

# Boilermaker Spring Novice

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## Packet 1: Hey, Soul Sister

### A NOTE TO THE PLAYERS AND STAFF:

Thank you for choosing to play Boilermaker Spring Novice! We would like to inform players that, whenever a question is asking you to name a specific person, we will use the pronouns “they/them” instead of the ones that correspond to that person’s gender. In addition, titles or occupations that are usually gendered, such as “king/queen” or “actor/actress,” will be replaced with gender-neutral ones, like “ruler” or “actor.” In addition, some answers may show up more than once in the set. We hope that this does not confuse you, and that you enjoy what’s sure to be an exciting day of quizbowl!

## TOSSUPS

1. *A Treatise on [these groups]* by Gary Becker helped develop a field of economics focusing on these groups. Lewis H. Morgan studied these groups among the **Iroquois**. (“*ear-o-quoy*”). In 1965, Labor Department sociologist Daniel Moynihan published a controversial report that blamed Black poverty rates on the fracturing of these groups. LGBTQ people commonly form these groups “of choice,” which are also called the (\*) “found” type of these groups. Fictive kinship extends these social units beyond their usual “true” definition, which includes **affinal** (“*a final*”) and **consanguineous** (“*consang-gwinus*”) ties, indicating marriage and shared blood, respectively. For 10 points, name these social units whose “nuclear” form consists of two parents and their children.

**ANSWER: family** [accept *A Treatise on the Family*, or *Systems of Consanguinity and Affinity of the Human Family*, or *The Negro Family: The Case For National Action*, **family** of choice, found **family**, or nuclear **family**; prompt on parents or marriages before mention]  
<PQ, Social Science - Other> [Ed. SB]

2. In order to understand this character’s emotional turmoil, two characters play a tennis-like game of “questions.” This character exclaims “my thoughts be bloody, or be nothing worth” after being inspired by a passing army. This character proclaims “what a piece of work is man!” to the title characters of Tom Stoppard’s play (\*) *Rosencrantz and Guildenstern* (“*gill-den-stern*”) *are Dead*. This character calls Polonius a “fishmonger” and tells Ophelia to “get thee to a nunnery.” This character ponders the life of “a fellow of infinite jest” while holding the skull of his old friend Yorick. The question “to be, or not to be” is pondered by, for 10 points, what Danish prince from a Shakespearian tragedy?

**ANSWER: Prince Hamlet** [accept *The Tragedy of Hamlet, Prince of Denmark*]  
<QP, Literature - Drama> [Ed. SB]

3. **This ruler allegedly drank a pearl dissolved in vinegar during a meeting with a drinking society they founded. This non-Roman ruler's son Alexander Helios was named king of Armenia, Media, and Parthia as part of this ruler's Donations of Alexandria. After this ruler's brother drowned while attempting to cross a river, they replaced him as co-ruler with their younger brother, (\*) Ptolemy XIV. ("tall-a-mee the 14th").** Rome transitioned from a republic to an empire following Augustus Caesar's defeat of this non-Roman ruler at the Battle of Actium. It is often incorrectly said that, after her lover's suicide, this ruler killed herself with a venomous snake bite. For 10 points, name this pharaoh of Egypt who had romantic relationships with Julius Caesar and Mark Antony.

**ANSWER: Cleopatra VII** ("the seventh") Philopator  
<LM, History - Other History> [Ed. SB]

4. **This compound bonds to the heme ("heem") group of an enzyme from horseradish that is used as a reporter in ELISA. ("e-lie-za"). Wastewater can be treated with a solution of ferrous iron and this compound, known as Fenton's reagent. ("re-agent"). This compound is added slowly to sulfuric acid to make the violently-dissolving piranha solution. Potassium iodide rapidly decomposes this compound to make (\*) elephant's toothpaste.** This is the simplest compound to contain an oxygen-oxygen single bond. Because UV light decomposes this compound into hydroxyl ("hy-drock-sill") radicals, it's usually stored in brown or opaque bottles. A 3% solution of this compound is a typical first-aid disinfectant. For 10 points, name this bleaching chemical with formula H<sub>2</sub>O<sub>2</sub>.

**ANSWER: hydrogen peroxide** [accept HOOH; accept or H<sub>2</sub>O<sub>2</sub> before mention; reject other chemical formulas]  
<SB, Science - Chemistry> [Ed. SB]

5. *Note to players: a description is acceptable.*

**Leaked memos revealed that this event galvanized a real-life "Operation Stormbreaker," a campaign planned for National Popcorn Day. Brian Sicknick died of a stroke during this event, to which Texas realtor Jenna Ryan booked a private flight. Eugene Goodman was hailed as a hero during this event for shoving Doug Jensen, which helped distract a crowd of people including (\*) Oath Keepers. Senator Joshua Hawley was photographed raising his fist seemingly in support of this event. ProPublica mapped out a timeline of this event using data leaked from Parler, which shut down soon after this event. A second impeachment hearing occurred after, for 10 points, what event in which supporters of Donald Trump attempted to "Stop the Steal" of the 2020 election?**

**ANSWER: the Capitol insurrection** [accept January 6th or 1/6/21 or any equivalent; accept Capitol riot, storming the Capitol Building, or any reasonable equivalent ]  
<PQ, The World - Current Events> [Ed. LM]

6. **TJ Combo is a former champion of this sport in *Killer Instinct*. In the *Street Fighter* series, M. Bison's bodyguard, Balrog, is dressed to compete in this sport. One of Tyroque's final forms, Hitmonchan, resembles a player of this sport. Doc Louis coaches an underdog in this sport who overcomes opponents like (\*) King Hippo and Glass Joe. A bald Mii named Matt is a champion in this sport in the original *Wii Sports*, which features this sport along with baseball, bowling, golf, and tennis. In a game based on this sport, Little Mac takes on the real-life 1987 heavyweight champion, who can knock him down with a single uppercut.** For 10 points, name this sport played in *Mike Tyson's Punch-Out!!*

**ANSWER: boxing** [prompt on fighting or martial arts]  
<LM, Pop Culture - Games> [Ed. SB]

7. Stan **Hugill** (“*hue-gill*”) compiled songs in this genre. The end of one phrase is elided with the beginning of the next phrase in “Billy Riley,” an example of the “short drag” type of this genre. Synchronized rhythms characterize the **capstan** (“*cap-stin*”) type of this genre, as opposed to the pull-and-relax rhythms of the **halyard** (“*hal-yerd*”) type. “Leave her (\*) Johnny” is a song in this genre, another one of which repeats the refrain “way hay and up she rises.” “We’ll take our leave and go” ends the refrain of another song in this *a capella* genre, which declares the title figure will “come / to bring us sugar and tea and rum.” For 10 points, name this genre of work songs exemplified by “The Wellerman” and “Drunken Sailor.”

ANSWER: sea **shanty** [or sea **shanties** or sea **chanteyns**]

<LM + PQ, Fine Arts - Other Auditory> [Ed. QP]

8. On this island, a police force opened fire at a football game in Croke Park on the same day that members of the Cairo Gang were assassinated en masse. A brutal police force stationed on this island was nicknamed for their black-and-tan uniforms. **Éamon de Valera** (“*ay-min de va-lair-ra*”) led anti-Treaty forces in a civil war on this island. Charles Parnell supported Home Rule for this island, while the political party (\*)

**Sinn Féin** (“*shin fane*”) advocated for its independence. Michael Collins fought alongside the Republican forces that staged an insurrection on this island. The Good Friday Agreement ended thirty years of conflict on this island known as the “Troubles.” For 10 points, name this island whose northern portion is a UK member distinct from a separate country with capital at Dublin.

ANSWER: **Ireland** [or *Éire*, or *Airlann*; accept Republic of **Ireland** or Northern **Ireland**]

<QP, History - European History> [Ed. LM]

9. In one story by this author, Lieutenant Sandridge falls in love with the girlfriend of the Cisco Kid. In another story in this author’s collection *Whirligigs*, two men are given the names Snake-eye the Spy and Old Hank the Trapper. A story in which the homeless man Soapy tries and fails to get arrested is part of this author’s collection *The Four Million*. Bill and Sam end up returning (\*) Ebenezer Dorset’s kidnapped son for no profit in a story by this author, who also wrote a story in which Madame Sofronie buys a woman’s long hair for \$20 dollars on Christmas Eve. “The Ransom of Red Chief” was written by, for 10 points, which author, who described Jim and Della unknowingly buying useless Christmas gifts for each other in “The Gift of the Magi?”

ANSWER: **O. Henry** [accept William Sydney **Porter**; prompt on partial answer]

<SB, Literature - Short Stories/Other> [Ed. SB]

10. Carl Gustav **Hempel** (“*hemple*”) proposed one of these statements regarding attempts to prove the statement “all ravens are black.” The **Marquis de Condorcet** (“*mar-kee de condor-say*”) formulated one of these statements describing how the majority of a population can have cyclic voting preferences. The **sorites** (“*so-righties*”) one of these statements concerns removing single grains of sand from a heap. Famous statements of this type, such as ones about Achilles (\*) racing a tortoise, were proposed by Zeno of **Elea**. (“*ellie-ah*”). Bertrand Russell proposed one of these statements concerning a list of all lists that don’t contain themselves. For 10 points, name these logical statements that contradict themselves, such as “this sentence is false.”

ANSWER: **paradoxes** [accept word forms like **paradoxical** statements; accept answers naming any specific **paradox** as long as the word “paradox” is present; prompt on descriptions like self-**contradictions**; prompt on **thought experiments**]

<QP, Social Sciences - Philosophy> [Ed. SB]

11. The intensity of these objects is described by the **Sérsic** (“*ser-sitch*”) profile. Well-defined features of one type of these objects are nicknamed for an apparent “grand design.” The luminosity of these objects is related to their asymptotic rotation velocity by the Tully–Fisher relation. Vera Rubin observed that the rotation curves of these objects behave as if they were surrounded by a halo of dark matter. The (\*) **Magellanic** (“*madgel-lannic*”) Clouds are an irregular pair of these objects, which can be classified using the Hubble tuning fork. A complex radio source at the nucleus of one of these objects is Sagittarius **A\***, (“*A-star*”) a supermassive black hole. For 10 points, elliptical and spiral are two classes of what star systems exemplified by the Milky Way?

ANSWER: **galaxies** [or **galaxy**, accept any specific types of **galaxies** like spiral or elliptical]  
<QP, Science - Other Science (Astronomy)> [Ed. JF]

12. **Arrian** (“*arr-ri-an*”) wrote that this ruler was crowned after arriving in a wagon with their father **Gordias**, the namesake of the Gordian Knot. This mythological figure was rewarded for their hospitality towards **Silenus**. (“*si-lee-nus*”). One of this figure’s secrets was revealed when reeds overheard a barber whispering into a hole. This figure’s judgment in a (\*) music contest featuring Pan led Apollo to give them the ears of a donkey. This figure bathed in the Pactolus River to rid himself of a gift, creating a sediment Lydia used to make coins. Dionysus granted this figure an ability he would later regret, since it made it impossible to eat. For 10 points, name this king who was given the golden touch.

ANSWER: King **Midas**  
<MS, Beliefs - Stories> [Ed. LM]

## HALFTIME

13. One of the largest gold mines in the world is this island’s Grasberg mine, right next to this island’s tallest peak, **Puncak Jaya**. (“*poont-chak jah-ya*”). The northwestern and southeastern peninsulas of this island are called the Bird’s Head and the Bird’s Tail because this island resembles a bird-of-paradise, a symbol one country on this island features in its flag. Three “success stories” of egalitarian land management in Japan, **Tikopia**, and this island were studied in (\*) *Collapse* by Jared Diamond. A country on this island is home to over 800 living languages, including **Tok Pisin** (“*toke pis-seen*”) and several Austronesian languages. The **Torres** (“*torus*”) Strait separates this island from Australia to its south. For 10 points, name this large island divided between Indonesia and a namesake country.

ANSWER: **New Guinea** [or **Niugini**, or **Niu Gini**, or **Papua**; accept Papua **New Guinea**; prompt on **Irian**; do not accept or prompt on “Guinea”]  
<QP, The World - Geography> [Ed. SB]

14. **Tamara Bunke** served as this person’s interpreter during their visit to East Germany. This doctor of medicine originally joined the 26th of July Movement as a medic, but quickly became its second-in-command. This person documented how they and **Alberto Granado** witnessed suffering in a Chilean copper mine in their memoir, *The* (\*) *Motorcycle Diaries*. This leader was second-in-command of a campaign that overthrew **Fulgencio** (“*fool-hen-see-o*”) Batista’s government. This leader wears a beret with a star on the front in a famous photograph titled *Heroic Guerrilla Fighter*. For 10 points, name this Latin American revolutionary whose face appears on many red T-shirts.

ANSWER: Ernesto **Guevara** [accept **Che** Guevara]  
<VS, History - World History> [Ed. LM]

15. A form standardized by this composer features two first strains, two second strains, a trio, and a break strain. The two-step became popular in part because of its association with a work by this composer that was originally written for an award ceremony sponsored by a newspaper. A work by this composer was used in the introduction to (\*) *Monty Python's Flying Circus*. This director of the United States Marine Band created compositions like "The Washington Post" and "Semper Fidelis." ("fih-dellis") A variant of the tuba that wraps around the player's waist is named for this composer. For 10 points, name this American composer, whose pieces like "The Stars and Stripes Forever" earned him the nickname "The March King."

ANSWER: John Philip Sousa [prompt on sousaphone with "Who is that named for?"]

<SB, Fine Arts - Classical Music> [Ed. SB + QP]

16. In the pilot episode for a show set in this city, a man played by Tyler James Williams falls victim to the "reversey toilet." This city is the setting of Quinta Brunson's ABC mockumentary series *Abbott Elementary*. A man who lives in this city manipulates women using the DENNIS system. While working in a mailroom in this city, a character becomes obsessed with the non-existent (\*) Pepe Silvia. A boy originally from the west of this city, "born and raised," was sent to live with upper-class relatives in L.A. in *The Fresh Prince of Bel-Air*. This city is home to Paddy's Pub in a show where Danny DeVito plays Frank Reynolds. For 10 points, name this city where, according to one show's title, it's always sunny.

ANSWER: Philadelphia [accept *It's Always Sunny In Philadelphia*]

<PQ, Pop Culture - TV> [Ed. LM]

17. These people can be identified by a tattoo on their ankle depicting four numerals and an eye. These people are expected to respond with "may the Lord open" to the greeting "blessed be the fruit." In a special kind of Salvaging called Particution ("par-tis-si-cution"), these people kill criminals with their bare hands. These people are trained for their roles by (\*) Aunts at the Rachel and Leah Center. These people's names usually begin with "Of" followed by the name of their commander. These people's uniforms restrict their peripheral vision with white bonnets known as wings, and are otherwise completely blood-red. Fertile women who break laws in Gilead are forced into, for 10 points, what title role in a novel by Margaret Atwood?

ANSWER: handmaids [accept *The Handmaid's Tale*; prompt on women in Gilead]

<PQ, Literature - Novels> [Ed. SB]

18. A downward-sloping chain from pheophytin ("fe-oh-fightin") to plastocyanin ("plasto-sigh-ya-nin") gives this process's redox ("ree-dox") diagram a characteristic Z-shape. At the start of this process, an antenna complex sends energy to a reaction center containing a molecule named for its absorption peak at 680 nanometers. G3P is the end result of a cyclic part of this process that contains a carbon fixation step catalyzed by (\*) RuBisCO; that process is the Calvin cycle. This process, which converts carbon dioxide and water into oxygen and glucose, is most efficient under magenta light, which is fully absorbed by chlorophyll. For 10 points, name this process by which plants feed themselves using energy from light.

ANSWER: photosynthesis [accept CAM photosynthesis or C3 photosynthesis; accept electron transport chain or ECC before "malic acid"; accept light-dependent reactions before "RuBisCO"; accept Calvin-Benson-Bassham cycle or CBB cycle before "Calvin cycle"]

<SB, Science - Biology> [Ed. MS]

19. Steven Jay Gould cited this quality as an example of the fallacy of **reification**. (“**ray-ification**”). The **WJ IV** (“**W J four**”) attempts to measure, among other things, the “fluid” and “crystallized” components of this quality. Richard Spearman used factor analysis to propose the **g factor**, a hypothetical underlying variable determining this quality. By one measure’s average, this quality appears to be (\*) increasing by roughly 3 points every year according to the Flynn effect. *The Bell Curve* controversially correlated this quality with race in order to promote eugenics. The Stanford-**Binet** (“**bin-nay**”) test attempts to measure, for 10 points, what quality, whose “quotient” is at least 132 for members of Mensa?

**ANSWER: intelligence** [accept **IQ** or **intelligence** quotient]

<SB, Social Science - Psychology> [Ed. SB]

20. The self-portrait that this artist gave to their friend Mary Sklar included a framed mirror to hang beside it. After being sponsored by André **Breton**, (“**bray-tone**”), this artist rejected the idea that their work was **Surrealist** by claiming “I paint my own reality.” In a painting by this artist, nails pierce the skin of a **bare-breasted woman whose spine is replaced with a (\*) Broken Column**. This artist depicted two identical figures seated and holding hands, with an artery joining their hearts. A cat and a monkey sit on the shoulders of a woman wearing the title garment in this artist’s *Self-Portrait with Thorn Necklace and Hummingbird*. For 10 points, name this Mexican artist whose dreamlike self-portraits emphasize her mustache and unibrow.

**ANSWER: Frida Kahlo** [or Magdalena Carmen Frida **Kahlo** y Calderón]

<PQ, Fine Arts - Painting and Sculpture> [Ed. SB]

21. A poem by this author laments how “twenty centuries of stony sleep / Were vexed to nightmare by a rocking cradle.” This author describes an old man as “a tattered coat upon a stick” in a poem that claims “an aged man is but a paltry thing.” That poem by this author includes the speaker’s plans to shape their body as “such a form as (\*) Grecian blacksmiths make,” and it begins with the statement “That is no country for old men.” This author described “a vast image out of *Spiritus Mundi*” that “slouches towards Bethlehem to be born” in a Biblically-inspired poem. For 10 points, name this Irish poet of “Sailing to Byzantium” and “The Second Coming.”

**ANSWER: W. B. Yeats** [or William Butler **Yeats**]

<SM, Literature - Poetry> [Ed. SB]

22. Eigenvalues for this quantity are found by applying the operator “negative  $h$ -bar squared over 2 times  $m$ , all times del squared” to the wavefunction. The Lagrangian equals this quantity minus a related quantity. The work function is subtracted from the maximum value for this quantity for electrons ejected by (\*) **photoelectric** (“**photo-electric**”) emission. By definition, this quantity is conserved in an elastic collision, but not in an inelastic one. The sum of this quantity and one-half  $k$  times  $x$  squared is constant for a mass on a spring. “One-half  $m$  times  $v$  squared” is the formula for, for 10 points, what energy that an object possesses due to motion, contrasted with potential energy?

**ANSWER: kinetic energy** [prompt on **KE** or **T**; prompt on energy before mention; reject “potential energy” or “total energy”]

<LM, Science - Physics> [Ed. SB]

23. **Participants in this event purchase brooms and decorate them with turmeric and vermilion. The last day of this event celebrates sibling bonds, with sisters feeding their brothers and receiving gifts from them. This event reaches its height during its third day, which includes a puja dedicated to the goddess of wealth and the use of (\*) firecrackers.** In Eastern India, this event is often centered around Kali, although elsewhere this festival is held in celebration of the birth of Lakshmi. This festival takes its name from the rows of lamps called *diyas* that are lit during the five days of celebration. For 10 points, name this Hindu celebration often referred to as the “festival of lights.”

**ANSWER: Diwali** [or **Deepavali**, or **Divali**; accept **Lakshmi Puja** before “last day”]

<QP, Beliefs - Practices> [ed. DC]

24. **This politician and Thomas Jefferson wrote the Virginia and Kentucky Resolutions in response to the Alien and Sedition Acts. As Secretary of State, this politician withheld the signed commissions of several last-minute appointees called the “Midnight Judges.” A portrait of George Washington was purportedly rescued by this president’s wife as they both fled the (\*) burning of the White House.** This man, who composed the *Federalist Papers* with John Jay and Alexander Hamilton, was the defendant in a Supreme Court case establishing judicial review whose plaintiff was William Marbury. For 10 points, name this “father of the Constitution” who served as president after Thomas Jefferson.

**ANSWER: James Madison** [accept *Marbury v. Madison*]

<QP, History - American History> [Ed. LM]



# BONUSES

1. You and I are hosts to a fungal community called a mycobiome. For 10 points each, answer some questions about the fungus among us.

[10e] The *Malassezia* (“mal-a-seeja”) fungus found naturally on the skin can cause this common condition in which skin cells flake off of the scalp.

**ANSWER: dandruff** [accept seborrheic dermatitis, pityriasis capitis, or scurf]

[10h] Humans host this genus of yeast among their gut flora, which is the most common cause of fungal infections in humans. Members of this genus accumulate in growths called thrushes, which can cause white oral lesions.

**ANSWER: Candida**

[10m] Filamentous fungi like *Aspergillus* (“asper-jillus”) colonize the airways of people with this genetic disorder that primarily affects the lungs. Sweat tests screen for this disorder by measuring chloride content.

**ANSWER: cystic fibrosis** [or CF]

<PQ + SB, Science - Biology> [Ed. DB]

2. The European Union uses the “Ode to Joy” theme from this composer’s final completed symphony as its official theme music. For 10 points each:

[10e] Name this German composer who legendarily had to be turned around to see the audience applauding at the end of their *Symphony No. 9*, (“number 9”), since they were deaf.

**ANSWER: Ludwig van Beethoven**

[10m] Beethoven’s *Violin Sonata No. 5*, with an unusual “rondo” movement, was posthumously given this nickname. This is also the name of the first concerto (“con-chair-toe”) in Vivaldi’s *The Contest Between Harmony and Invention*.

**ANSWER: Spring Sonata** [or Frühlingssonate; accept *La primavera*]

[10h] Another rondo by Beethoven is an unfinished one, written “in the Hungarian style,” which Beethoven’s friend Anton Schindler nicknamed *Rage over a Lost* [*one of these objects*].

**ANSWER: penny** [or Groschen; accept *Rage over a Lost Penny* or *Die Wut über den verlorenen Groschen*]

<AP, Fine Arts - Classical Music> [Ed. SB]

3. An unofficial sequel to this novel was published by *Avellaneda* (“a-vay-a-nay-da”) before its actual author could publish an actual sequel. For 10 points each:

[10e] Name this novel with a belated *Part 2*, centering on a windmill-fighting knight-errant.

**ANSWER: *The Ingenious Gentleman Don Quixote of La Mancha*** [or *El ingenioso hidalgo don Quijote de la Mancha*]

[10h] In *Part 2*, Don Quixote (“kee-ho-tay”) comes across a copy of Avellaneda’s sequel and is distraught when the book claims he no longer loves this farm girl, whom he imagines as a beautiful princess.

**ANSWER: Dulcinea** del Toboso [accept either underlined portion of Aldonza Lorenzo]

[10m] In another attack on the false Quixote, *Part 2* contains a story in which some of these creatures play tennis with a copy of the book. C.S. Lewis created one of these creatures named Screwtape.

**ANSWER: devil** [accept demon or diablo]

<PQ, Literature - Novels> [Ed. SB]



4. For 10 points each, answer some questions about chess maneuvers:

[10e] One of the oldest openings still used today is this one, which starts d4 d5 c4. This opening names a 2020 Netflix miniseries starring Anya Taylor-Joy as chess prodigy Beth Harmon.

**ANSWER:** the **Queen's Gambit**

[10m] This chess piece, worth 3 points, can be developed using the **fianchetto**. (“*fee-yan-ketto*”) On each side, one of these pieces is confined to only light squares, while the other is confined to only dark squares.

**ANSWER:** **bishops**

[10h] This name is given to a tactic where one piece attacks two or more pieces at the same time. The “royal” form of this tactic gains significant material by attacking both the king and queen.

**ANSWER:** **fork** [accept royal **fork**, absolute **fork**, grand **fork**, or family **fork**; prompt on **double attack**]

<VS, Pop Culture - Other> [Ed. SB]

5. Sufi merchants may have brought Islam to this modern day country while traveling across the Indian Ocean. For 10 points each:

[10e] Name this modern-day country whose Hindu state collapsed after the Demak Sultanate took control of Java.

**ANSWER:** the Republic of **Indonesia**

[10h] The last major Hindu state in Indonesia was this empire which reached its peak of influence under the rule of Hayam Wuruk.

**ANSWER:** **Majapahit** empire [accept answers that sound like “**Majapite**”]

[10m] The first **Majapahit** (“*ma-ja-pite*”) ruler, Raden Wijaya, defeated a Mongol invasion by this emperor. This first Yuan Emperor also launched failed invasions of Vietnam and Japan.

**ANSWER:** **Kublai** Khan [or Setsen Khan **Kublai**; accept Emperor **Shizu** of Yuan; prompt on **Khan**]

<QP, History - World History> [Ed. LM]

6. Best Available Technology Reference documents are shared among industries in the European Union in an effort to regulate this phenomenon. For 10 points each:

[10e] The Kyoto Protocol used a combination of baseline-and-credit methods and cap-and-trade methods to decrease the presence of this phenomenon. Automobiles and airplanes contribute greatly to this phenomenon.

**ANSWER:** accept air **pollution** [accept greenhouse gas **emissions**; prompt on “climate change” by asking “which specific cause?”]

[10m] Greenhouse gas emissions are an example of the “negative” type of this market failure, which results when marginal social cost is higher than marginal private cost due to a cost imposed on some unrelated third party.

**ANSWER:** **externality**

[10h] One possible solution to negative externalities is to impose this monetary penalty on offending producers. This penalty is optimally equal to the marginal damage of the externality.

**ANSWER:** **Pigovian** tax [or **Pigouvian** tax]

<PQ, Social Sciences- Economics> [Ed. KJ]

7. For 10 points each, answer the following about the Grange, a fraternal order of farmers founded after the American Civil War:

[10e] The Grange successfully lobbied to have this system deliver to farms for free. The Pony Express was a short-lived one of these systems in the 1860s.

**ANSWER: mail** delivery [accept equivalents indicating any type of **delivery** or **postal service**]

[10h] The Grange was eventually overshadowed by this political party, born out of the Farmers' Alliance. This party's James Weaver ran for president on the Omaha Platform in 1892.

**ANSWER: Populist** Party [or **People's** Party, or the **Populists**]

[10m] Both the Grange and the Populist Party advocated for Senators being chosen in this manner, which was eventually provided by the Seventeenth Amendment.

**ANSWER: direct election** [accept equivalents indicating that Senators were **elected** by popular vote]

<QP, History - American History> [Ed. LM]

8. For 10 points each, answer the following about overseas territories of European countries:

[10e] Saint Helena, Ascension Island, and Tristan da Cunha are some of the British Overseas Territories in this ocean between South America and Africa.

**ANSWER: Atlantic** Ocean [accept South **Atlantic**]

[10m] European countries possess a total of 3 non-island territories outside Europe. Two of them are the Spanish cities of **Ceuta** ("say-yu-ta") and **Melilla**, ("mel-lee-ya"), located on the northern coast of this country.

**ANSWER: Kingdom of Morocco** [or *al-Mamlakah al-Maghribiyyah*]

[10h] This country has 13 overseas territories on 6 continents, giving it the most time zones of any country in the world. This country's claims include Clipperton Island, New Caledonia, and the Collectivity of Saint Martin.

**ANSWER: France** [or the **French** Republic, or *République française*]

<VS, The World - Geography> [Ed. QP + SB]

9. Concentrated solar power can be achieved with parabolic **troughs** ("troffs") consisting of these objects. For 10 points each:

[10e] Name these objects, often contrasted with lenses, that can be used to reflect sunlight towards solar cells.

**ANSWER: mirrors**

[10m] Parabolic troughs are positioned such that solar cells are at this point, where parallel rays reflected by the mirror all meet.

**ANSWER: focal** point [accept principal **focus** or **image point**]

[10h] This scientist invented a lens to concentrate light from a central source with **dioptric** ("die-op-trick") and **catadioptric** ("cat-a-die-op-trick") prisms. This scientist lends their name to a near-field diffraction model, contrasted with **Fraunhofer's** ("frown-hoffer's") far-field diffraction.

**ANSWER: Augustin-Jean Fresnel** ("fray-nell")

<DB, Science - Physics> [Ed. SB]

10. This collection, which was translated to English by the author himself, envisions a place “where the world has not been broken up into fragments by narrow domestic walls.” For 10 points each:

[10h] Name this poetry collection, whose first poem features descriptions of endlessness such as “this frail vessel thou emptiest again and again, and fillest it ever with fresh life.”

**ANSWER: Gitanjali** [accept Song Offerings]

[10m] *Gitanjali* (“ghee-tun-jully”) is by this poet, the first non-Westerner to win any Nobel Prize when they won it for Literature in 1913. This “Bard of Bengal” (“ben-gall”) also wrote the Indian national anthem.

**ANSWER: Rabindranath Tagore**

[10e] **Tagore** (“ta-gor”) was part of the flourishing of Bengali literature and art known by this name, the same name given to the “rebirth” of culture across Europe after the Middle Ages.

**ANSWER: Bengal Renaissance**

<PQ, Literature - Poetry> [Ed. SB]

11. J. M. W. Turner may have been inspired to make this painting after reading about the *Zong* massacre. For ten points each:

[10m] Name this abolitionist painting which depicts bloodied, chained hands reaching up from the ocean as a typhoon approaches the title vessel from the left.

**ANSWER: The Slave Ship**

[10e] Turner represented the Industrial Revolution in *Rain, Steam, and Speed*, in which the smokestack of one of these vehicles cuts through the hazy atmosphere as it charges towards the viewer.

**ANSWER: trains** [accept equivalents]

[10h] Turner names an art prize that was given to this other artist for their work *The Physical Impossibility of Death in the Mind of Someone Living*, which consisted of a dead shark in a tank of formaldehyde.

**ANSWER: Damien (Steven) Hirst**

<SH, Fine Arts- Painting and Sculpture> [Ed. SB]

12. Many companies maintain a shrine to the patron of industry, Inari, which is one of these beings. For 10 points each:

[10m] Name these spirits central to the Shinto belief system. This non-English-language term is often somewhat-inaccurately translated as “deity.”

**ANSWER: kami**

[10e] Shinto is the indigenous religion of this country. This country’s **Ise** (“ee-say”) Grand Shrine purportedly holds the Sacred Mirror given to humanity by the *kami* Amaterasu.

**ANSWER: Japan** [or Nippon-koku, or Nihon-koku]

[10h] These gates symbolically mark the entrances to spaces that are sacred to Shinto. A massive gate of this type at Itsukushima Shrine is nicknamed “floating” because it is partially submerged at high tide.

**ANSWER: torii**

<QP, Beliefs - Practices> [ed. DC]

13. You've decided to direct a play. Answer some questions about what you do next, for 10 points each:

[10m] First you pick which one of these things you want to use. These things can come in thrust, in-the-round, and proscenium arch styles.

**ANSWER: stages** [prompt on theaters]

[10h] During rehearsal, you work with the actors on this process to determine how performers are positioned on stage.

**ANSWER: blocking** [accept word forms]

[10e] It's opening night! But unfortunately your lead called in sick after an unfortunate hotdog incident. You'll replace them with this fellow cast member, who also learned the role and can perform it on short notice.

**ANSWER: understudy** [accept cover, standby, swing, or alternate]

<PQ, Literature - Drama> [Ed. PS]

14. This quantity is less than (emphasize) *14.7:1* ("*fourteen-point-seven to one*") for a mixture "rich" in a certain component. For 10 points each:

[10h] Name this quantity, which is monitored by a gauge ("gag") that reads the voltage output of an oxygen sensor in a car's engine.

**ANSWER: air-fuel ratio** [or AFR; reject "fuel-air ratio," "air-fuel equivalence ratio," or other imprecise answers]

[10m] A particular mixture's air-fuel ratio is derived using this mathematical method, which uses namesake ratios to determine the amount of reactants used up in a reaction.

**ANSWER: stoichiometry**

[10e] Stoichiometry ("*stoy-keometry*") is based on the law of conservation of this quantity. The "molar" form of this quantity is also known as molecular weight.

**ANSWER: molar mass**

<SB, Science - Chemistry> [Ed. MS]

15. After suffering a stroke, this person read a premature obituary claiming they died "broke, alone, and unpopular," which some people claim led to a second, fatal stroke. For 10 points each:

[10h] Name this Jamaican activist who created the Black Star Line to encourage African Americans to return to Africa as part of the Back-to-Africa movement.

**ANSWER: Marcus Mosiah Garvey**

[10m] Shortly before their death, this person requested that the *Evening Sun* print their obituary so they could read it. The Ringling Brothers purchased the circus this person founded with James Anthony Bailey.

**ANSWER: Phineas Taylor "P.T." Barnum**

[10e] The mistakenly printed obituary of this person called them "the merchant of death" for the explosives they invented. Horrified, this Swede founded a series of namesake prizes covering fields like medicine and peace.

**ANSWER: Alfred Nobel** [accept Nobel Prize]

<LM, History - Other History> [Ed. PQ]

16. Husband-wife duo Mortimer and Tessa Wheeler developed a method for this process that creates balks on a square grid. For 10 points each:

[10e] Name this archeological process in which material is removed to reveal and record artifacts and other evidence of human activity. Sites of this process are called digs.

**ANSWER: excavation** [accept word forms of **excavate**]

[10h] The Wheelers' excavations advanced this geologic study of layers. Nicolas Steno's laws governing this analysis include the principle of superposition, which states that lower layers are older than higher ones.

**ANSWER: stratigraphy** [accept word forms like **stratigraphic**]

[10m] An accidental excavation occurred in this ancient city in 2005 when construction of a theme park kept turning up ancient artifacts. Along with Mohenjo-Daro, this city was a seat of the Indus River Valley civilization.

**ANSWER: Harappa**

<PQ, Social Sciences - Other> [ed. RR]

17. This country's extremely-online president calls himself its CEO in his Twitter bio. For 10 points each:

[10h] Name this country governed by [Nayib Bukele](#), ("[na-yeeb bu-kay-lay](#)") who allegedly lowered its murder rate by negotiating with the criminal gangs MS-13 and Barrio 18.

**ANSWER: Republic of El Salvador**

[10e] Bukele's government launched a virtual wallet called Chivo to facilitate the use of this currency, which El Salvador has adopted as legal tender. This cryptocurrency is symbolized by a B with two implied vertical lines.

**ANSWER: bitcoin** [accept **BTC** or **XBT**]

[10m] In November 2021, Bukele announced a plan to build a bitcoin mining city powered by this energy source. This renewable energy source currently used in Indonesia and Iceland uses steam to produce electricity.

**ANSWER: geothermal** energy [or **geothermal** heating, or **geothermal** power, accept **volcanoes**]

<SB, The World - Current Events> [Ed. KJ]

18. For 10 points each, answer some questions about 1980's hits that were written for movies:

[10e] In this dance-pop song for a supernatural comedy film of the same name, Ray Parker Jr. asks "who ya gonna call?"

**ANSWER: "Ghostbusters"**

[10m] After failing to secure the rights to "Another One Bites the Dust," Sylvester Stallone requested this song for *Rocky III*. ("[three](#)"). This biggest hit by Survivor describes how "the last known survivor stalks his prey in the night."

**ANSWER: "Eye of the Tiger"**

[10h] Immediately after writing it, Huey Lewis gave Robert Zemeckis the rights to this song, which appears in every *Back to the Future* movie. Neil [Cicierega's](#) ("[sis-ser-ree-ga's](#)") song "No Credit Card" is a remix of this song.

**ANSWER: "The Power of Love"**

<VS, Pop Culture - Music> [Ed. SB]

19. Charles Barbier (“*sharl barb-yay*”) invented the slate and stylus for people with this condition. For 10 points each:

[10m] Name or describe this condition. The slate and stylus allows for people with this condition to write by pressing pins into the backside of a sheet of paper.

**ANSWER: visually-impaired** [accept any answers describing **trouble seeing** or **blindness**]

[10e] This Frenchman was inspired by Barbier to create his namesake writing system, which allows the visually impaired to read text and music by feeling patterns of raised dots.

**ANSWER: Louis Braille**

[10h] A machine that printed Braille’s decapoint lettering was exhibited at one of these events in Paris in 1855.

W.E.B. Du Bois (“*du boyce*”) organized a showcase of African-American achievements at one of these events in Paris in 1900.

**ANSWER: world’s fair** [or world **expo**, specialized **expo**, or **exposition universelle**]

<LM, History - European History> [Ed. SB]

20. Peter Singer is a modern philosopher in this school of thought. For 10 points each:

[10m] Name this school of thought practiced by Jeremy Bentham, (“*ben-them*”) who developed a “**felicific** (“*fell-ih-sif-fic*”) calculus” for quantizing pleasure.

**ANSWER: utilitarianism** [accept word forms like **utilitarianists**]

[10e] The utilitarian solution to this problem is to minimize negative effects by switching the tracks so that a runaway vehicle only kills one person instead of five.

**ANSWER: trolley** problem

[10h] The trolley problem was first posed by this philosopher in their paper “The Problem of Abortion and the Doctrine of the Double Effect.”

**ANSWER: Philippa (Ruth) Foot** [or Philippa Ruth **Bosanquet**]

<QP, Social Sciences - Philosophy> [Ed. SB]

21. For 10 points each, answer the following about fictional autobiographies:

[10h] *The Autobiography of Alice B. Toklas* was not written by Alice, but instead this author, her lover. This Lost Generation author wrote that “Rose is a rose is a rose is a rose.”

**ANSWER: Gertrude Stein**

[10m] A biographer interviews characters about this author after their fictionalized death in their book *Summertime*. This South African Nobel Laureate wrote the novels *Waiting for the Barbarians* and *Disgrace*.

**ANSWER: J. M. Coetzee**

[10e] This celebrity selected James Frey’s (“*fry’s*”) memoir *A Million Little Pieces* for their “Book Club,” then harshly interrogated Frey on their namesake talk show after learning that the memoir was mostly fabricated.

**ANSWER: Oprah** Winfrey [or Oprah Gail **Winfrey**]

<PQ, Literature - Short Fiction/Other> [Ed. SB]

22. Commentaries on the life of this man argued that his excessive drinking was excusable, as he was the first human to drink wine and therefore couldn't predict its effects. For 10 points each:

[10e] Name this Biblical patriarch who built an ark to survive the flooding of the earth.

**ANSWER: Noah**

[10m] Noah discovered dry land by sending out one of these birds, which returned to him with an olive leaf in its beak. In the New Testament, one of these birds symbolizes the Holy Spirit descending on Jesus at his baptism.

**ANSWER: doves**

[10h] Noah is venerated as the second of seven prophets in this syncretic religion of the Levant. This religion, whose practitioners split from Islam but don't identify as Muslims, uses a five-pointed, five-colored star as a symbol.

**ANSWER: Druze**

<QP, Beliefs - Stories> [ed. DC]

23. With **Gauss**, (rhymes with "house"), this mathematician names a theorem giving conditions under which the ordinary least squares estimator is the minimum-variance unbiased estimator. For 10 points each:

[10m] Identify this mathematician whose namesake "chains" are stochastic processes in which the probabilities of future states are determined only by the current state.

**ANSWER: Andrey (Andreyevich) Markov** [accept **Gauss–Markov theorem**, **Markov chains**, or **Markov processes**]

[10e] A common example of a Markov chain is a "walk" with this property. Variables with this property take on unpredictable values based on a probability distribution function.

**ANSWER: randomness** [or **random walks** or **random variables**]

[10h] This model, central to financial mathematics, predicts European-style call option prices with the assumption that the distribution of instruments' prices follows a random walk with constant drift and velocity.

**ANSWER: Black–Scholes** model [accept **Black–Scholes** equation]

<DB, Science - Math> [Ed. DB]

24. Answer the following about German photographer Andreas Gursky, for 10 points each:

[10m] Gursky's photo of one of these things is the most expensive photo ever sold. Thomas Cole founded an American landscape art movement named after one of these things.

**ANSWER: rivers** [accept the *Rhein (II)* **river** or the Hudson **River** School]

[10e] Gursky is best known for his use of this process, which he used to remove pedestrians and a factory from his photo of the Rhine river. This process is usually accomplished through software like Photoshop.

**ANSWER: digital manipulation** [or digital **editing** or graphics **editing** or digital **retouching**]

[10h] Gursky's photograph "Review" is a manipulated image of four German chancellors admiring a work by this painter. This abstract expressionist divided their canvases with vertical lines of solid color called zips.

**ANSWER: Barnett Newman**

<PQ, Fine Arts - Other Visual> [ed. DC]