on Benigno **Aquino**]

<Karas>

14. This work of art was originally created to be displayed with its figures' expressions at eye level, which caused consternation for its artist when it was placed on a pedestal in Parc Richelieu. For 10 points each:

[10] Name this sculpture which depicts Eustache de Saint Pierre and five other barefoot town leaders preparing to submit to Edward III's army.

ANSWER: The ***Burghers of Calais*** [or Les ***Bourgeois de Calais***]

[10] *The Burghers of Calais* was sculpted by this Frenchman, who created *The Kiss* and *The Thinker* for his Dante-inspired sculptural group *The Gates of Hell*.

ANSWER: Auguste **Rodin** [or François-Auguste-René **Rodin**]

[10] Rodin decided to make his *Saint John the Baptist Preaching* nearly seven feet tall to avoid accusations of this artistic offense, which had dogged his earlier sculpture *The Age of Bronze*.

ANSWER: casting from a **living model** [or **surmoulage**; or using plaster **cast**s from **life**; accept equivalents that express the idea of creating a cast using the body of the model rather than making an original sculpture]

<Carson>

15. The outputs of this process can be mathematically modeled using the Cobb-Douglass function. For 10 points each:

[10] Name this process of creating good. It is the economic opposite of consumption.

ANSWER: **production** [accept various word forms]

[10] This variable, sometimes denoted with a capital K, is one of the inputs in the Cobb-Douglass production function. This term refers to the factor of production that encompasses the durable goods needed to make a product.

ANSWER: **capital**

[10] If the alpha and beta parameters in the Cobb-Douglass production function sum to unity, then a firm does not possess this advantage. This term refers to the efficiency advantage of being able to increase the number of goods produced while reducing the individual cost per good.

ANSWER: **economies of scale** [accept increasing **returns to scale**]

<Jose>

16. Answer the following regarding poetry about quantitative study, for 10 points each.
[10] This American poet wrote that "Euclid alone has looked on Beauty bare" in one of her sonnets. In "First Fig," she described a candle burning at both ends "that may not last the night".
ANSWER: Edna St. Vincent **Millay**
[10] In this poem by Edgar Allen Poe, the title entity "alterest all things" with its "peering eyes." Poe accuses the subject of this poem of being a "Vulture, whose wings are dull realities."
ANSWER: "**Sonnet—To Science**"
[10] This poet was less impressed by the sciences, becoming "unaccountable tired and sick" after being shown "charts and diagrams" in his "When I Heard the Learn'd Astronomer". He also wrote "Crossing Brooklyn Ferry" and "A Noiseless Patient Spider."
ANSWER: Walt **Whitman** [or Walter **Whitman**]

<Gerr>

17. This goddess withdrew into a cave after her brother Susano'o hurled a flayed horse onto her loom. For 10 points each:
[10] Name this Shinto sun goddess.
ANSWER: **Amaterasu**
[10] One of Amaterasu's gifts to Ninigi was Yata no Kagami, one of these objects. Tezcatlipoca's name comes from the Nahuatl word for these objects.
ANSWER: **mirror**s [or smoking **mirror**]
[10] Amaterasu's story is part of the cycle of myths about this province, which also tells of how Ninigi took over the rule of this province from Okuninushi.
ANSWER: **Izumo** province

<Bollinger>

18. Matsugae Kiyoaki is reincarnated in different forms in novels by this author like *The Decay of the Angel* and *The Temple of Dawn*. For 10 points each:
[10] Identify this author of *The Sailor Who Fell from Grace with the Sea* and the *Sea of Fertility* tetralogy, who committed seppuku after leading a failed nationalist coup d'etat.
ANSWER: Yukio **Mishima** [or Kimitake **Hiraoka**; accept all names in either order]
[10] At the end of Mishima's *Temple of the Golden Pavilion*, Mizoguchi is inspired by a memory of the saying "When you meet the Buddha, kill the Buddha" to do *this* to the title building, after which he watches it happen from atop a hill while smoking a cigarette.
ANSWER: he **burn**s the temple down [or obvious equivalents, such as **arson**, or lighting the building on **fire**]
[10] Mizoguchi befriends this philosophizing clubfooted womanizer, a skilled shakuhachi player with whom he discusses the koan "Nansen Kills a Kitten".
ANSWER: **Kashiwagi**

<Bentley>

19. The first discovered example of one of these substances came with Alexander Fleming's observation that a fungi contaminant inhibited the growth of bacteria on a petri dish. For 10 points each:
[10] Name these substances, which inhibit the growth of bacteria or kill them altogether. They include the aforementioned penicillin and sulfonamides.
ANSWER: **antibiotic**s [or **antibacterial**s]
[10] Penicillin is this type of antibiotic, which are named for their contained namesake functional group, a cyclic amide. These antibiotics inhibit cell wall synthesis in Gram-positive bacteria.
ANSWER: **beta-lactam** antibiotics
[10] This other class of beta-lactam antibiotics has a six-member thiazine ring. They're prized for being more efficient and causing less side effects than penicillins, and the fifth generation of these drugs can kill methicillin-resistant *Staphylococcus*.
ANSWER: **cephalosporin**s

<Lee>

20. This man introduced the concept of "thick description" that Geertz later made infamous. For 10 points each:
[10] Name this American philosopher who argued that the Cartesian theory of mind was a "category mistake" and was like believing in a "ghost in the machine" in his book *The Concept of Mind*.
ANSWER: Gilbert **Ryle**
[10] Ryle's *The Concept of Mind* refutes this philosophical position championed by Descartes that argues that the mind is completely independent from the body.
ANSWER: **dualism**
[10] This thinker and novelist advanced an "argument from reason" for dualism in his theological work *Miracles*. This man also wrote *Mere Christianity*.
ANSWER: C.S. **Lewis** [or Clive Staples **Lewis**]

<Spencer>

21. Explorers called *zemleprokhodtsy* ventured into this region, where they discovered people such as the Yakut before it became a place to send political prisoners. For 10 points each:

[10] Name this region which Russia expanded into between 1600 and 1800. In the early 20th century, a railway was built across it to Vladivostok.

ANSWER: **Siberia**

[10] Trade in this good, which tribes gave Russia via the *yasak* tax, spurred the Siberian conquest. Concurrently, France established Montreal to trade with Native Americans for this good.

ANSWER: **fur** trade [accept answers specifically indicating the **fur** of beavers, sables, bears, polar bears, squirrels, weasels, or any other specific furry creature from Siberia]

[10] Under this tsar, the economic reforms of Sergei Witte used new methods of plowing to make Siberia productive. He also ruled during the rise of Peter Stolypin.

ANSWER: **Nicholas II** Romanov

<Jackson>

22. Lenina Crowne cajoles "a gramme is better than a damn" while trying to persuade Bernard Marx to use this substance. For 10 points each:

[10] Identify this recreational drug taken by many citizens of the World State.

ANSWER: **soma**

[10] Soma appears in this dystopian novel by Aldous Huxley which also features the Shakespeare-loving John the Savage.

ANSWER: *Brave New World*

[10] In the society depicted in *Brave New World*, the anathematization of the traditional family and the promotion of casual sex are exemplified by a proverb which states that "everyone belongs to" what?

ANSWER: "Everyone belongs to **everyone else**" [prompt on partial answer]

<Gerr>

23. Answer the following about a ball in physics, for 10 points each.

[10] If a ball is in freefall, then the position of the ball after a time t is given by the initial position plus the initial velocity of the ball times t, plus one-half the acceleration due to gravity times this function of t.

ANSWER: t **square**d [or **two**]

[10] Of course, since there is air on Earth, the ball will reach a terminal velocity. The force that opposes the weight of the ball is this non-conservative one.

ANSWER: **drag** [or **air resistance**; or **fluid resistance**; prompt on **viscosity**; prompt on **friction**]

[10] For regimes with very small Reynolds numbers, this law states that the drag force on a sphere in a fluid is equal to six pi times the viscosity times the velocity of the object times the radius of the object.

ANSWER: **Stokes**'s law

<Jose>