

2022 ACF Fall

Packet A by Claremont A, CWRU B, Sheffield B

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Tossups

1. In this state, a set of ruins misattributed to the Aztecs is part of a World Heritage Site at Chaco Canyon. A chief known as “Bullet” led a guerrilla campaign to stop the Long Walk to this present-day state’s Bosque (“BOSE-kay”) Redondo reservation. This state’s Zuni settlement of Hawikuh was named Cibola after one of the legendary Seven Cities of Gold by Francisco de Coronado. In 1680, Spanish settlers who founded the oldest U.S. state capital in this state were driven out in a revolt led by Popé (“poh-PAY”). With its western neighbor, this state shares the eastern portion of the Navajo Nation and the Gadsden Purchase. A pueblo in this state became an artists’ colony that hosted Georgia O’Keeffe. For 10 points, Taos (“towse”) is located in what state, whose capital is Santa Fe?

ANSWER: **New Mexico** [or **NM**]

<American History>

2. A member of this family writes “you will laugh when you know where I am gone” in a letter explaining her departure from Colonel Foster’s home. A member of this family dirties her clothing while walking three miles to visit her sister, who fell ill after riding on horseback in the rain to Netherfield Park. A member of this family is called “tolerable; but not handsome enough to tempt” while at a ball. The matriarch of this family is displeased by Mr. Collins’s proposal to Charlotte Lucas. Mr. Wickham and Mr. Bingley marry into this family, whose daughters are subject to their mother’s matchmaking efforts. For 10 points, Mr. Darcy marries Elizabeth, a member of what central family of Jane Austen’s *Pride and Prejudice*?

ANSWER: **Bennet** [accept Elizabeth **Bennet** or Jane **Bennet** or Lydia **Bennet**; accept Mrs. **Bennet**]

<British Literature>

3. This physicist discussed the possibility of manipulating single atoms in his lecture “There’s Plenty of Room at the Bottom.” This physicist built on the work of Paul Dirac (“dih-RACK”) to generalize the classical quantity of action to quantum mechanics, creating the path integral formulation. To model high-energy collisions, this physicist proposed that hadrons consist of point-like entities known as partons. Backwards-facing arrows denote positrons and wavy lines denote photons on a type of diagram named for this physicist used to represent particle interactions. For 10 points, name this 20th-century American physicist known for his *Lectures on Physics* given at Caltech.

ANSWER: Richard **Feynman** (“FINE-mun”) [or Richard Phillips **Feynman**; accept **Feynman** diagrams; accept **Feynman Lectures on Physics**]

<Physics>

4. An opera by this composer takes place during an Aragonese civil war between Ferdinand I and James of Urgell. That opera by this composer ends after Leonora commits suicide due to an impending marriage with Count di Luna, who then kills Azucena’s adopted son Manrico without realizing that Manrico is his brother. This composer’s opera about the Babylonian Captivity, *Nabucco*, features “Va, pensiero,” or the “Chorus of Hebrew Slaves.” In another opera by this composer, the main character calls for the death of her love in “Ritorna vincitor” before Ramfis names him commander and sings “O patria mia,” while longing in captivity for her Ethiopian homeland. For 10 points, name this Italian composer of *Il Trovatore* and *Aida*.

ANSWER: Giuseppe **Verdi** [or Giuseppe Fortunino Francesco **Verdi**]

<Other Fine Arts>

5. An alloy of nickel and this element that catalyzes hydrogenation reactions is known as Raney nickel. Corrosion of this element is prevented by a clear protective film of oxide that naturally forms on its surface. Electrodes made of coke purify this element from its oxide after dissolution in molten cryolite in the Hall–Héroult (“hall hair-oo”) process. The mineral oxide of this element defines nine on the Mohs hardness scale and is called corundum. This metal is used to construct aircraft hulls due to its low weight and high strength. Hydroxides of this element are components of its primary ore, bauxite. For 10 points, name this metal used to make soda cans and foil.

ANSWER: **aluminum** [or **aluminium**; or **Al**]

<Chemistry>

6. An incident that occurred during one of these events in the aftermath of the Hungarian Revolution received its name after Ervin Zádor (“ZAH-dor”) got a cut above his eye. Luz (“LOSE”) Long participated in one of these non-political events that was documented in a 1938 Leni Riefenstahl (“REE-fen-shtahl”) film. The Palestinian group Black September kidnapped 11 Israeli participants in one of these events during the Munich Massacre. In response to the Soviet invasion of Afghanistan, the United States boycotted one of these events held in Moscow in 1980. At one of these events in Berlin, the ideology of white suprematism was rebuked by the success of the African-American Jesse Owens. For 10 points, name these quadrennial sporting events named after a set of ancient Greek games.

ANSWER: Summer **Olympic** Games [reject “Winter Olympic Games;” prompt on sporting events or games or matches or equivalents until “sporting” is read; prompt on races or water polo matches by asking “held during what broader type of event?”]

<European History>

7. A character created by this author argues that because “the woman’s womb...doth nurse the seed,” it is the father who is the “true parent.” This author wrote a play about Queen Atossa receiving news of her son Xerxes’s defeat at the Battle of Salamis. A play by this author opens with a watchman spotting a flare that signals the return of a king who is later convinced to walk on a purple carpet and is stabbed to death in his bathtub. A character in a play by this author of *The Persians* is rescued from the Furies by Apollo, who defends him during his trial for murdering his mother, Clytemnestra. For 10 points, *Agamemnon*, *The Libation Bearers*, and *The Eumenides* make up what ancient Greek playwright’s *Oresteia* trilogy?

ANSWER: **Aeschylus** [or **Aiskhýlos**]

<World/Other Literature>

8. In May 2021, this state became the first to offer a cash lottery to boost COVID-19 vaccination rates. Candice Keller co-sponsored a 2019 bill in this state that implied it was possible to reimplant ectopic pregnancies. A former Republican governor of this state appeared virtually at the 2020 DNC to endorse Joe Biden. An airport in this state’s capital is named after this state’s longtime senator, the former astronaut John Glenn. The author of *Hillbilly Elegy* lives in this state, where a 2022 Senate election is being held to replace Rob Portman. For 10 points, Tim Ryan and J. D. Vance are running for the Senate in what state that was formerly governed by John Kasich (“KAY-sick”) from Columbus?

ANSWER: **Ohio** [or **OH**]

<Current Events>

9. In 1947, Han van Meegeren was tried for selling this artist's supposed painting *The Supper at Emmaus* to the Nazis. One of this artist's subjects wears a blue night jacket and reads a letter beside a table in what may be an early depiction of pregnancy. In a rare allegorical painting, a draped tapestry frames this artist's studio, in which a chandelier and map are hung. This artist showed a woman seated at a virginal in *The Music Lesson*, one of his many genre paintings of Delft interiors. This artist used a solid black background for a study portrait of a woman who wears a blue and yellow turban and turns toward the viewer. For 10 points, name this Dutch Golden Age painter of *Girl with a Pearl Earring*.

ANSWER: Johannes **Vermeer** [or Jan **Vermeer**]

<Painting/Sculpture>

10. In one text, this figure reunites with a deceased king inside of the circle formed by Mehen. This figure found two lost children and wept with joy, molding the clay beneath the *benben* mound. Depictions of this deity's Mesektet often included Hu and Sia, both of whom regularly guard this deity before his rebirth by Nut. This god transformed his servant back from an enraged lioness by tricking her into drinking red beer. After being fatally poisoned, this god admitted to being Khepri and Atum while withholding his secret name. This god's boat descends to Duat each day to fight an embodiment of chaos, the serpent Apophis. For 10 points, name this ancient Egyptian sun god.

ANSWER: **Ra** [or **Re** or **Amun-Ra**; accept **Atum-Ra** until "Atum" is read; accept Eye of **Ra**]

<Mythology>

11. In this body of water, two countries left alcoholic beverages for each other to peacefully dispute Hans Island. The Ob ("awb") and Yenisei are two of the three major rivers from a vast geographic region that flow into this body of water, where the Lena River enters the Laptev Sea. This body of water names the animal that makes the longest annual migration, a species of tern. The settlement of Alert lies on the tip of Ellesmere Island in this ocean, which contains Baffin Island and the Svalbard Archipelago. John Franklin's expedition was lost in this ocean while seeking the Northwest Passage. For 10 points, name this ocean that surrounds the North Pole.

ANSWER: **Arctic** Ocean [accept **Arctic** tern; accept **Laptev** Sea until read; accept **Kara** Sea; accept **Nares Strait** or **Kennedy Channel**; prompt on **Polar** Sea]

<Geography>

12. A work of this type that was jointly written by two brothers largely takes place around a table in the Grand Boulevards. In another work of this type, one character is allowed to ride on the ferry after earlier being forbidden from riding in a streetcar. That character in a work of this type goes on walks with Hello Silverberg, which gets her in trouble when she stays out past eight. These works include a text by the Goncourt brothers and a book that was rescued by Miep Gies ("Meep Geese") and is addressed to a figure called "Kitty." The original publication of that work of this type was censored by the author's father because of depictions of the author's sexuality and candid descriptions of people encountered in "The Secret Annex." For 10 points, name this type of work written by Anne Frank.

ANSWER: **diary** [accept **journal**; accept *The **Diary** of Anne Frank* or *The **Diary** of a Young Girl*; accept the **Journal** of the Goncourt Brothers or *The Goncourt Brothers' **Journal*** or *The Goncourt **Journal***; prompt on **record** or **nonfiction** or **memoir**]

<European Literature>

13. A B minor piece by this composer is written in one long movement and begins with a descending G Phrygian scale in the low registers. Several pieces by this composer contrast a slow *lassan* (“LAW-shawn”) and fast *friska* (“FREESH-kah”) and are in the form of a *csárdás* (“CHAR-dash”). Hans von Bülow premiered this composer’s only piano sonata and his *Dies Irae*-inspired work *Totentanz* after marrying this composer’s daughter Cosima, who later married Richard Wagner and directed the Bayreuth Festival. This composer of three *Liebesträume* was a pianist whom Heinrich Heine described as having a “mania” of frenzied fans. For 10 points, name this Hungarian composer and pianist who wrote the *Mephisto Waltzes*, *Transcendental Études*, and *Hungarian Rhapsodies*.

ANSWER: Franz **Liszt** [or **Liszt** Ferencz or **Liszt** Ferenc; accept **Lisztomania**]

<Classical Music>

14. The founding emperor of this dynasty abdicated after two of his sons were murdered by another in the Xuánwǔ (“shwen-oo”) Gate Incident. The technology of papermaking apocryphally spread to the Middle East after forces from this dynasty were captured by the Abbasid Caliphate. One of the Four Great Beauties, Yáng Guìfēi (“yahng gway-fay”), was executed during a rebellion against this dynasty led by Ān Lùshān. This dynasty was interrupted by a short-lived dynasty led by Empress Wǔ Zétiān (“oo zuh-t’yen”). Qing scholar Sūn Zhū compiled an anthology of 300 poems written during this dynasty that contributed to its rule being considered a Chinese “Golden Age.” For 10 points, name this dynasty that ruled from 618 to 907 CE and preceded the Sòng dynasty.

ANSWER: **Táng** dynasty [or **Táng** Empire]

<World History>

15. A Pochhammer (“POCK-hah-mer”) symbol can denote either this function’s “rising” or “falling” variants, which are used to define certain polynomials. Both a sequence of numbers of the first kind that sum to this function and an approximation for this function that includes a square root of $2\pi n$ term are named for James Stirling. An extension of this function to complex numbers, which is used to study the Riemann (“REE-mon”) zeta function, is represented by a capital gamma. This function, which appears in the formula for binomial coefficients, counts the distinct permutations of objects. For 10 points, what function of n equals the product of all positive integers less than or equal to n and is denoted by an exclamation mark?

ANSWER: **factorial** function [accept rising **factorial** or falling **factorial**; prompt on exclamation mark or exclamation point or bang until “exclamation mark” is read]

<Other Science>

16. Syphax was captured after this war’s Battle of Cirta, causing the Masaesyli to be subsumed by King Masinissa. It’s not a civil war, but Gādēs was seized during this war after the Battle of Ilipa. A disagreement about a border at the Ebro River triggered this war’s first battle at Saguntum. In this war, Sempronius Longus entered a trap after the enemy taunted him at the Battle of the Trebia. The Fabian strategy was first used after this war’s Battle of Lake Trasimene. This war ended in 202 BCE with a victory at Zama by Scipio Africanus. An outnumbered force performed a double envelopment at this war’s Battle of Cannae. For 10 points, name this war in which Italy was invaded by Carthage and elephants crossed the Alps with Hannibal.

ANSWER: **Second Punic** War [prompt on Punic Wars]

<Other History>

17. A movement within this religion was promoted by the “immersed” Alvars and 63 hound-like saints. A spiritual leader of this religion is honored by West Virginia’s Palace of Gold. Five images arranged in an X-shape are revered daily by members of a lineage of this religion called Smartism. Adherents of this religion’s two largest sects mark themselves with *tilaks* of three horizontal lines or two vertical lines forming a “U” shape. Reclusive, ash-covered Shaivites (“SHY-vites”) from this religion bathe in large numbers every three years during the Kumbh Mela (“kuwb MAY-luh”). *Śrauta* (“sh’RAO-tuh”) rituals derive from this religion’s oldest scriptures, the Vedas. For 10 points, what religion’s largest sect worships the preserver god Vishnu?

ANSWER: **Hinduism** [prompt on **Vaishnavism** or **Shaivism** or **Hare Krishna** or **ISKCON** by asking “what larger religious tradition is that a part of?”] (The Palace of Gold honors A. C. Bhaktivedanta Swami Prabhupada.)

<Religion>

18. A story by this author that is set in the abandoned lumber town of Horton Bay ends with a character lying face down on a blanket after telling his girlfriend Marjorie that “it isn’t fun anymore.” In another story by this author, two hitmen dressed as twins order pork chops and chicken as they wait to kill the Swedish boxer Ole Anderson. This author’s stories “The End of Something” and “The Killers” featured the recurring character Nick Adams. In a novella by this author, the protagonist tells Manolin about “the Great DiMaggio” and goes 84 days without catching a fish. For 10 points, name this author who wrote about Santiago’s quest to catch a giant marlin in *The Old Man and the Sea*.

ANSWER: Ernest **Hemingway** [or Ernest Miller **Hemingway**]

<American Literature>

19. The episodic buffer was a late addition to a model of this faculty developed by Baddeley and Hitch that also included the phonological loop. Jim Coan developed the “lost in the mall” technique to study this faculty, which his mentor Elizabeth Loftus argued to be damaged in the Jane Doe case. George A. Miller proposed that a form of this faculty is guided by the “magical number” seven plus-or-minus two. A condition that limits this faculty has anterograde and retrograde subtypes. This faculty can be improved with priming and chunking. For 10 points, the hippocampus plays a vital role in the consolidation step of what faculty that is impaired in patients with amnesia?

ANSWER: **memory** [accept false **memory**; accept repressed **memory**; accept short-term **memory**; accept long-term **memory**; accept working **memory**]

<Social Science>

20. These structures do not develop when a “short-day” organism is exposed to intervals of red light during nighttime. Three homeotic (“ho-mee-AH-tick”) genes denoted A, B, and C regulate the differentiation of these structures’ four whorls, which include the calyx and corolla. These structures contain patterns that are visible in near-UV light and serve as guides for reproduction. The common name of angiosperms comes from the presence of these structures, whose interiors contain stamens (“STAY-mins”) arranged around a pistil. These structures wither away as fruits develop after fertilization. For 10 points, pollinators are attracted by what colorful plant structures that possess petals?

ANSWER: **flowers** [accept **blossoms** or **blooms**; accept **petals** until read; accept **flowering** plants]

<Biology>

Bonuses

1. In a film by this director, Johnny Utah handcuffs himself to Bodhi before ultimately unlocking the handcuffs and saying “vaya con Dios.” For 10 points each:

[10h] Name this director of the 1991 film *Point Break*. This director cast Jeremy Renner and Anthony Mackie as soldiers in a bomb squad in the Iraq war in *The Hurt Locker*.

ANSWER: Kathryn **Bigelow** [or Kathryn Ann **Bigelow**]

[10m] In *Point Break*, Johnny Utah was played by this actor. In 2021, this actor starred in the fourth installment of an action movie franchise in which he saves a revived character played by Carrie-Anne Moss.

ANSWER: Keanu **Reeves** [or Keanu Charles **Reeves**]

[10e] In this other women-directed action movie, Keanu Reeves plays Neo, a hacker who is offered a choice between a red or blue pill by Laurence Fishburne’s Morpheus.

ANSWER: *The **Matrix*** (The fourth installment referenced above is *The Matrix Resurrections*.)

<Pop Culture>

2. Pierre-Simon Laplace formulated the “equilibrium theory” of these phenomena, which predicts two namesake “bulges.” For 10 points each:

[10m] Name these phenomena whose powerful “spring” type occurs when the Sun, Earth and Moon line up during syzygy (“SIH-zih-jee”).

ANSWER: **tides** [accept **tidal** forces; accept spring **tides**; accept **tidal** bulges]

[10h] In contrast to spring tides, these weaker tides occur when the Sun, Earth and Moon form a right angle with each other.

ANSWER: **neap** (“neep”) tides

[10e] Despite having no relation to tides, these massive ocean waves generated by earthquakes or landslides are sometimes known as “tidal waves.”

ANSWER: **tsunamis**

<Other Science>

3. During this event, British administrator Eric Griffith-Jones tacitly approved of Evelyn Baring’s mistreatment of prisoners, stating “if we are going to sin, we must sin quietly.” For 10 points each:

[10h] Name this revolt of the Kikuyu (“gih-KOO-yoo”) people led by Dedan Kimathi in the 1950s. British abuses during this event included the mass clubbing of 88 detainees at the Hola detention camp.

ANSWER: **Mau Mau** uprising [or **Mau Mau** rebellion; accept, BUT DO NOT OTHERWISE REVEAL, **Kenya Emergency**]

[10e] The Mau Mau uprising took place in this modern-day country, which the British governed from Nairobi.

ANSWER: **Kenya** [or Republic of **Kenya** or Jamhuri ya **Kenya**]

[10m] While the British governed Kenya, they constructed one of these structures to link the port of Mombasa with Uganda. Cecil Rhodes proposed building one of these structures between Cape Town and Cairo.

ANSWER: **railways** [or **rail** lines or **railroads** or **train** lines; accept Cape to Cairo **Railway**; accept Uganda **Railway**; prompt on **infrastructure**]

<World History>

4. The protein CD47 coats the surface of red blood cells to signal that they should [emphasize] *not* undergo this process. For 10 points each:

[10m] Name this process in which immune cells like neutrophils consume and digest invading microbes.

ANSWER: **phagocytosis** (“FAY-goh-sai-TOH-sis”) [prompt on **endocytosis**]

[10h] During phagocytosis, a “burst” of these chemical species is released by the immune cell to kill the enveloped microbe. These species include hydrogen peroxide and the free radical superoxide.

ANSWER: **reactive oxygen** species [or **ROS**]

[10e] After the oxidative burst, a microbe’s remains are digested by one of these organelles that has fused with a phagosome. Enzymes inside these organelles break down old cell components.

ANSWER: **lysosome** [accept phago**lysosome**]

<Biology>

5. The money-hungry Busman electrocutes himself while trying to use half a billion dollars to pay off these figures. For 10 points each:

[10h] Name these figures whom Radius leads in revolution. At the end of the work in which they appear, these figures spare the life of the mechanic Alquist because, like them, he works with his hands.

ANSWER: Rossum’s Universal **Robots** [or **R.U.R.**; or *Rossumovi Univerzální **Roboti***]

[10m] The Robots appears in *R.U.R.*, a play by this Czech author, who wrote about another group conquering the world in *War with the Newts*.

ANSWER: Karel **Čapek** (“CHAH-pek”)

[10e] *Two answers required.* At the end of *R.U.R.*, Alquist compares the robots Primus and Helena to these two figures, quoting a Bible verse in which God creates these two figures “in his own image.”

ANSWER: **Adam** AND **Eve** [accept answers in either order; prompt on descriptions such as “the first **man** and **woman**” or “the first two **humans**”]

<European Literature>

6. A ballet by this composer was originally commissioned as a gitanería (“hee-tah-nay-REE-ah”) by flamenco dancer Pastora Imperio. For 10 points each:

[10h] Name this composer whose ballet *Love, the Magician* depicts the Roma girl Candela, who is haunted by the ghost of her unfaithful dead husband. He also composed *The Three-Cornered Hat*.

ANSWER: Manuel de **Falla** (“day-FAI-ah”) [or Manuel de **Falla** y Matheu]

[10e] Manuel de Falla was a composer from this European country. Many of de Falla’s works incorporate aspects of this country’s Andalusian culture.

ANSWER: **Spain** [or **España**; or Kingdom of **Spain** or Reino de **España**]

[10m] In *Love, The Magician*, Candela performs a ritual dance to this thing as she attempts to exorcize her dead husband. In a Stravinsky ballet, a bird named for this thing saves Ivan from monsters by making them dance.

ANSWER: **fire** [accept *The **Firebird***; or *L’Oiseau de **feu*** or ***Zhar-ptitsa***; accept Ritual **Fire** Dance or Danza ritual del **fuego**]

<Classical Music>

7. Identify these modern cities by their ancient Roman names and histories, for 10 points each.

[10h] St. Ambrose served as the Bishop of this city, which was formerly named Mediolanum. Valentinian II initially ruled the Western Empire from this city.

ANSWER: **Milan** [or **Milano**]

[10m] The mineral springs of this city on the Avon, which was once called Aquae Sulis, helped make it an ancient Roman spa town. This British city's name is the English translation of its main Roman structure, the *thermae*.

ANSWER: **Bath**

[10e] This city was called Byzantium until Constantine the Great moved his capital there. The modern name of this largest city in Turkey derives from the Turkish pronunciation of "Constantinople."

ANSWER: **Istanbul**

<Other History>

8. In this author's story "The Law of Life," the dying Inuit chief Koskoosh finds peace after his tribe abandons him in search of shelter. For 10 points each:

[10e] Name this author who wrote about the tribulations of the sled-dog Buck, who becomes the leader of a pack of wolves in *The Call of the Wild*.

ANSWER: Jack **London** [or John Griffith **Chaney**]

[10m] The unnamed protagonist of this short story by Jack London dies in the Yukon wilderness after a tumble of snowfall causes him to fail at the title action.

ANSWER: "**To Build a Fire**"

[10h] Jack London also wrote this novel in which the title tyrannical ship captain takes in "Hump" Van Weyden, but is eventually betrayed and set adrift at sea.

ANSWER: *The **Sea-Wolf***

<American Literature>

9. Parts of the 18th through 20th of these sections were preserved on parchment fragments dated to the 600s CE, which were discovered in Birmingham in 2015. For 10 points each:

[10m] Name these sections of a religious text, which are themselves divided up into *ayats*. The first of these things, *Al-Fātiḥa*, is recited during each cycle of prayer.

ANSWER: **surahs** [prompt on **chapters**]

[10e] The 114 surahs make up this religious text, which was revealed part by part to Muhammad by the angel Jibra'il ("juh-BREEL").

ANSWER: **Quran** [or **Koran**]

[10h] This is the name given to individuals who have memorized the *Quran* and can thus recite it from memory.

ANSWER: **hafiz** [or **Hāfez** or **hafiza**]

<Religion>

10. While staying with this man at the end of his life, one artist produced many double-square canvases such as *Wheatfield with Crows*. For 10 points each:

[10h] Name this man who hosted Vincent Van Gogh in Auvers (“oh-vair”) until his 1890 death. Ryoei Saito vowed to cremate a sorrowful portrait of this doctor leaning his head on his hand beside a foxglove plant.

ANSWER: Paul **Gachet** [or Paul-Ferdinand **Gachet**; accept *Portrait of Dr. Gachet*]

[10e] Before staying with Dr. Gachet, Van Gogh lived in one of these institutions in Saint-Rémy. Van Gogh painted *Iris*, *Olive Trees*, and *The Starry Night* while undergoing treatment in that one of these locations.

ANSWER: **asylum** [or psychiatric **hospital**; or **mental ward**; accept **sanatorium**]

[10m] Earlier in the 1870s, Dr. Gachet also hosted this Provençal painter whose stay saw the creation of *A Modern Olympia*. This Post-Impressionist painted many Proto-Cubist landscapes of Mont Sainte-Victoire.

ANSWER: Paul **Cézanne**

<Painting/Sculpture>

11. This allotrope names a reaction in which it cleaves a double or triple bond between carbon atoms, creating two carbonyl (“car-buh-NEEL”) groups. For 10 points each:

[10m] Name this highly reactive allotrope whose “ground-level” concentrations are toxic to humans.

ANSWER: **ozone** [or **O₃**; accept **ozonolysis**; accept ground-level **ozone** or surface-level **ozone**; reject “oxygen” or “O₂”]

[10e] The ozone layer in the Earth’s stratosphere protects living things by absorbing this type of radiation from the Sun. Exposure to this type of radiation can lead to sunburns and skin cancer.

ANSWER: **UV** radiation [or **ultraviolet** radiation]

[10h] This unit is used to track the amount of ozone in the stratosphere. This unit, which is abbreviated DU, measures the thickness of the layer of pure gas that would be formed by all the ozone in a column of air.

ANSWER: **Dobson** unit

<Chemistry>

12. For 10 points each, answer the following about unpopular monarchs named Charles.

[10m] After Charles I of England was defeated by a Parliamentary rebellion, he was succeeded by Oliver Cromwell, who was given this position. Cromwell’s son Richard succeeded him in this position before he was overthrown.

ANSWER: **Lord Protector** [or **Lord Protector** of the Commonwealth; or **Lord Protector** of the Commonwealth of England, Scotland and Ireland]

[10e] The death of Charles II of Spain prompted a succession war when a grandson of this ruler attempted to take the throne. This “Sun King” ruled France for most of the 17th century and built a royal palace at Versailles.

ANSWER: **Louis XIV** (“the fourteenth”) [prompt on **Louis**]

[10h] Charles of Anjou (“on-ZHOO”) was deposed after a rebellion on this island known as its namesake “Vespers.” This island’s rulers of the Hauteville (“OAT-ville”) dynasty include Roger I.

ANSWER: **Sicily** [or **Sicilia**; accept **Sicilian** Vespers]

<European History>

13. This anthropologist was profiled in Tracy Kidder's definitive biography *Mountains Beyond Mountains*. For 10 points each:

[10h] Name this pioneer of the field of medical anthropology. In 2022, this anthropologist died at a hospital he founded in Rwanda as part of the Partners In Health organization.

ANSWER: Paul **Farmer** [or Paul Edward **Farmer**]

[10m] Farmer popularized the analysis of the structural form of this phenomenon in the study of medicine. Steven Pinker argued that this phenomenon has declined over time in the book *The Better Angels of Our Nature*.

ANSWER: **violence** [accept structural **violence**; accept **warfare**; accept **conflict**; accept any violent **crimes** including **murder** or **assault**; accept **terrorism**]

[10e] Farmer's book *Fevers, Feuds, and Diamonds* is subtitled for this disease. The 2013-2016 epidemic of this hemorrhagic fever was centered in Guinea, Liberia, and Sierra Leone.

ANSWER: **Ebola** [or **Ebola** virus disease or **EVD** or **Ebola** hemorrhagic fever or **EHE**]

<Social Science>

14. Two characters in this novel are mocked in a "skimmity-ride," a public shaming that takes place during a parade. For 10 points each:

[10h] Name this novel in which Michael Henchard loses the title office to Donald Farfrae and drunkenly auctions off his wife and daughter at a fair.

ANSWER: *The **Mayor of Casterbridge*** [or *The **Mayor of Casterbridge: The Life and Death of a Man of Character***]

[10m] This author of *The Mayor of Casterbridge* and *Tess of the D'Urbervilles* also wrote about the relationship between Gabriel Oak and Bathsheba Everdene in *Far From the Madding Crowd*.

ANSWER: Thomas **Hardy**

[10e] Gabriel Oak owns and works at one of these places before an accident kills all his sheep, forcing him to sell it. In a novel by George Orwell, a group of animals led by Snowball and Napoleon take over one of these places.

ANSWER: **farm** [accept *Animal **Farm***; accept Manor **Farm**]

<British Literature>

15. This philosopher criticized J. L. Austin's ordinary language for ignoring the intrinsic nature of locution in the address "Signature Event Context." For 10 points each:

[10m] Name this philosopher who developed the technique of deconstruction, by which Platonic hierarchies are reversed and then reduced to their inferior parts, in his book *Of Grammatology*.

ANSWER: Jacques **Derrida** [or Jackie Élie **Derrida**]

[10e] Like much of his other work, Derrida originally wrote *Of Grammatology* in this language. Derrida and the Algerian-born philosopher Hélène Cixous ("six-OOH") co-wrote the book *Veils* in this language.

ANSWER: **French** [or **français**]

[10h] Derrida analyzed this philosopher's theory of signs in the book *Speech and Phenomena*. This philosopher developed the method of bracketing in phenomenology, a field he founded.

ANSWER: Edmund **Husserl** [or Edmund Gustav Albrecht **Husserl**]

<Philosophy>

16. The protagonist of a novel in this medium compares God's appearance to Karl Marx before overhearing her parents discussing the burning of Cinema Rex. For 10 points each:

[10e] Name this medium used by Marjane Satrapi to recount growing up in Iran during the Islamic Revolution in *Persepolis*. Dr. Manhattan and Rorschach appear in an Alan Moore series in this medium, *Watchmen*.

ANSWER: **graphic** novels [or **bandes dessinées**; accept **comic** books or **comics**]

[10m] Art Spiegelman interviewed his father Vladek to write this graphic novel and Holocaust memoir, which depicts Nazis as cats and Jewish people as mice.

ANSWER: **Maus**

[10h] This author worked with Brian Stelfreeze on the *Black Panther* comics. This author wrote about Hiram's "conduction" powers in *The Water Dancer* and addressed his son in *Between the World and Me*.

ANSWER: Ta-Nehisi **Coates** [or Ta-Nehisi Paul **Coates**]

<World/Other Literature>

17. *Description acceptable*. In 1901, the 63-year-old schoolteacher Annie Edson Taylor used a barrel to become the first documented person to survive this action. For 10 points each:

[10h] Describe this action, which was done by a steamer after British troops set it on fire in the *Caroline* affair.

ANSWER: **going over Niagara** Falls [or equivalents like **jumping** or **diving** over **Niagara** Falls; prompt on **jumping** over a waterfall or equivalents]

[10m] This Frenchman visited the Great Lakes and Niagara in the early 1600s as part of his exploration of Canada. This explorer names a lake that he mapped between modern-day New York and Vermont.

ANSWER: Samuel de **Champlain** [accept Lake **Champlain** or Lac **Champlain**]

[10e] The native inhabitants of Niagara were part of the Neutral Nation, which was invaded by this "Confederacy" originally made up of Five Nations.

ANSWER: **Iroquois** Confederacy [or **Haudenosaunee**; prompt on **Mohawk** or **Kanien'kehá:ka** or **Oneida** or **Onyot'a:ka** or **Onondaga** or **Cayuga** or **Gayogohó:no'** or **Seneca** or **Onödowá'ga** by asking "what confederacy did they belong to?"]

<American History>

18. A series of "Parmelian Prints" of this location inspired the Zone System with the dark, red-filtered photo *Monolith*. For 10 points each:

[10e] Name this National Park in the Sierra Nevada where Ansel Adams took photos such as *El Capitan* and *Moon over Half Dome*.

ANSWER: **Yosemite** National Park

[10h] Adams photographed the Sierra's second-highest peak, Mount Williamson, while taking photos of this facility for the book *Born Free and Equal*. Adams created a series depicting women's calisthenics at this facility.

ANSWER: **Manzanar** internment camp [or **Manzanar** War Relocation Center]

[10m] In 1942, this photographer also took photos of Mount Williamson overlooking Manzanar. This photographer, who was later employed by the FSA, documented the Depression era in images such as *White Angel Breadline*.

ANSWER: Dorothea **Lange** [or Dorothea Margareta **Nutzhorn**]

<Other Fine Arts>

19. This operation is performed between a current element and displacement in the Biot–Savart law to give the magnetic field generated by a constant current. For 10 points each:

[10m] Name this operation that is performed between a charged particle’s velocity and the magnetic field to calculate a portion of the Lorentz force.

ANSWER: **cross product** [or **crossing** two vectors]

[10e] The Biot–Savart law cannot be used when currents change over time, as the resultant magnetic fields propagate at this finite speed. Electromagnetic waves travel at this “speed limit” of the universe.

ANSWER: **speed of light** [or **light speed**; accept c]

[10h] Magnetic materials affect nearby fields depending on their magnetization, which in the linear case depends on this quantity denoted chi (“kai”). This quantity equals the relative permeability minus one.

ANSWER: magnetic **susceptibility** [reject “electric susceptibility”]

<Physics>

20. Drawing from the writings of Pliny the Elder, medieval mythographers often mistook the mongoose for a mud-armored enemy of these creatures called the ichneumon (“ick-noo-mun”). For 10 points each:

[10e] Name these ubiquitous monsters in folklore, often described as winged serpents capable of breathing fire.

ANSWER: **dragons**

[10m] In a popular medieval tale, this Roman saint slew a dragon using the holy lance Ascalon, thus preventing it from eating a Cappadocian princess offered as human sacrifice.

ANSWER: Saint **George** [or **George** of Lydda; or **Geórgios** or **Georgius**]

[10h] As a symbol of Satan, dragons often fight panthers or elephants in these medieval catalogs. These texts promoted Christian allegories of pelicans feeding blood to their young and virgin maidens taming unicorns.

ANSWER: **bestiaries** [or **bestiary**]

<Mythology>