

## 2023 ACF Regionals

Packet H by Durham A, GWU A, Imperial B, MIT A, Sheffield A, UK A

Edited by Nick Jensen, Alexandra Hardwick, Rahul Keyal, Allan Lee, Tim Morrison, Kevin Park, Grant Peet, Graham Reid, and Chris Sims

Tossups

1. Decorative nail-like bronze pins named for a region in this modern-day country marked the emergence of personal metal objects during the Ornament Horizon. Before they spread north, this mainland country's SOM culture constructed underground gallery graves and passage tombs. A small limestone bas-relief of a nude woman turning towards a cornucopia was found in this country and is attributed to the Gravettian culture known for its Venus figurines. The "Valley of Mankind" in this country includes a site discovered when a dog fell into a hole, as well as the type site for the Mousterian ("moo-STAIR-ee-in") tool culture. The first anatomically modern humans to settle in Europe were named after this country's Cro-Magnon rock shelter. For 10 points, what country contains the cave paintings of Lascaux ("lass-KOH")?

ANSWER: **France** [or **French** Republic or République **Française**] (The Picardy pin was characteristic of the Ornament Horizon. The limestone bas-relief is the Venus of Laussel.)

<Other History>

2. *Note to moderator: Read the answerline carefully.*

Barry Levy's book on "fixing" these physical objects links their imperfections to the idea that the first one was made of black and white fire. Compared to the 10th-century "Crown of Damascus," some features found on these objects are denoted "plene" ("play-nay") or "defective" among Yemenites, who supplemented their liturgical use with the Targūm Onkelōs. A king keeps one of these objects, and each male must create one, per two of 613 commandments. Since these objects lack nekudōt ("neh-koo-DOTE"), they require an "oral" analogue that the Sadducees ("SAD-joo-seez") rejected. A metal yad ("yod") is used as a pointer for these objects, which inspired the second day of Shemini Atzeret after Sukkot. These objects are placed in an ark on the bimah ("BEE-muh"), where their 54 parashot ("pa-ra-SHOTE") are read in weekly portions. For 10 points, what sacred scrolls transmit the law by recording the Tānākh's first five books?

ANSWER: **Torah** scrolls [or Sefer **Torah** or Sifrei **Torah**; accept **Pentateuch**, **Chumashim**, **tikkun**, Written **Torah**, **Torah** she-bikhtav, Oral **Torah**, or **Torah** she-be'al-peh, or Simchat **Torah**; prompt on **Tānākh**, Hebrew **Bible**, **Mīqrā**, **Masorah**, **Masoretic** text, or **scriptures**; prompt on **scrolls**, **books**, **texts**, **manuscripts**, **codex**, **codices**, **vellums**, **skins**, **parchments**, **sefer**, **seforim**, **nusachim**, **law**, **teaching**, or equivalents of any] (The first line is about *Fixing God's Torah*.)

<Religion>

3. This artist is not Ennio Morricone, but a tribute album titled "We All Love" this artist features a duet with Stevie Wonder recorded in New Orleans. This artist collaborated with Ray Brown and Oscar Peterson on the live album *At the Opera House*, which uses recordings from the 1957 Jazz at the Philharmonic Concerts. During a concert in Berlin, this artist forgot the lyrics to "Mack the Knife" and won a Grammy for improvisation. In the French Riviera in 1967, this artist and Duke Ellington recorded a live version of "It Don't Mean a Thing (If It Ain't Got That Swing)." This artist, whose career started at the Savoy Ballroom with Chick Webb, gained fame for a song about a "green and yellow basket." For 10 points, "A-Tisket, A-Tasket" is by what "First Lady of Jazz" who was famous for her scat singing?

ANSWER: Ella **Fitzgerald** [or Ella Jane **Fitzgerald**]

<Other Fine Arts>

4. In this location, the narrator sees a red, a green, and a white woman dancing in a circle, accompanied by four women wearing purple. This location is “more highly and more serenely organized” than one of its counterparts, according to an introduction by Dorothy L. Sayers. In this location, the narrator sees a vision of two sisters named Leah and Rachel shortly before he meets a flower-picking woman named Matilda. Before leaving this location, the narrator restores his good memories by drinking from the river Eunoe (“yoo-NOH-ee”). Just before entering this location, the protagonist passes the excommunicated and the late-repentant. At the top of this location, Virgil leaves and Beatrice arrives. For 10 points, name this allegorical place, the setting of the second part of Dante’s *Divine Comedy*.

ANSWER: **Purgatorio** [or **Purgatory** or Mount of **Purgatory**; accept **Earthly Paradise** or Garden of **Eden**; accept the Seventh **Terrace** of Purgatory; prompt on **Mountain**; prompt on the **afterlife**; reject “paradise,” “heaven,” “hell,” “Paradiso,” or “Inferno”]

<European Literature>

5. A form of this quantity for a diphosphine rhodium complex influences catalytic activity in hydroformylation reactions, determining a preference for linear or branched aldehydes. That form of this quantity is defined for bidentate ligands to classify their chelating (“kee-LAY-ting”) properties. Another form of this quantity is used to measure the steric bulk of ligands; that quantity is based on the cone formed by the van der Waals spheres of the coordinated ligands and was developed by Tolman. Strains named for torsion and for this quantity contribute to the ring strain of cyclopropane, because sp<sup>3</sup>-hybridized carbon normally has a larger value for the bond type of this quantity than is allowed by its triangular shape. For 10 points, name this quantity that, for the bonds in an ideal linear molecule, is approximately 180 degrees.

ANSWER: **angle** [accept bond **angle**; accept **angle** strain or bond **angle** strain; accept dihedral **angle**; accept cone **angle** or Tolman cone **angle**; accept bite **angle**]

<Chemistry>

6. A composer for this instrument who performed under the name “Nitsuga” is best known for his three-movement work *La Catedral*, which opens with a “nostalgic” prelude. Mario Castelnuovo-Tedesco wrote 24 preludes and fugues for two “bien tempérées” examples of these instruments inspired by the husband-and-wife duo Alexandre Lagoya and Ida Presti. Julian Bream was the dedicatee of Britten’s *Nocturnal* for this instrument inspired by the Renaissance composer John Dowland (“DOH-lind”). A set of five preludes and 12 études for this instrument were written by Heitor Villa-Lobos. The best-known concerto for this instrument contains a lengthy English horn solo in its slow B minor second movement and was inspired by the Aranjuez gardens. For 10 points, name this instrument whose Classical performance practice was revolutionized by Andrés Segovia.

ANSWER: **guitar** [accept classical **guitar** or Spanish **guitar** or acoustic **guitar**; accept *Les Guitares bien tempérées*] (“Nitsuga” is Agustín Barrios Mangoré’s first name spelled backwards.)

<Classical Music>

7. Arthur Symons praised illustrations of this building by the artist Alastair for a limited print run by the Black Sun Press. The narrator blames “electrical phenomena” when this building is enveloped by a glowing “agitated vapor.” This building’s “vacant, eye-like windows” conjure “an iciness... a sickening of the heart” as a man on horseback spends “a dull, dark, and soundless day” traveling to visit a friend afflicted by “morbid acuteness of the senses.” Sounds of cracking and ripping in this building mirror the story of Ethelred during a reading of Sir Launcelot Canning’s “Mad Trist.” At the end of an 1839 story, this building crumbles into a lake after Madeline escapes a premature burial and attacks her twin brother Roderick. For 10 points, a story by Edgar Allan Poe depicts the “fall” of what building?

ANSWER: the **house** of **Usher** [or equivalents such as the **mansion** of the **Ushers**; accept “The Fall of the **House** of **Usher**”]

<American Literature>

8. A bas relief of five double outrigger ships from this island is named for a temple built to the west of the two courts of its later “dual kingdoms.” Prapañcā (“prah-PAHN-chah”) used this island’s Kawi script to compose a 14th-century kakawin, or long poem, in its namesake “old” language. A princess from this island named Pitaloka took her own life after the Battle of Bubat. After they subdued this island’s Kediri Kingdom, Kublai Khan’s forces were betrayed by Raden Wijaya. The Sañjaya dynasty moved its court eastward after this island’s Mount Merapi volcano devastated the city of Mataram. The Śailendras (“shay-LEN-druhs”) originated from this island’s Kedu Plain and depicted three Buddhist realms in its Borobudur temple complex. For 10 points, the Majapahit Empire was centered on what island, the most populous in Indonesia?

ANSWER: **Java** [or **Jawa**; accept Old **Javanese**; accept basa **Jawa**] (The “dual kingdoms” were Yogyakarta and Surakarta, or Solo, which derived from the partition of the Mataram Sultanate.)

<World History>

9. The LHCb collaboration at CERN accidentally discovered an exotic baryon composed of five of these particles in 2015, resulting from the decay of a bottom lambda baryon. In 2020, the same experiment discovered a combination of four of these particles called X(6900). Fermilab’s Tevatron discovered the most massive of these particles in 1995 using collision energies of almost 2 TeV (“T-E-V”). Mixing angles describing the eigenstates of these particles can be used to parameterize the CKM matrix. High energy lepton experiments at SLAC (“slack”) provided the first convincing evidence for these particles, which was inferred through deep inelastic scattering. Pairs of these particles with their antiparticles make up most mesons (“MEE-zons”). For 10 points, name these particles whose up and down flavors make up protons and neutrons.

ANSWER: **quarks** [accept anti**quarks**; accept charm **quarks**, up **quarks**, down **quarks**, or top **quarks**; accept tetra**quarks** or penta**quarks**]

<Physics>

10. *Note to moderator: Read the answerline carefully.*

The “flowers” of this trait are contrasted with its “bitter” and “grievous” opposite in elegies by Mimnermus. Plato defined this trait as “spiritual drunkenness.” Agoracritus uses a skill from selling sausages to confer this trait on the Demos in Aristophanes’s *Knights*. In a late myth, Hera consumes lettuce to conceive a goddess of this trait who bathes Ares. This non-sexual trait typically distinguished the erômenos from the erastês. Medea chops up a ram and boils it to give it this trait in order to trick Pelias’s daughters. This trait is personified by a goddess who marries Herakles and is replaced by Ganymede as Olympus’s cupbearer. Because Eos [emphasize] *fails* to ask Zeus for this trait, Tithonus becomes a cicada. For 10 points, what trait personified by Hebe is mythically conferred along with immortality by a fountain?

ANSWER: **youth** [or being **young**; accept eternal **youth** or **rejuvenation** or fountain of **youth**; accept **teenaged**, **adolescent**, **childhood**, **boyhood**, **maidenhood**, **girlhood**, **minor**, **immature**, **pubescent**, **ephebes**, **neos**, **meîrax**, **meirákion**, or equivalents of each; accept **Hebe** until read; accept **Juventas** or **Juventus**; prompt on age or how old; prompt on beauty or physical attractiveness or similar; reject “immortality,” “eternal life,” “old age,” or “virginity”]  
<Mythology>

11. A group of displaced workers in this industry settled in Claverack Landing, which they renamed to “Hudson.” It’s not tea, but the novel *Miriam Coffin* fictionalized marriage compacts in this industry, which brought a fortune to the Rotch family. Paul Cuffe (“CUFF-ee”) broke a British blockade to supply a major center in this industry, whose main product was processed in trypots after flensing. Donald Warrin’s book *So Ends This Day* chronicled this industry’s use of Portuguese immigrants from the Azores. One of the dangerous “sleighrides” common in this industry caused the 1820 *Essex* disaster, leaving workers to resort to cannibalism. Until the mid-19th century, this industry was dominated by New Bedford and Nantucket. For 10 points, name this industry that harvested blubber and baleen from the ocean.

ANSWER: **whaling** industry [or hunting **whales** or killing **cetaceans** or equivalents; accept specific products such as **whale** oil, **whale** fat, **whale** wax, **whale** meat, **blubber**, **spermaceti**, **baleen**, or **ambergris**; prompt on candle industry or lighting; prompt on fishing or hunting; prompt on boating or sailing; prompt on oil, fat, wax, or meat by asking “derived from what source?”] (Joseph C. Hart wrote *Miriam Coffin*. A real Coffin family member named Owen drew the short straw on the *Essex* and was thus cannibalized.)  
<American History>

12. This author wrote about the friendship between Raduan Murad and Jamil Bichara in the novel *The Discovery of America by the Turks*. In a novel by this author, a newspaper magnate’s stockpile is vandalized after he attempts to improve trade by having a sandbar removed. A character created by this author dies while dancing with a cassava tuber tied under his skirt. This author created a title character who works as a cook at a bar on St. Sebastian Street and later marries that bar’s Syrian owner, Nacib Saad. Another novel by this author depicts the protagonist’s relationships with the pharmacist Teodoro and the ghost Vadinho. For 10 points, *Gabriela, Clove, and Cinnamon* and *Dona Flor and her Two Husbands* are novels by what Brazilian modernist author?

ANSWER: Jorge **Amado** [or Jorge Leal **Amado** de Faria]  
<World Literature>

13. This artwork stayed in storage in New Mexico for many years after grassroots efforts inspired by the documentary *Right Out of History* brought it to Houston and Frankfurt. The last of this artwork's six "entry banners" reads "And then Everywhere was Eden Once again." Loft volunteers sewed a Coptic portrait and *opus teutonicum* embroidery into some of this artwork's runners. This artwork's "central-core" imagery recurs in three wings from prehistory to the "revolution" around the 999 names of its "Heritage Floor." This 1979 installation at the Brooklyn Museum features hand-painted ceramics evoking flowers and vulvas, which are arranged in a triangle and are dedicated to Georgia O'Keeffe and 38 other "guests of honor." For 10 points, name this table set for great women created by Judy Chicago.

ANSWER: *The Dinner Party*

<Painting/Sculpture>

14. Blocking the release of this molecule, nephrotoxicity, and ototoxicity are side effects of aminoglycoside antibiotics. Beta-bungarotoxin depresses, then increases, levels of this molecule via phospholipase A2 activity in krait ("krite") venom. This molecule's hydrolysis is inhibited by carbamate insecticides, as well as malathion ("mal-uh-THIGH-on") and chlorpyrifos ("clor-PEER-ih-foss"). This molecule's enzymatic breakdown is inhibited temporarily by physostigmine ("fyce-oh-STIG-meem") in Calabar beans and irreversibly by organophosphate nerve agents like sarin gas. Belladonna tropane alkaloids like atropine non-selectively antagonize this molecule's receptors, which are blocked by curare ("cure-RAH-ree") and botulinum toxin at the neuromuscular junction. For 10 points, muscarine and nicotine are agonists of two types of receptor bound by what neurotransmitter derived from acetyl-CoA?

ANSWER: **acetylcholine** [or **ACh**; accept acetyl**cholinergic** receptors, **acetylcholine** receptors, n**ACh**Rs, or m**ACh**Rs; accept **acetylcholine**esterase or **AChE** or **AChase**; accept anti**cholinergic** drugs]

<Biology>

15. Private exchanges can create a form of this property named for a "dark pool" in order to facilitate block trades. Disparate desires for this property between borrowers and lenders lead to instability in the Diamond–Dybvig model. Because money supply is inelastic with respect to nominal interest rates, a vertical line intersects with a downward-sloping curve named for this property in the IS–LM model. This property of a stock can be measured using the bid–ask spread of the market, and when it is insufficient to meet withdrawals, it can cause a namesake "crisis," as in bank runs. When interest rates are too low, people will tend to hoard cash in this property's namesake "trap." For 10 points, name this property of an asset that measures how easily it can be bought or sold.

ANSWER: **liquidity** [accept **liquidity** trap; accept **liquidity** crisis; accept **liquidity** preference; accept **liquid** assets]

<Social Science>

16. Hilary Putnam and Juliet Floyd isolated this philosopher's "claim of great interest" in a "notorious paragraph" about Gödel's incompleteness theorems. This philosopher's acceptance of mathematical contradictions led an opponent to note that "the real harm" comes when "a bridge may fall down." This author of *Remarks on the Foundations of Mathematics* inspired a later philosopher to propose an alternative to the addition operator that returns five if either argument exceeds 57, called "quus," to illustrate this philosopher's rule-following paradox. Bertrand Russell's logical atomism drew on a work by this philosopher structured via seven propositions, which begins, "The world is everything that is the case." For 10 points, name this Austrian author of the *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig **Wittgenstein** [or Ludwig Josef Johann **Wittgenstein**] (The second sentence refers to Wittgenstein's debates with Alan Turing. The "quus" function appears in Saul Kripke's *Wittgenstein on Rules and Private Language*.)

<Philosophy>

17. After Maurice Hankey rejected leading this institution as not important enough, Eric Drummond took the position. A “practical suggestion” for this institution that urged it to go beyond the role of a *deus ex machina* was ironically penned by Jan Smuts (“yahn smoots”). Albanian bandits may have assassinated this institution’s employee Enrico Tellini in a plot to incriminate Greece. A politician later exiled to the Fairfield House in Bath told this institution, “It is us today, it will be you tomorrow” during an earnest speech. This institution, which recused itself from the Corfu Incident, first issued documents promoted by Fridtjof Nansen to aid stateless refugees. This institution implemented “A,” “B,” and “C” classes of mandates to govern former German colonies. For 10 points, name this international body created to foster peace after World War I.

ANSWER: **League of Nations** [or **Société des Nations**] (Haile Selassie gave the earnest speech.)

<European History>

18. Officials seeking fighters of this ethnicity hammer a doctor’s finger in the novel *Run Me to Earth*. A poet of this ethnicity wrote, “I am refugee. You are too” in *Afterland* and titled a collection for this ethnicity’s exposure to toxic “yellow rain.” The memoir *The Latehomecomer* recounts America’s settlement by women of this ethnicity, who embroider narrative “story cloths.” A book about this ethnic group compares their culture to fish soup and ends with a shaman’s “soul-calling” ceremony to pacify beings called *dab* (“dah”) in Merced. This ethnic group’s friction with American medicine is typified by the epileptic child Lia in Anne Fadiman’s book *The Spirit Catches You and You Fall Down*. For 10 points, after the Secret War, what ethnic group’s refugees settled Wisconsin and Minnesota from highland Thailand and Laos?

ANSWER: **Hmong**-Americans [or **Hmoob** Mes Kas; accept **Miao** or **Meo** (note that many Hmong consider them pejorative); accept **Hmaob**, **Hmu**, **A-Hmao**, or **Xongb**; prompt on **Asian-Americans**; prompt on **Laotians** or **Lao**; prompt on **Xiong**, **Vang**, **Lo**, **Cha**, **Thao**, **Fang**, **Kue**, **Vue**, **Yang**, or **Lee**; prompt on “**hill people**”; prompt on **Hmong–Mien peoples**] (Paul Yoon wrote *Run Me to Earth*. The second line is about Mai Der Vang. Kao Kalia Yang wrote *The Latehomecomer*.)

<Other Academic>

19. A man in this play shares nonsensical stories about Saul of Tarsus in Heaven and a Christian convert named Abdullah before he theorizes that people must be born with an “intuition of mortality” since the realization would be “shattering.” That man from this play states that he would rather be alive in a box forever than dead in one and claims that fingernails and beards continue to grow after death. A character in this play is told that there is no applause after death before being stabbed with a retractable knife. While aboard a ship, this play’s protagonists find that their own names have been subbed in for a prince’s name in a letter ordering an execution. For 10 points, name this play that retells *Hamlet* from the perspective of its doomed title characters, written by Tom Stoppard.

ANSWER: **Rosencrantz and Guildenstern Are Dead**

<British Literature>

20. Binary star systems named after this phenomenon “colliding” are strong X-ray sources unrelated to conventional X-ray binaries. In high-temperature stars, this phenomenon is radiation-driven, leading to a relation between luminosity and the momentum it carries. This phenomenon causes O- and B-type stars to produce approximately spherical “bubbles” of hot gas. This phenomenon slows to subsonic speeds beyond the termination shock, after which it comes to a stop where its pressure balances the interstellar medium at the heliopause. The interaction of this phenomenon with Earth’s magnetic field causes auroras. For 10 points, identify this phenomenon, streams of charged particles emitted by a star.

ANSWER: **stellar wind** [or **solar wind**; prompt on **wind**]

<Other Science>

21. This conflict was influenced by the illegal smuggling of William Baynes's wife nearly a decade earlier. During this conflict, accusations of stealing grain intended for the poor caused the kidnapping of Vincent Stanton. Karl Gützlaff served as an interpreter during this conflict after having done the same for a company owned by James Matheson and William Jardine. The success of the Broadway expedition during this conflict was aided by the first deployment of the HMS *Nemesis*. This conflict began a "century of humiliation" for a state forced to sign "unequal treaties" in its aftermath. This conflict was a response to a raid on the "Thirteen Factories" by Lín Zéxú ("lin dzuh-shoo"). For 10 points, name this 1839-to-1842 conflict between Britain and the Qīng dynasty over an illicit commodity.

ANSWER: First **Opium** War [or Diyīcì **Yāpiàn** Zhànzhēng; accept First **Anglo-Chinese** War or First **Anglo-Sino** War until "Britain" is read; reject "Second Opium War"] (Baynes smuggled his wife into Canton despite policies barring foreign women from entering.)

<Other History>

## Bonuses

1. Some of these phenomena appear near Gurdon, Arkansas, Brown Mountain, North Carolina, Marfa, Texas, and the Missouri–Oklahoma–Kansas tri-state area. For 10 points each:

[10e] Name these mysterious phenomena that may be caused by earthquakes, ball lightning, plasma attributed to Saint Elmo, or the swamp gas responsible for the will-o'-the-wisp.

ANSWER: ghost **lights** [or ghostly **fires**, mystery **lights**, atmospheric **lights**, or **luminous** phenomena; accept Saint Elmo's **fire** or witch**fire**; accept **ignis** fatuus or foolish **fire**; accept Marfa **lights**, Chinati **lights**, earthquake **lights**, Brown Mountain **lights**, Gurdon **Light**, Tri-State Spook**light**, or Hornet Spook**light**; prompt on **orbs**]

[10h] It's not North Carolina, but a phantom signalman created a ghost light in this state's town of Chapel Hill. A luminous "long dog" appeared in Surgoinsville in this state, where a family was menaced by the Bell Witch in 1817.

ANSWER: **Tennessee** [or **TN**]

[10m] Loren Coleman's book *Mysterious America* links the lore of this creature to sightings of "mystery kangaroos" in states like Tennessee. Joseph Bonaparte supposedly saw this child of Mother Leeds on the edge of the Pine Barrens.

ANSWER: **Jersey Devil** [or New **Jersey Devil**; prompt on Leeds **Devil** or **Devil** of Leeds]

<Mythology>

2. The seer Almitra introduces several fables told by this character, and later remains alone on the sea wall after this character departs. For 10 points each:

[10m] Name or describe this title character who is asked to speak on topics such as Love, Prayer, and Death before he sails away from the city of Orphalese.

ANSWER: The **Prophet** [or **Almustafa**]

[10e] This Lebanese-American author of *The Prophet* also wrote a dialogue between three unnamed gods titled *The Earth Gods*.

ANSWER: Kahlil **Gibran** [or Jibrān Khalīl **Jibrān**; or Jubrān Khalīl **Jubrān**]

[10h] Almustafa returns in Gibran's posthumously-published sequel to *The Prophet*, whose title mentions one of these locations. A poetry collection by Saadi opens with a friend telling him to go to one of these places in April.

ANSWER: **gardens** [accept *The Rose* **Garden**, *The Flower* **Garden**, **Gulistan**, or **Golestan**; accept *The Garden of the Prophet*; reject "orchards" or "*Bustan*"]

<World Literature>

3. This country's National Commission on the Disappearance of Persons, or CONADEP, published a report titled "Nunca Más," or "Never Again." For 10 points each:

[10m] Name this country where the National Reorganization Process took power in a coup that involved the strafing of the Casa Rosada. Raúl Alfonsín led this country's Radical Civic Union party after the collapse of its junta.

ANSWER: **Argentina** [or **Argentine** Republic or República **Argentina**] (The coup that strafed the Casa Rosada overthrew Isabel Perón in 1976.)

[10e] The Argentine military junta's failure to capture these Atlantic islands resulted in Leopoldo Galtieri being ousted shortly after the British retook their capital of Stanley.

ANSWER: **Falkland** Islands [or Islas **Malvinas**]

[10h] Argentina's Radical Civic Union was earlier led by this politician known as "the father of the poor." The "Infamous Decade" of the 1930s began after José Uriburu deposed this founder of the YPF energy company.

ANSWER: Hipólito **Yrigoyen** ("ee-PO-lee-toh ee-ree-GOH-yen")

<World History>



4. Andrew Feenberg’s “critical theory” of this phenomenon aims to democratize its study in order to realize its “ethical limits.” For 10 points each:

[10m] Name this phenomenon whose essence is characterized by the “enframing” notion of “Gestell” (“guh-SHTELL”), per a Martin Heidegger essay that questions whether this title phenomenon is “a means to an end” or “a human activity.”

ANSWER: **technology** [accept *The Question Concerning Technology* or *Die Frage nach der Technik*; accept *The Critical Theory of Technology*]

[10e] Mario Bunge’s (“BOON-gay’s”) notion of “technoethics” prioritizes this normative concept often distinguished from “fact.” Subjective moral claims about an action are called this sort of “judgment” in reference to its worth.

ANSWER: **value** [accept **value** judgment; accept **value** theory]

[10h] The title of Stephanie Hare’s book on technology ethics, *Technology Is Not Neutral*, is a quote from this philosopher. This philosopher’s essay subtitled for “Science, Technology, and Socialist-Feminism” discusses beings that would exist in a “post-gender world.”

ANSWER: Donna **Haraway** [or Donna Jeanne **Haraway**] (The essay is “A Cyborg Manifesto.”)  
<Philosophy>

5. Answer the following about the field of optimal transport, which studies how to move one distribution to another while minimizing a cost, for 10 points each.

[10m] Efficient transport of soil inspired the Wasserstein, or “earth mover’s,” one of these functions. These functions satisfy the triangle inequality and equal zero if and only if their two arguments are the same.

ANSWER: **metric** functions [or **metrics**; or **distance** functions; accept earth mover’s **distance** or Wasserstein **metric**]

[10e] Unlike Monge’s (“mawnj’s”) focus on transport functions, Kantorovich’s formulation optimizes over a set of measures that conveniently has this property. A polygon has this property if all of its angles are less than 180 degrees.

ANSWER: **convex** [or **convexity**]

[10h] When the cost is constant between distinct points, the Kantorovich optimal cost is proportional to this quantity for a difference of measures. For a function, this quantity, abbreviated TV, is the supremum across all partitions of its net change summed over the intervals of that partition.

ANSWER: **total variation**

<Other Science>

6. Napoleon commissioned Antonio Canova’s “Italian” sculpture of this figure to replace an earlier “Medici” version that he had looted for the French. For 10 points each:

[10e] Name this goddess who is shown reclining nude on a couch “Victorious” in Canova’s sculpture of Pauline Bonaparte. She disarms Mars in a sculpture by Canova that marks Napoleon’s defeat at Waterloo.

ANSWER: **Venus** [accept **Venus** *Victrix*; accept **Venus** *and Mars*; accept **Venus** *Italica*]

[10m] *Venus Victrix* celebrated Pauline Bonaparte’s marriage into this family and is displayed alongside many works by Bernini at its namesake “Galleria,” which once held Agasias of Ephesus’s sculpture of a charging gladiator.

ANSWER: **Borghese** (“bor-GAY-zay”) [accept Galleria **Borghese**; accept **Borghese** *Gladiator*]

[10h] This sculpture was among the art that Canova had returned to Italy after Napoleon’s defeat. Pope Pius VII purchased Canova’s *Perseus Triumphant*, which was modeled on this ancient sculpture, to replace it after it was looted.

ANSWER: **Apollo Belvedere**

<Painting/Sculpture>

7. *Specific term required.* Mosaics from Sepphoris, Israel, and Sarrīn, Syria, depict these structures, whose original corridor and well models were replaced by the column design. For 10 points each:

[10h] Name these structures that include one built by Senwosret III south of Semna and an octagonal one reconstructed by Caliph Al-Mutawakkil at Rhoda. Elephantine's Temple of Satis preserves one of these structures divided into cubits.

ANSWER: **nilometers**

[10e] Egyptian farmers used nilometers to time irrigation with the shaduf and the sāqiyah type of these structures. Egypt didn't have to reinvent their Mesopotamian design of spokes around an axle.

ANSWER: **wheels** [accept water **wheels**]

[10m] Sāqiyah water wheels enabled intensive sorghum-based agriculture after the period named for this city, whose "island" produced charcoal and smelted iron. This Kushite capital near Napata names two partially deciphered scripts.

ANSWER: **Meroë** [or **Medewi**, **Meruwi**, **Bedewi**, or **Meruwah**; accept **Meroitic** script; accept **Meroitic** Period or Post-**Meroitic** Period; accept island of **Meroë** or **Butāna**; accept **Bagrawiyah**]

<Other History>

8. Answer the following about gamelan music's influence on Western composers, for 10 points each.

[10e] This composer incorporated gamelan-inspired music into his piano composition *Pagodes* after first hearing Indonesian instruments at the 1889 Exposition Universelle. This French composer also wrote *La mer*.

ANSWER: Claude **Debussy** [or Achille-Claude **Debussy**] (*Pagodes* is the first of Debussy's *Estampes*.)

[10m] Gamelan music may have inspired the hypnotic effects in these piano compositions by Erik Satie. These piano pieces, whose name probably derives from the Greek for "knowledge," are often grouped with Satie's *Gymnopédies*.

ANSWER: **Gnossiennes**

[10h] David Bowie described this 1970s work as "Balinese gamelan music cross-dressing as minimalism." This work is based on a cycle of 11 chords, which are each held for two breaths until the ensemble returns to the first chord.

ANSWER: **Music for 18 Musicians** (by Steve Reich)

<Classical Music>

9. This play depicts the adventures of Wild and his friends La Feu and Blasius, whose names all reflect their personalities. For 10 points each:

[10h] Name this five-act play by Friedrich von Klinger. This play was initially titled *Wirrwarr*, meaning "Confusion," but it received its better-known title before it premiered in 1777.

ANSWER: **Sturm und Drang** [or **Storm and Stress**]

[10e] Despite his lower-class background, Klinger was a childhood friend of this major exponent of the *Sturm und Drang* movement. This author, who helped fund Klinger's studies, wrote *The Sorrows of Young Werther*.

ANSWER: Johann Wolfgang von **Goethe**

[10m] Later, Goethe formed an influential friendship and collaboration with Friedrich Schiller, who wrote this quintessential *Sturm und Drang* play. This play depicts the conflict between the brothers Karl and Franz Moor.

ANSWER: *The **Robbers*** [or *Die **Räuber***]

<European Literature>

10. Answer the following about genetic risk factors for colorectal cancer, for 10 points each.

[10e] Bert Vogelstein found that allelic losses in these genes accumulated in colorectal carcinomas, building on Knudson's two-hit hypothesis about their inactivation. These protective genes include p53.

ANSWER: **tumor suppressor** genes [or **anti-oncogenes**; prompt on **TSGs** by asking "what does that stand for?"]

[10m] Lynch syndrome confers an increased colon cancer risk due to a defective mismatch repair allele that also causes "instability" in these sequences. Forensic DNA fingerprinting uses RFLPs ("R-flips") and these brief, repetitive sequences.

ANSWER: **microsatellites** [or **microsats**; or **short tandem repeats**, **STRs**, **simple sequence repeats**, or **SSRs**; accept **variable number tandem repeats** or **VNTRs**; accept **minisatellites**; accept **microsatellite** instability or **MSI**; prompt on **satellites** or tandem **repeats**]

[10h] The attenuated form of familial adenomatous polyposis, or FAP ("fap"), may result from indels that act in this manner by truncating APC. Hermann J. Muller coined this term for alleles with partial loss of function, unlike null mutations.

ANSWER: **hypomorphs** [or **hypomorph**ic mutations; accept **weak** alleles; prompt on **knockdown**; prompt on "Muller's **morphs**"]

<Biology>

11. In a photograph from this conflict, a family runs down stairs on the bottom left as tanks fire on the road above them. For 10 points each:

[10h] Name this conflict during which David Douglas Duncan documented a canyon road called "Nightmare Alley." During this conflict, Max Desfor photographed people climbing over a wrecked bridge to flee oncoming troops.

ANSWER: **Korean** War [or **6/25** War, **Hanguk** Jeonjaeng, **Fatherland Liberation** War, or **Choguk haebang** Jeonjaeng]

[10e] For his aforementioned photograph of Pyongyang refugees, Desfor won this annual prize awarded by Columbia University, which also has categories for poetry and musical composition.

ANSWER: **Pulitzer** Prize

[10m] This photojournalist's coverage of the Korean War for *Life* included an image of a soldier holding an ax and looking at a guerrilla fighter's decapitated head. During the Great Depression, this photographer and her partner Erskine Caldwell created the book *You Have Seen Their Faces*.

ANSWER: Margaret Bourke-**White** [or Margaret **White**]

<Other Fine Arts>

12. Michael McGivney founded a fraternal benefit society named for this person, whose members – often excluded from trade unions – were provided with life insurance programs. For 10 points each:

[10m] Identify this historical figure who names an organization led by Supreme Knights such as Luke E. Hart. That organization supported Generoso Pope's efforts to declare a national holiday for this person.

ANSWER: Christopher **Columbus** [or Cristoforo **Colombo**; accept Knights of **Columbus**; prompt on **K of C** by asking "what does that stand for?"]

[10e] Members of this faith founded the Knights of Columbus for mutual aid. James G. Blaine, who wrote a failed amendment to keep funding from religious schools, suffered politically when a follower called this faith "Romanism."

ANSWER: Roman **Catholicism** [or Roman **Catholic** Church; prompt on the **Church**; prompt on **Christianity**]

[10h] The Supreme Court sided with Catholic schools and the Knights against this state in the case *Pierce v. Society of Sisters*. The case arose after this state's KKK and Governor Walter Pierce backed its Compulsory Education Act.

ANSWER: **Oregon** [or **OR**; accept **Oregon** Compulsory Education Act]

<American History>

13. Emil and George philosophize about life over 14 conversations while sitting at one of these places in David Mamet's *The Duck Variations*. For 10 points each:

[10m] Identify this type of place where, in a different one-act play, a man with two cats and parakeets repeats the phrase "Oh my god" after another man impales himself on his knife.

ANSWER: a park **bench** [prompt on park or Central Park; reject "zoo"]

[10e] Peter watches Jerry bleed to death on a bench in Central Park at the end of this author's play *Zoo Story*.

ANSWER: Edward **Albee** [or Edward Franklin **Albee** III]

[10h] A man and woman fall in love on a park bench in this author's absurd play *The Loveliest Afternoon of the Year*. A play by this author opens with Paul claiming he was mugged in Central Park upon arriving at an apartment decorated with a two-sided Kandinsky painting.

ANSWER: John **Guare** ("gwair") (The second play is *Six Degrees of Separation*.)

<American Literature>

14. Along with Felix Warneken, this researcher found that by the age of two, children altruistically help strangers who are unable to carry out a plan, such as attempting to open a door while carrying a pile of books. For 10 points each:

[10h] Name this Duke psychologist who has argued that shared intentionality is the crucial distinction between human cognition and that of other related species.

ANSWER: Michael **Tomasello**

[10e] During cognitive development, Tomasello has argued that children develop "islands" based on this kind of word, which allow other lexical items to be slotted in. This kind of word comes second in an SVO sentence structure.

ANSWER: **verb** [accept **verb** island hypothesis]

[10m] The "verb island" hypothesis contrasts with this theory, which emphasizes the genetic contribution to language acquisition. Daniel Everett has claimed that the Pirahã language's lack of recursion disproves this theory.

ANSWER: **universal grammar** [or **UG**]

<Social Science>

15. NanoDrop instruments are optimized to perform this technique on a very small amount of sample. For 10 points each:

[10m] Name this technique in which light from a monochromator ("mono-CROM-uh-ter") is passed through the sample to measure the transmittance.

ANSWER: **spectrophotometry** [or **UV-vis** spectroscopy or **ultraviolet-visible** spectroscopy; prompt on **spectroscopy** or optical **spectrometry**]

[10e] Spectrophotometry can be used to find this quantity for a solution based on the measured transmittance and the molar absorption coefficient for the solute. Molarity and molality are two measures of this quantity.

ANSWER: **concentration**

[10h] Spectrophotometry can be used in combination with this technique, which quickly combines small volumes of reactants from two syringes, to study the kinetics of fast reactions.

ANSWER: **stopped-flow**

<Chemistry>

16. A book by Robin Globus Veldman evaluates the “end-time apathy hypothesis” to explain why evangelicals often deny the severity of this problem. For 10 points each:

[10e] Name this problem that the evangelical and scientist Katharine Hayhoe explains to skeptics in *Saving Us*. The Green Bible affirms that this problem is anthropogenic.

ANSWER: **climate** change [or anthropogenic **climate** change or global **warming** or global **heating**; accept **climate** change denial or **climate** skepticism; accept **greenhouse** effect or **greenhouse** gas emissions; accept “global **weirding**”; accept *The Gospel of Climate Skepticism*; prompt on **emissions** or **pollution** or **environmental** problems]

[10h] *The Gospel of Climate Skepticism* discusses a Southern Baptist “interpretation” named for this word, which is often seen as an alternative to dominion theology. This ethic holds that disciples should restore and watch over creation.

ANSWER: **stewardship** [or word forms like **stewarding**; accept Christian **stewardship** or theology of **stewardship** or responsible **stewardship**; accept **stewardship** interpretation; prompt on **responsibility** or **responsible**]

[10m] This word names a Lausanne Movement consultation on “creation care” that promoted stewardship. A recent “shift” in the centers of Christianity is named for this word or a synonym, which denotes a paradigm that foregrounds the “big five” religions.

ANSWER: **global** [or **world**; accept **world** religions or **world** religions paradigm; accept **world** Christianity or **global** Christianity or **global** shift; accept **Global** Consultation on Creation Care; prompt on **WRP** by asking “what does that stand for?”]

<Religion>

17. A “bachelor” in a train car enralls three children with a tale about the “horribly good” girl Bertha, who dies in this manner, in the story “The Storyteller.” For 10 points each:

[10h] Identify this cause of death that Van Cheele believes happened to the Toop child in the story “Gabriel-Ernest.” Another story ends by implying this cause of death for two men in the Carpathians who have finally resolved a feud.

ANSWER: being killed by a **wolf** [or being eaten by a **wolf**; accept **wolves** or a werew**olf** in place of “wolf”; prompt on being **eaten** alive; prompt on being killed by an **animal**]

[10e] Unpleasant run-ins with wolves feature in many stories by this pseudonymous British author of “The Interlopers” and “The Open Window.”

ANSWER: **Saki** [or Hector Hugh **Munro** or H. H. **Munro**]

[10m] Howling wolves accompany deaths in one of these buildings in Saki’s story “The Wolves of Cernogratz.” In Angela Carter’s story “The Bloody Chamber,” which adapts a folktale, a man murders his many wives in one of these buildings.

ANSWER: **castle** [accept Bluebeard’s **Castle**] (“The Bloody Chamber” is an adaptation of the Bluebeard tale.)

<British Literature>

18. Economic historians such as Jean Gimpel have branded Jean Boinebroke the first modern capitalist entrepreneur for his activities in this industry. For 10 points each:

[10e] Name this industry of Flemish workers in Douai (“dway”) who rioted in 1245 in the earliest example of a labor strike in post-Roman Europe. Florentine weavers in this industry led the Revolt of the Ciompi (“chom-pee”).

ANSWER: **textile** industry [or **cloth** industry or **fabric** industry; accept **wool** industry]

[10m] As increased access to textile products in late medieval Europe spurred the rise of popular fashion, elites reacted by passing several of these ordinances. These laws were intended to regulate, in part, what clothing people could wear.

ANSWER: **sumptuary** laws [or **sūmptuāriac** lēgēs]

[10h] The Quattro Censori enforced this city’s sumptuary laws with clothing inspections and a box for anonymous reports of violations. A mount of piety founded in this city in 1472 evolved into one of the world’s oldest banks.

ANSWER: **Siena** [accept Republic of **Siena** or Repubblica di **Siena**; accept Banca Monte dei Paschi di **Siena**; prompt on **BMPS** by asking “what does that stand for?”]

<European History>

19. King Saud disliked Winston Churchill’s gift of one of these objects, which the book *Being Young, Male and Saudi* highlights as masculine status symbols. For 10 points each:

[10e] Name these objects that spectators view at the Bahrain International Circuit. King Faisal said that in one generation the Saudis “went from riding camels” to riding these objects, which women won the right to use in 2018.

ANSWER: **cars** [or **automobiles** or motor**cars** or **vehicles**; accept **Cadillacs**, **Rolls-Royces**, **Mercedes**, **jeeps**, **limousines**, or other specific cars] (Saud objected to the Rolls-Royce’s right-hand drive, which would place him to the left of his chauffeur.)

[10m] Saud imported a fleet of Cadillacs and outfitted four-wheel-drive vehicles to hunt gazelle and houbara bustards with these animals. They’re not camels, but the UAE issues passports to control trafficking of these animals for races.

ANSWER: **falcons** [or **Falco**; accept **falconry** or **falcon** hunting or **falcon** racing; accept **peregrine** falcons or **Falco peregrinus** or **shahin**; accept **gyrfalcons** or **Falco rusticolus**; accept **saker** falcons or **Falco cherrug**; accept **lanner** falcons or **Falco biarmicus**; prompt on **birds** or **avians**; reject “hawks”]

[10h] In 2020, a viral Qatari photo of one of these other animals in a garbage bag publicized their abuse by rich Gulf influencers. In 2018, Somaliland convicted smugglers of these animals, which are threatened by low genetic diversity.

ANSWER: **cheetahs** [or **Acinonyx jubatus** or **A. jubatus**; prompt on big **cats** or **felines** or **felids**]

<Pop Culture>

20. Coherent states in this system are formed by applying the displacement operator to the ground state. For 10 points each:

[10e] Name this system with a quadratic potential, the quantum version of a mass on a spring.

ANSWER: quantum **harmonic oscillator** [accept **QHO**; prompt on **oscillator**]

[10h] A coherent state can be further modified by this process, which reduces the width of its position or momentum distribution while widening the other. Since 2019, LIGO has used this process on their laser light to boost sensitivity.

ANSWER: **squeezing** [accept **squeezed** coherent state; accept **squeeze** operator]

[10m] While squeezing can reduce the uncertainty in one conjugate variable, the other must increase, so that their product remains greater than or equal to one-half times this constant, according to the Heisenberg uncertainty principle.

ANSWER: **h-bar** [or **reduced Planck’s constant**; or **h over two pi**; or **Planck’s constant over two pi**; reject “Planck’s constant” or “h”]

<Physics>

21. This figure dons a fur cloak and a yellow belt decorated with a swastika in a history painting by Mårten Eskil Winge that, like a 1905 painting by Max Friedrich Koch, depicts him riding a chariot. For 10 points each:

[10h] Name this figure who is shown nude mid-combat in a painting based on Thomas Percy's book *Northern Antiquities* that the artist submitted as a diploma work to the Royal Academy.

ANSWER: **Thor** [or **Thunar**, **Thuner**, **Donar**, or **Thunor**]

[10m] This Swiss artist painted *Thor Battering the Midgard Serpent*. In his most famous painting, a ghostly horse pokes its head through a curtain and stares at the incubus crouched on a sleeping woman.

ANSWER: Henry **Fuseli** [or Johann Heinrich **Füssli**] (The unnamed painting is *The Nightmare*.)

[10e] Fuseli drew on Swiss mythology for his painting of this type of action at Rütli. He may have been inspired by a Jacques-Louis David painting titled for this action that shows the Horatii saluting their father.

ANSWER: **oaths** [or swearing an **oath**; or making a **vow**; or equivalents; accept **Oath of the Horatii** or *Le Serment des Horaces*; accept **Oath on the Rütli** or **RütliSchwur**]

<Painting/Sculpture>