

2021 ACF Winter

Packet B by Liberty A, McGill A, MIT B, Nebraska A

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Tossups

1. A singer with this surname worked with Nas on the album *Distant Relatives* and released a 2005 song that samples the lyric “out in the street they call it murder.” A musician with this surname released the album *Love Is My Religion* after leaving the band The Melody Makers. The “I-Threes” were backup singers for a musician with this surname nicknamed “Tuff Gong.” That musician with this surname held hands with the feuding politicians Edward Seaga and Michael Manley at a 1978 “Peace Concert.” After surviving an assassination attempt, a musician with this surname released the album *Exodus*, which includes a song that urges “baby don’t worry about a thing / cause every little thing is gonna be alright.” For 10 points, give this surname of the musician Ziggy and his father, a Jamaican reggae pioneer.

ANSWER: **Marley** [accept Bob **Marley** or Robert Nesta **Marley**; accept David Nesta “Ziggy” **Marley**; accept Damian Robert Nesta “Jr. Gong” **Marley**] (The song in the first sentence is “Welcome to Jamrock;” the song in the penultimate line is “Three Little Birds.”)

<CE/Geo/Other/Pop Culture>

2. A painter from this movement may have imitated Hebrew script in a series of about 40 “Little Images.” Another painter from this movement, who included two number 100s in the middle of the painting *Eden*, is best known for a painting inspired by a trip to Nova Scotia. 18 artists from this movement who opposed an exhibit on “Painting Today” were labelled “The Irascibles.” A technique based on diluting paint with turpentine, called “soak-stain,” was used in the painting *Mountains and Sea* by this movement’s artist Helen Frankenthaler. Lee Krasner was married to an artist from this movement who included detritus like cigarette butts in his work *Full Fathom Five*. For 10 points, name this artistic movement that included the “drip paintings” of Jackson Pollock.

ANSWER: **abstract expressionism** [accept **AbEx**; prompt on action painting; prompt on color field; prompt on abstraction; do not accept or prompt on just “expressionism”]

<Painting/Sculpture>

3. Soldiers under this leader collected all copies of the Quran from a village before they massacred its population and renamed it the “Island of Ashes.” Artists killed under this leader are highlighted in the documentary *Don’t Think I’ve Forgotten*. This leader was a member of the Issarak organization that later opposed the Sangkum (“SAHNG-kuhm”). This leader adopted a policy of forced assimilation for the minority Cham ethnic group. Under this leader, ten rules were given to people as they entered a secondary school-turned-prison that became known as “Strychnine Hill,” or “Tuol Sleng.” This leader, who started his rule in “Year Zero” after he overthrew Lon Nol, presided over the Killing Fields. For 10 points, name this genocidal dictator who led the Khmer Rouge in Cambodia.

ANSWER: **Pol Pot** [prompt on partial answers; or Saloth **Sâr**]

<World History>

4. After being murdered by his brothers, a figure with this name enlists the help of the Grey Wolf to rescue the princess Helen the Beautiful. Simon and Taras are the older brothers of a stock character with this name known for being a lucky fool. After his wife Marya Morevna is kidnapped, a hero with this name is given a magic horse to fight a wizard with the epithet “the Immortal.” A character with this name who fights the wizard Koschei (“kuh-CHAY”) is sent to retrieve golden apples that were stolen by a bird. A real-life ruler with this name was portrayed in a positive light in folk tales in which he befriends a potter to fight the boyars. For 10 points, give this name shared by a hero in Russian folklore who hunts the Firebird, as well as a real-life czar nicknamed “the Terrible.”

ANSWER: **Ivan** [accept **Ivan** Tsarevich; accept **Ivan** the Fool or **Ivan** the Ninny or **Ivan** Durak; accept **Ivan** the Terrible or **Ivan** IV Vasilyevich or **Ivan** Grozny]

<Mythology>

5. One of this author’s characters is nicknamed “fifty-eight seconds” for his love of Chopin’s (“sho-PAHN’s”) *Butterfly* étude. A novel by this author describes blood mixing with milk after soldiers shoot internees escaping from a mental hospital. In a novel by this author, an unnamed country is ravaged by a non-Italian “maphia” that smuggles people across the border so they can die. This author wrote a novel in which a character’s leg gets infected after a girl with dark glasses kicks him with stilettos. That novel by this author opens with a man failing to drive at a green stoplight. In a novel by this author of *Death with Interruptions*, a highly infectious “white sickness” affects everyone except the doctor’s wife. For 10 points, name this Portuguese author of the novel *Blindness*.

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

<European Literature>

6. The artist does an action often identified with this man at sites like Pompeii in the series *Heroic Symbols*. A photograph of this man appears in the image “Hurray, There’s No Butter Left!,” whose artist depicted this man’s esophagus filled with gold coins in a montage. David E. Scherman took an iconic photograph in this man’s apartment that shows Lee Miller sitting in his bathtub. This man commissioned a film whose opening shot shows the shadow of his plane on a parade ground, and which shows this man leading events at a “Cathedral of Light,” such as the consecration of flags. This man’s government condemned the “New Objectivity” photography movement as “Degenerate Art.” For 10 points, Leni Riefenstahl’s film *Triumph of the Will* centers on what German leader?

ANSWER: Adolf **Hitler** (The artists in the first two lines are Anselm Kiefer and John Heartfield.)

<Other Arts>

7. One of these quantities is divided by the sum of two of these quantities to give the recombination efficiency that governs the cage effect. The sum of two values of this quantity equals one over tau in the equation that governs the temperature jump method. This quantity increases with exergonicity up to the diffusion limit, then decreases in the inverted region, as predicted by Marcus theory. This quantity is on the order of 10 to the 10th for diffusion-limited systems. The ratio of two values of this quantity gives the magnitude of the kinetic isotope effect. This quantity has units dependent on the reaction order. This quantity is equal to A times the exponential of the negative activation energy over RT in the Arrhenius equation. For 10 points, name this constant that appears in expressions governing the speed of a chemical reaction.

ANSWER: reaction **rate** constant [or reaction **rate**; or **rate** constant; prompt on **k**]

<Chemistry>

8. Joseph Butler's aphorism that this concept "is the very guide of life" is quoted in a book by Ian Hacking on this concept's "Emergence." David Hume claimed in *A Treatise of Human Nature* that "all knowledge degenerates into" this concept, which he explained with a multi-spotted die in the brief sixth section of his *Enquiry*. Issues that arise when assigning this concept include the Sleeping Beauty problem and the sunrise problem. This concept's standard axioms were developed by Andrey Kolmogorov ("cull-mah-GOR-uff"). A positive value for this concept, combined with an infinite conditional gain, justifies belief in God according to Blaise Pascal. Bayesians ("BAY-zee-ens") place a prior on this concept and update its value in accordance with their degree of belief. For 10 points, name this likelihood of an event occurring.

ANSWER: **probability** [accept prior **probability**; accept **credence**; accept **probability** of God's existence; accept *The Emergence of **Probability***; prompt on **chance** or **likelihood** or **odds** or degree of **belief**]  
<Philosophy>

9. This technology was "paired" at the El Trapiche ("trah-PEE-chay") Mound Group that prefigured its Initial Series. Stephen D. Houston traced this technology to the Ch'olan and argued that it promoted divine kingship that consolidated in Kaminaljuyú ("kah-mee-nal-hoo-YOO"). Early evidence of this technology comes from the Late Formative period's "Isthmian" La Mojarra Stela 1 and Tuxtla ("toosh-tlah") Statuette. Signs of this technology, like the bird's mouth on a cylinder seal from San Andrés and the Cascajal ("cas-cah-HAL") Block, may suggest that the Olmecs developed it in Mesoamerica, where, like farming, it arose independently of Egypt and Mesopotamia. "Proto-" types of this technology include the record-keeping Inca quipus that were simpler than true examples like the undeciphered Zapotec glyphs. For 10 points, what systems included Mixtec and Maya logograms?

ANSWER: **writing** systems [accept proto-**writing** or Isthmian **script** or **alphabet**s or **hieroglyphics** or **syllabary** or **epigraphy** or **inscriptions** or **characters** or **ideograms** or **ideographs** or **pictogram**s or **pictograph**s; accept **glyphs** or **logograms** or **logographs** before read; accept **literacy** or **reading**; prompt on **records** or **language** or art or related answers; prompt on **calendars** or **almanacs** or **timekeeping** by asking "recorded in what way?"]  
<Other History>

10. In a story by this author, a regretful wife recounts the death of her true love, a soldier who was killed by an exploding Japanese stove. Another of this author's characters spells out the word "slain" when she talks about her deceased father in order to protect her little brother Charles. That character created by this author mails her father's wristwatch to the narrator, who refers to himself as "Sergeant X." In a story by this author, a veteran sees the mythical title animals on the beach and returns to his hotel room to shoot himself. This author included the stories "Uncle Wiggily in Connecticut" and "For Esmé—with Love and Squalor" in the collection *Nine Stories*. For 10 points, name this author who wrote about Seymour Glass in "A Perfect Day for Bananafish" and created Holden Caulfield in *The Catcher in the Rye*.

ANSWER: J. D. **Salinger** [or Jerome David **Salinger**]  
<American Literature>

11. The causative agent of this disease has a pE88 plasmid and a squash-racket appearance on Gram stain. It's not meningitis or diphtheria, but a toxin that causes this disease is conjugated to a polysaccharide to form a vaccine to *Haemophilus influenzae*. Classic symptoms of this disease include opisthotonus ("AW-pis-THAW-tuh-nus") and risus sardonicus. When diagnosing this disease, strychnine poisoning has to be ruled out. This disease's namesake toxin acts on synaptobrevin ("syn-ap-to-brev-in") in Renshaw cells to prevent glycine release in the spine. A species of *Clostridium* causes this disease, whose vaccine requires a booster every 10 years. This disease classically causes trismus, or lockjaw. For 10 points, name this disease which, like pertussis and diphtheria, is prevented by the Tdap vaccine, and which often occurs after a deep puncture wound.

ANSWER: **tetanus** [prompt on **lockjaw** before read]  
<Biology>

12. A Jewish-led union in this industry, Local 338, led a 1960s-era anti-mob campaign. In a case about one of these businesses similar to the Arlene's Flowers lawsuit, Anthony Kennedy reaffirmed the decision in *Church of Lukumi Babalu Aye*. To rule on an 1895 act that reformed sanitation and working hours in these businesses, Rufus Peckham cited *Allgeyer v. Louisiana* in a 1905 majority opinion that names a forty-year anti-regulatory "era." That law about these businesses violated the due process clause's freedom of contract, per a decision dissented by Justice Holmes, in *Lochner v. New York*. Jack Phillips, the owner of this type of business in Colorado, refused to create a product for a gay couple's wedding in the 2018 *Masterpiece* case. For 10 points, what shops prepare items like babka and bagels?

ANSWER: **bakeries** [or **bakeshops**; accept **cakeshops** or **bagel** shops or **bread** shops or **pastry** shops or other specific types; accept *Masterpiece Cakeshop v. Colorado Civil Rights Commission*; accept New York **Bakeshop** Act; prompt on general answers like **retail** or **stores** or **shops** or **sweet** shops or **food** or **dessert** or **confectionary**] <American History>

13. Aubrey and Marigold Burns gave this non-American novel to Maxwell Perkins, whose "discovery" of it ends its author's autobiography *Towards the Mountain*. This novel's title refers to an "unborn child that is the inheritor of our fear." This novel's protagonist is lifted from despair after visiting a center for basket-weaving blind people. An Abraham Lincoln-obsessed character in this novel writes the article "The Truth About Native Crime." This novel ends by reflecting on "when that dawn will come, of our emancipation" as the protagonist prays on a mountaintop before an execution. This novel's protagonist leaves Ndotsheni ("in-dot-SHAY-nee") after receiving a letter from Msimangu ("mm-see-MAHN-goo") about his sister Gertrude. For 10 points, Arthur Jarvis is murdered by Absalom Kumalo in what Alan Paton novel?

ANSWER: ***Cry, the Beloved Country*** <World Literature>

14. These components are probabilistically removed in a regularization technique known as dropout. These components are arranged in multiple two-dimensional grids in a technique in which they receive input only from their receptive field and collectively output a convolution. The number of connections into a fully connected layer is equal to the number of these components in the layer times the number of them in the previous layer. The output of one of these components is given by applying an activation function, such as the rectified linear unit, to a weighted mean of inputs. These components make up the hidden layers in multilayer perceptrons used for deep learning. For 10 points, name these components that are connected to form biologically-inspired "networks" in machine learning.

ANSWER: artificial **neurons** [or **units**; accept answers indicating the **nodes** in a **neural network**; prompt on **nodes** or similar answers with "in what structures?"; do not accept or prompt on "neural networks" alone] <Other Science>

15. A group from this modern-day country called the "Zealots of Piety" inspired a denomination split between "Priested" and "Priestless" groups. This country is the origin of a religious group named for drinking milk during fasts, as well as a group that uses bread, salt, and water as a religious symbol and whose name translates to "spirit wrestlers." A denomination from this country that was influenced by Avvakum formed after the two-fingered sign of the cross was changed by Nikon's reforms. The Molokan and Doukhobor ("DOO-koh-bor") groups principally come from this country, whose main church had a schism with the Old Believers. For 10 points, name this country whose Orthodox Church campaigned against the autocephalous status of the Ukrainian Church and operates St. Basil's Cathedral.

ANSWER: **Russia** [or **Rossiya**; or **Russian** Federation or **Rossiyskaya** Federatsiya; accept **Russian** Empire or **Rossiyskaya** Imperiya; accept **Russians** or **Ruskiye**; accept **Rossiyan**e; accept the **Russian** Orthodox Church] <Religion>

16. A second-order “meta” form of this subdiscipline is biased by “language ideology” according to Michael Silverstein. Dan Sperber and Deirdre Wilson developed a theory in this subdiscipline that claims that the central concepts are both ostensive and inferential. This branch of linguistics often studies indexicality through deictic words such as those referring to location and time. The four maxims of quantity, quality, relation, and manner form the “cooperative principle” in the theory of this branch of linguistics outlined by Paul Grice. This branch of linguistics often studies conversational implicatures and performative utterances. For 10 points, name this branch of linguistics that studies how context affects meaning, frequently contrasted with semantics.

ANSWER: **pragmatics** [accept metapragmatics, prompt on linguistics before read]

<Social Science>

17. Different polarizations of oscillations of these particles characterize modes labeled O, X, R, and L. These particles contribute a term proportional to the square of the wavenumber to the Bohm–Gross dispersion relation. Lowered concentrations of these particles exist within a Debye (“duh-BYE”) sheath due to their relatively high temperature. These particles collide with neutral molecules in a Townsend avalanche. The behavior of Langmuir (“LANG-myoor”) waves can be derived by considering the density of these particles in a “gas” of them as described by the Drude model. Crookes (“crooks”) tubes produce beams of these particles that were historically known as cathode rays. These particles are the lightest constituents of a plasma. For 10 points, name these negatively-charged particles that ordinarily orbit atomic nuclei.

ANSWER: **electrons** [accept electron gas]

<Physics>

18. In 1910, this city’s second springwater pipeline opened under a mayor backed by women called “Amazons.” It’s not Fiume (“FYOO-may”), but pro-Italian leaflets were dropped in a 1918 “flight over [this city]” by Gabriele d’Annunzio (“gah-bree-EH-lay dah-NOON-ts’yo”). Community housing like Karl Marx Court dates from this city’s interwar control by a Social Democratic Party, when this former capital of Cisleithania (“cis-LAY-tah-nee-ah”) was nicknamed “Red.” Carl Schorske studied this city’s *fin-de-siècle* (“FAHN-duh-SYECK’I”) culture in coffeehouses like Café Central before the rise of its antisemitic Mayor Karl Lueger. In 1933, a parliament in this city was dissolved by a Fatherland Front ally of Kurt Schuschnigg (“SHOOSH-nig”), the fascist Chancellor Engelbert Dollfuss. Moritz Schlick led this city’s logical positivist Circle before the Anschluss. For 10 points, Sigmund Freud’s clinic was in what capital of Austria?

ANSWER: **Vienna** [or **Wien**; accept **Vienna** Circle or **Wiener** Kreis; accept Red **Vienna** or Rotes **Wien**; accept *Fin-de-siècle* **Vienna**; *Politics and Culture*; accept Flight over **Vienna** or Volo su **Vienna**]

<European History>

19. In a poem by this author, the speaker considers asking the title figure to “germinate / The scattered, ambushed / Flesh of labourers, / Stockinged corpses.” The speaker of a poem by this author sees a baby who “cooed and laughed and rocked the pram” in a room where old men tell him “sorry for my trouble.” In another poem, this author of “The Tollund Man” describes “the warm thick slobber / Of frogspawn.” A poem by this author describes the “poppy bruise” on the left temple of his brother, who lies in “A four-foot box, a foot for every year.” This author wrote of how his grandfather “could handle a spade” in a poem that ends “The squat pen rests. / I’ll dig with it.” For 10 points, name this Irish poet of “Mid-Term Break” and “Digging,” two poems collected in *Death of a Naturalist*.

ANSWER: Seamus **Heaney** [or Seamus Justin **Heaney**]

<British Literature>

20. The first movement of this piece abruptly switches from D minor to D major on its last chord before transitioning *attacca* to a movement featuring stark piano octaves as accompaniment. This piece is the first and best-known of its composer's *Trionfi* triptych. After a *fortissimo* downbeat in the lower instruments, the first movement of this piece begins with the *pesante* melody [read slowly] “long E, F, D, D.” A *Reie* (“RYE-uh”), or round dance, is included in this piece’s section “Uf dem Anger.” A very high tenor solo represents a swan being roasted on a spit in this piece’s movement “Olim lacus colueram.” Movements praising an “Imperatrix Mundi” bookend this piece, which is based on a medieval collection of Latin and Old German songs. “O Fortuna” is part of, for 10 points, what cantata by Carl Orff?

ANSWER: **Carmina Burana**

<Classical Music>

21. This character’s father urges him to pursue the “middle state” by noting that “kings have frequently lamented the miserable consequence of being born to great things.” A genre named for this character, exemplified by R. M. Ballantyne’s best-known novel, adds the suffix “-ade” to this character’s first name. In the last chapter, this character watches a companion taunt and shoot a bear as it descends a tree. This character solemnly observes the 30th of September, a date he carves on a wooden cross. This character secures a plantation after he sells the slave Xury (“ZUR-ee”). A Johann David Wyss novel borrows this character’s first name as the surname of the title “Swiss Family.” For 10 points, name this companion of the cannibal Friday, the shipwrecked title character of a Daniel Defoe novel.

ANSWER: **Robinson** Crusoe [or Robinson **Crusoe**; accept **Robinsonade**; accept *Swiss Family* **Robinson**] (The R. M. Ballantyne novel is *The Coral Island*.)

<British Literature>

## Bonuses

1. The owners of one of these places wash it with creolin and burn tears of myrrh in order to “drive away the dunghheap stench that still hung everywhere like a ghost.” For 10 points each:

[10h] Name this type of place where Peyalo and Elisenda imprison the title “Very Old Man with Enormous Wings.”

ANSWER: a chicken **coop** [or **gallinero**]

[10e] This Colombian author included a chicken coop in his magical realist story “A Very Old Man with Enormous Wings.” His novels include *Love in the Time of Cholera*.

ANSWER: Gabriel **García Márquez** [accept **Gabo** or **Gabito**; prompt on **García** or **Márquez** alone]

[10m] In a 1961 García Márquez novella, the title character with this rank sells a chicken to Sabas while waiting for his pension. This rank is also held by the first human born in Macondo.

ANSWER: **colonel** [accept *No One Writes to the **Colonel*** or *Nadie le escribe al **coronel***; accept **Colonel** Aureliano Buendía]

<World Literature>

2. These maps are equivalent to homomorphisms to an automorphism group, and thus can be used to define group representations. For 10 points each:

[10h] Name these maps that partition a set into orbits whose sizes are inversely proportional to the sizes of their stabilizers. These maps take in one element each from a group  $G$  and a set  $X$  and output an element from  $X$ .

ANSWER: group **action**

[10m] Group representations are most often taken to be linear, and thus a group action on one of these spaces. These spaces are closed under addition and scalar multiplication.

ANSWER: **vector** space

[10e] A linear representation of a group maps group elements to these objects, since these objects represent linear transformations on a vector space. Multiplication of these rectangular arrays of numbers is not commutative.

ANSWER: **matrix** [or **matrices**]

<Other Science>

3. Banksy replaced the head of a *Winged Victory of Samothrace*-like statue with one of these objects in a 2006 work titled [this object] “Angel.” For 10 points each:

[10h] Name these objects. Westminster Council destroyed a Banksy work titled “One Nation Under [these objects],” while in another work Banksy painted the words “what are you looking at?” on a wall opposite one of these objects.

ANSWER: **cameras** [accept security **cameras** or **CCTV** cameras; accept *One Nation Under **CCTV*** or ***CCTV** Angel*]

[10e] Although they do many types of street art installations, Banksy is best-known for this street art form also created by Jean-Michel Basquiat (“BAH-skee-aht”).

ANSWER: **graffiti** [prompt on **street** art]

[10m] The artist SpY, often described as this country’s Banksy, attached 150 fake CCTV cameras to a wall in 2014. Jeff Koons’s topiary sculpture *Puppy* sits outside a museum in this country whose exterior is clad in titanium sheets.

ANSWER: **Spain** [or **España**; or Kingdom of **Spain** or Reino de **España**] (The museum is the Guggenheim Museum Bilbao, designed by Frank Gehry.)

<Other Arts>

4. The first National Trail to be opened was named for this mountain range; that trail begins in the Peak District before crossing Hadrian's Wall. For 10 points each:

[10h] Name this mountain range whose tallest peak, Cross Fell, is located in the ceremonial county of Cumbria. The Tyne Gap separates these mountains from the Cheviot ("CHEE-vee-ut") hills.

ANSWER: **Pennines** [or **Pennine** Chain; or **Pennine** Hills; accept **Pennine** Way National Trail; do not accept or prompt on "Apennines"]

[10e] The Pennine Way National Trail crosses the border between these two constituent countries of the United Kingdom. These two constituent countries, along with Wales, comprise Great Britain.

ANSWER: **England** AND **Scotland** [or **Scotland** AND **England**; accept **Alba** or **Scotia** in place of "Scotland"; do not accept "Great Britain" or "Albion" or any answer naming only one of England and Scotland]

[10m] The Pennine Way National Trail also goes through a region of "Dales" named for this largest historic county of England. This traditional county, whose flag depicts a white rose, contains the cities of Leeds and Sheffield.

ANSWER: **Yorkshire** [or County of **York**; or **Yorks**; accept North **Yorkshire**]

<CE/Geo/Other/Pop Culture>

5. In his *Geography*, Pausanias theorizes that Homer worked ugly real-world examples of these features like the Cocytus into his mythologies. For 10 points each:

[10e] Name these geographical features. The Greek underworld is surrounded by five of these things, including the Styx.

ANSWER: **rivers** [accept synonyms such as **brooks** or **streams**; prompt on bodies of **water**]

[10m] The spirits of the dead were required to drink from this river to forget their past life. This river of forgetfulness flows through the cave of Hypnos.

ANSWER: the River **Lethe** ("LEE-thee") [or **Lemosyne**; accept **ameles potamos**]

[10h] A text by this person describes how the rivers carry criminals out of Tartarus to plead forgiveness. In another text by this person, an undead man describes his visions of the underworld and the Spindle of Necessity.

ANSWER: **Plato** [or **Platon**] (The river story appears in the *Phaedo*. The second line is the Myth of Er, from the *Republic*.)

<Mythology>

6. *Sohappy v. Smith* affirmed the fishing rights of the Nez Perce and this nation, which was led by Colestah, the warrior-wife of Chief Kamiakin, after the Walla Walla Treaty Council was violated. For 10 points each:

[10h] Name this Plateau people who allied with the Cayuse in 1855–1858 wars that led to the Coast Salish's Puget Sound War. Isaac Stevens led a war on this people, who name a wine-growing valley and a Columbia River tributary.

ANSWER: **Yakama** people [or **Mámachatpam**; accept **Yakima** River or **Yakima** Valley; accept **Fall Bridge** or **Kahmiltpah** or **Kittitas** or **Klickitat** or **L'ataxat** or **Ochechotes** or **Palouse** or **Pisquouse** or **Qamil'lma** or **Rock Creek** or **Sahaptin** or **Sawpaw** or **Se-ap-cat** or **Shyiks** or **Sk'in-pah** or **Tenino** or **Uchi'chol** or **Umatilla** or **Wanapum** or **Warm Springs** or **Wenatchapam** or **Wenatchi** or **Wish-ham** or **Wishram**]

[10m] In the Yakima War, Edward Steptoe lost to the Skitswish Coeur d'Alene, whose namesake Idaho city mined this resource near Bunker Hill. Nevada is nicknamed for this resource mined near Tonopah and Virginia City.

ANSWER: **silver** [or **Ag**; accept **Silver** Valley; accept **Silver** State or **Silver** City or Nevada **silver** rush; prompt on **metals**]

[10e] Before the 1893 Silver Crash, Molly Brown used her Leadville mining fortune to become Denver's leading philanthropist, but earned national fame as "Unsinkable" after she survived this ship hitting an iceberg in 1912.

ANSWER: **Titanic** [or RMS **Titanic**]

<American History>

7. While sheltering from this event, a character argues with his wife about whether to invite in refugees like Moses, Homer, and the nine muses. For 10 points each:

[10h] Name this event which endangers a family living in the fictional city of Excelsior, New Jersey. During this event, the maid Sabina instructs the audience, “Pass up your chairs, everybody. Save the human race.”

ANSWER: the **ice age** [accept answers indicating an advancing **wall** of **ice**; prompt on **cold temperatures** or similar; prompt on answers mentioning the **apocalypse** or the **end of the world** by asking “caused by what event?”]

[10m] This play depicts the Antrobus family’s survival through millennia of natural disasters and wars. In this play’s final act, the stage manager tells the audience that several actors have food poisoning and must be replaced.

ANSWER: *The **Skin of Our Teeth***

[10e] In addition to the one in *The Skin of Our Teeth*, this author created another stage manager in his play *Our Town*.

ANSWER: Thornton **Wilder** [or Thornton Niven **Wilder**]

<American Literature>

8. This compound’s namesake “layer” in the stratosphere absorbs UV radiation from the sun. For 10 points each:

[10e] Name this allotrope of oxygen whose chemical formula is O<sub>3</sub> (“O-3”).

ANSWER: **ozone** [accept **ozone** layer]

[10m] Because it has two equally-contributing resonance structures, the oxygen-oxygen bonds in ozone have this bond order. All of the carbon-carbon bonds in benzene have this bond order.

ANSWER: **1.5** [accept equivalents like **three-halves**; or **one-and-a-half**]

[10h] 2.69 times 10 to the 20th molecules per square meter equals one of these units used to measure atmospheric ozone concentration. The Antarctic hole in the ozone layer had a concentration less than 220 of these units.

ANSWER: **Dobson** units [or **DU**]

<Chemistry>

9. These objects give off a “cold, deathly smell” in a story that ends with a woman’s realization that life is her “immediate master” and death is her “ultimate master.” For 10 points each:

[10h] Name these objects that title a story about Elizabeth Bates’s failed relationship with her husband Walter, who is killed in a coal mining incident.

ANSWER: **chrysanthemums** [accept “Odour of **Chrysanthemums**”; accept **mums** or **chrysanths**; prompt on **flowers** or **Asteraceae**]

[10e] “Odour of Chrysanthemums” was written by this author, who wrote about the alcoholic coal miner Walter Morel in his novel *Sons and Lovers*. This British author also wrote *Lady Chatterley’s Lover*.

ANSWER: D. H. **Lawrence** [or David Herbert **Lawrence**]

[10m] In this other short story by Lawrence, a woman laments that her husband “has no luck” and cries, “There must be more money!” A boy in this story named Paul uses the title object to predict the outcomes of races.

ANSWER: “The **Rocking-Horse Winner**”

<British Literature>

10. Folk songs called dainas suggest that Latvians used nettles to make these items, which Norse women were in charge of distributing alongside food in their households, or “innan stokks.” For 10 points each:

[10e] Name these essential items stockpiled in Hedeby (“HEH-thuh-poo”) and Jörvík (“YOR-veek”). *The Valkyrie’s Loom* argues that the Viking economy relied on women making these items from fibers like wool to protect against cold weather.

ANSWER: **textiles** [or **clothing** or **clothes** or **vestments** or **outerwear** or equivalents; accept **blankets** or **sheets**; accept **linen** or **needlework** or **embroidery** or **weaving** or **bolts** or **thread** or **yarn** or **fabric** or related answers]

[10m] Women managed flax and textile estates in Birka, where the *Vita Ansgarii* described perhaps the first of these popular assemblies. Lawspeakers ran these meetings, like one prefixed by “Al” that became Iceland’s parliament.

ANSWER: **things** [or **ting** or **Ding**; accept **Althing** or **Althingi** or **Alþingi** or **Thingvellir** or **þingvellir**; accept folk **moot**; prompt on **veche** by asking “what Germanic assemblies may have inspired the veche?”]

[10h] *Norse term required.* Rural things enforced provincial laws like *Västgötalagen* (“VESS-cho-tah-lah-gun”), which regulated sex between women of this class and free men. Farms and estates enslaved these workers, who are enumerated in the early Frostating Law.

ANSWER: **thralls** [or **trálar** or **treller** or **træler** or **trælur** or **þræller** or **thraldom**; accept **thēow** or **þēow**; accept **loysar**]

<European History>

11. This ensemble was the subject of the 2016 documentary *Music of Strangers*, which included segments on the Syrian clarinetist Kinan Azmeh and Galician bagpipe player Cristina Pato. For 10 points each:

[10h] Name this ensemble founded by Yo-Yo Ma that comprises a rotating cast of musicians from across Eurasia. Their albums include *A Playlist Without Borders* and *Off the Map*.

ANSWER: **Silk Road** Ensemble [accept **Silkroad**]

[10e] Members of this instrument family represented in the Silk Road Ensemble include the Persian *kamancheh* and Chinese *pípá*, which respectively are members of its bowed and plucked subcategories.

ANSWER: **string** instruments

[10m] The Silk Road Ensemble often incorporates the *duduk*, a wind instrument from this country made from apricot wood. A composer from this country incorporated its folk music into his ballet *Gayane* (“gah-yah-NAY”).

ANSWER: **Armenia** [or **Hayastan**; or Republic of **Armenia** or **Hayastani** Hanrapetut’yun] (That composer is Aram Khachaturian.)

<Classical Music>

12. A paper on this concept featured implausible data like an almost-uniform distribution of car miles driven over several years, according to an August 2021 exposé. For 10 points each:

[10h] Name this concept, which is the subject of a 2012 paper co-authored by Dan Ariely that was recently retracted from *PNAS*. Ariely also wrote a bestselling book on the “truth” about this concept in the same year.

ANSWER: **dishonesty** [accept *The Honest Truth About Dishonesty*; prompt on **lying** or **not** telling the **truth** or equivalents]

[10e] The recent furor over Ariely et al.’s 2012 paper is linked to a “crisis” in this principle of the scientific method, which suggests that results should continue to hold when subjected to further testing.

ANSWER: **replication** [or **reproducibility**; or **repeatability**; accept word forms; accept **replication** crisis]

[10m] Ariely et al.’s 2012 paper is part of a literature on these interventions, which aim to change behavior without significantly altering options or incentives. These interventions title a 2008 book by Cass Sunstein and Richard Thaler.

ANSWER: **nudges** [accept **nudge** theory or *Nudge: Improving Decisions about Health, Wealth, and Happiness*]

<Social Science>

13. This woman served as a nurse and may have fought in the Battle of Ayacucho (“ah-yah-COO-cho”). For 10 points each:

[10h] Name this woman who became known as the “Libertadora de Libertador” after she saved her lover from an assassination attempt. This woman, who often rode wearing a colonel’s uniform, was exiled after her lover’s death.

ANSWER: Manuela **Sáenz** [or Doña Manuela **Sáenz** de Vergara y Aizpuru]

[10e] Sáenz (“SAH-ens”) began a relationship with this leader after she met him in Quito. This independence leader was nicknamed “the Liberator.”

ANSWER: Simón **Bolívar** [or Simón José Antonio de la Santísima Trinidad **Bolívar** y Ponte Palacios y Blanco]

[10m] Sáenz first met Bolívar after he liberated this colonial territory. This Spanish viceroyalty encompassed much of what is now Colombia, Ecuador, and Venezuela.

ANSWER: Viceroyalty of **New Granada** [or Virreinato de **Nueva Granada**; prompt on **Granada**]

<World History>

14. Inspired by his visits to a Paris zoo, this poet described a caged animal’s “ritual dance around a center / in which a mighty will stands paralyzed.” For 10 points each:

[10m] Name this poet whose friendship with Auguste Rodin was the subject of Rachel Corbett’s biography *You Must Change Your Life*, which takes its title from one of this author’s poems.

ANSWER: Rainer Maria **Rilke** (“RILL-kuh”)

[10h] In his poem “Archaic Torso of Apollo,” Rilke compares these objects to “ripening fruit.” In “The Panther,” the curtains of these objects “[lift], / quietly” and “An image enters in.”

ANSWER: **eyes** [or **Augen**; accept **pupils**]

[10e] Corbett recalls reading Rilke’s writings in this form which he addressed to the “Young Poet” Franz Xaver Kappus. Epistolary novels are traditionally composed of texts in this form.

ANSWER: **letters** [accept **Letters to a Young Poet** or **Briefe an einen jungen Dichter**]

<European Literature>

15. Answer the following about epiphytes, which are plants that grow on top of other plants, for 10 points each.

[10e] The canopy of this biome often has an incredible diversity of epiphytes. This biome, which occurs near the equator and has no dry season, has some of the highest biodiversity in the world.

ANSWER: tropical **rainforest** [prompt on tropical **forest**]

[10m] This division of plants, whose gametophyte generation is dominant, contains several epiphytes. These plants develop their dominant stage from a protonema and, with liverworts and hornworts, make up the bryophytes.

ANSWER: **mosses** [prompt on **Bryophyta**]

[10h] This family of flowering plants includes epiphytes like Spanish moss. Because pineapples are in this family, the allergen within them takes its name from this family.

ANSWER: **bromeliads** [or **Bromeliaceae**; prompt on **bromelain**]

<Biology>

16. East Asian cuisines developed several foundational condiments in ancient times. For 10 points each:

[10e] Fermented soybean paste was found in the Mǎwángdū (“mah-wahng-dway”) tomb of the Chángshā Kingdom near this river’s basin Dòngtíng Lake. The Péngtóushān (“pung-toh-shahn”), Shíjiāhé (“shuh-jah-huh”), and Liángzhǔ (“l’yang-joo”) cultures emerged on this longest river in China.

ANSWER: **Yangtze** River [or **Yángzǐ** River; or **Cháng** Jiāng; accept **Xiāng** River or **Hàn** River]

[10h] Wasabi was cultivated as medicine during this period, when Japan first imported chopsticks. Goguryeo (“koh-goor-yuh”) influenced tombs in Yamato during this 538–710 CE period, which ended when Empress Genmei moved the capital to Nara.

ANSWER: **Asuka** period

[10m] These items from Korea’s Mumun and Jeulmun (“jul-moon”) periods offer early evidence of kimchi fermentation. Sāncǎi (“sahn-tsai”) and proto-celadon were fancy types of these items, which often resemble the giant objects made on a Laotian plain.

ANSWER: **pottery** [or **ceramics**; or **táocí** or **táoqì** or **dogilyu**; accept earthen**ware** or ston**ware** or green**ware** or **porcelain** or **china**; accept **vessels** or **vases** or **jars** or **containers** or similar; accept **bowls**; accept Plain of **Jars** or Plain of Stone **Jars** or Thong **Hai** Hin; accept **Mumun** pottery period or **Jeulmun** pottery period or **Chulmun** pottery period]

<Other History>

17. Edgar Degas often painted the frequently lecherous men called “abonnés” who were allowed to proposition women in a “foyer” in this building. For 10 points each:

[10h] Name this building. André Malraux commissioned an artwork in this building that consisted of 14 separate scenes which were painted on a frame that covered an original work by Jules Lenepveu.

ANSWER: **Palais Garnier** [or **Paris Opera** or **Opéra Garnier**; prompt on **Opera** House]

[10e] Degas’s paintings of the Palais Garnier often depict this type of dancer. In his somewhat obsessive paintings of them, they are often wearing tutus.

ANSWER: **ballerinas** [or **ballet** dancer]

[10m] In his letters, Degas often compared the ballerinas he painted to these animals. It’s not a dog, but a woman with a purple dress and a black umbrella stands next to one of these animals in perhaps the most famous Divisionist painting.

ANSWER: **monkeys** [or **singes**] (The painting is *Sunday Afternoon on the Island of La Grande Jatte*.)

<Painting/Sculpture>

18. This thinker contended that if a “Swampman” suddenly replaced him, its thoughts would be meaningless because it has no causal (“CAUSE-al”) associations. For 10 points each:

[10m] Name this American philosopher whose paper “Mental Events” presents the theory of anomalous monism, which holds that mental and physical events are equivalent despite there being no exceptionless laws for mental behaviors.

ANSWER: Donald **Davidson** [or Donald Herbert **Davidson**]

[10h] Davidson’s Swampman thought experiment supports this general position in the philosophy of mind. Proponents of this position believe that mental states rely on environmental factors and not just the mind alone.

ANSWER: **externalism** [accept specific types of externalism such as phenomenal **externalism** or semantic **externalism**]

[10e] Externalists hold that stimuli received by this body part have representations that are specific to the body. As a result, a person cannot be one of these body parts “in a vat.”

ANSWER: **brains** [accept **brain** in a vat; prompt on **heads**]

<Philosophy>

19. A period named for an offering of this substance lasts from Passover until Shavuot (“shah-voo-OAT”). For 10 points each:

[10h] Name this substance, whose production is marked by the holiday of Shavuot. The Counting of the Omer begins at the time when an offering of this substance is made.

ANSWER: **grain** [accept **wheat** or **barley**; prompt on **sheafs**]

[10m] In the laws of Kashrut, grain is classified as this type of substance, which can be consumed in a kosher way with either dairy or meat.

ANSWER: **pareve** (“PAR-iv”) [or **parve**]

[10e] Grain flour must not be leavened when it is made into this kind of flatbread. Because it is unleavened, this cracker is eaten by observant Jews during Passover.

ANSWER: **matzo** [or **matzah** or **matzoh** or **matzot**]

<Religion>

20. A potential that takes this shape has bound states with discontinuous derivatives. For 10 points each:

[10m] Name this generalized function that is equal to zero everywhere except for at the origin, where it equals infinity.

ANSWER: **delta** function [or **Dirac** delta function; accept **delta** potential]

[10h] The delta potential is frequently defined as a limit of this potential as it gets narrower and deeper. This potential has solutions that are sinusoidal in a given region, and then exponentially decay outside of it.

ANSWER: **finite** square **well** [or **finite** potential **well**; do not accept or prompt on “particle in a box” or answers with the word “infinite”]

[10e] Even though a barrier in the shape of the delta function has infinite height, particles can nonetheless pass through via this phenomenon, in which a particle surmounts a classically insurmountable barrier.

ANSWER: quantum **tunneling**

<Physics>

21. A Depression-era politician from this state campaigned for Arkansas Senator Hattie Wyatt Caraway, proposed a “cotton holiday,” and blamed Standard Oil for the Chaco War. For 10 points each:

[10m] Name this state whose skyscraper-like Art Deco capitol building is the tallest state capitol in the U.S. In that building in 1935, Carl Weiss killed a populist senator from this state who gave the “Share Our Wealth” speech.

ANSWER: **Louisiana** [or La **Louisiane**; or **LA**] (The politician was Huey Long.)

[10h] Few Louisiana tenant farmers received loans from this New Deal agency that replaced the Resettlement Administration. This agency’s official Roy Stryker trained photographers like Jack Delano and Gordon Parks.

ANSWER: **Farm Security** Administration [or **ESA**]

[10e] The Farm Security Administration helped tenants purchase tools for milling this crop in a “belt” across Mississippi, Louisiana, Texas, Arkansas, and Missouri. This Asian crop usually requires paddy irrigation.

ANSWER: **rice** [or **Oryza sativa**; accept African rice or **Oryza glaberrima**; accept **Rice** Belt; do not accept or prompt on “wild rice”]

<American History>