

2021 ACF Winter

Packet I by Minnesota A, Penn State A, Purdue A, Texas B, VCU A

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Tossups

1. *Note to moderator: Read the answerline carefully.* These ecosystems develop elevational zonation via sediment accretion in the “ramp” model. The eskers, drumlins, and moraines of the Wisconsin Glaciation formed one of these ecosystems called the Horicon that is invaded by purple loosestrife. Glasswort and cordgrass are common halophytes in “low” and “high” types of these ecosystems that buffer the intertidal zone of coastal estuaries. Sedge meadows are essentially dry versions of these ecosystems, which humans drained in Mesopotamia and Italy’s Pontine Plain. These often-brackish or salty ecosystems are dominated by emergent macrophytes like bulrushes and cattails, unlike peat-rich fens, acidic bogs, or forested swamps. For 10 points, what vegetal wetlands include the sawgrass “prairies” of the Florida Everglades?

ANSWER: **marshes** [accept **wet meadows** or **saltmeadows** or **wet prairies**; accept salt **marsh** or tidal **marsh** or brackish **marsh** or emergent **marsh** or submergent **marsh** or high **marsh** or low **marsh**; accept Mesopotamian **Marshes** or Pontine **Marshes** or Horicon **Marsh**; prompt on **wetlands** or **meadows** or **prairies** or **grasslands** before read; prompt on **aquatic** or **lakes** or **rivers** or **pools** or **estuary** or **shoreline** or **deltas** or related answers]
<Other Science>

2. Audre Lorde mentored this country’s Black lesbian founders of ADEFRA (“ah-def-rah”). Esi Edugyan’s *Half-Blood Blues* depicts this country’s jazz-loving Swing Kids. It’s not the UK, but Black soldiers fathered “brown babies” in this country’s racist “Black Horror” panic. In 1868, mixed-race “Rehoboth Basters” settled this country’s pro-Ovambo colony, which fought Samuel Maharero and Hendrik Witbooi. In 1919, a South African mandate took over that colony of this country, where eugenicists experimented at Shark Island. Senegalese French troops occupied a river region of this country, whose “South West Africa” colony was the site of the Nama and Herero genocide. In this country, Jesse Owens won four gold medals at the 1936 Summer Olympics. For 10 points, Namibia was colonized by what country’s Second Reich?

ANSWER: **Germany** [or **Deutschland**; accept the **Germans** or **Deutsche** or **German** Empire or Second **Reich** or Deutsches **Kaiserreich**; accept **Nazi** Germany or Third **Reich**; accept **Weimar** Republic or **Weimar**er Republik; accept **German** Southwest Africa or **Deutsch**-Südwestafrika; accept Afro-**Germans** or Afro**deutsche**]
<European History>

3. In a book titled for the “Elements of” this thinker's philosophy, two authors promoted this thinker’s views as an antidote to the errors of Cartesian thought. In a defense of verificationism, Mike Alder described this earlier thinker’s namesake “flaming laser sword” argument. Émilie du Châtelet translated this thinker, who stated “Hypotheses non fingo,” or “I do not frame hypotheses,” in an essay that criticizes contemporary natural philosophy. This author of the *General Scholium* (“SKOH-lee-um”) created the concept of an “absolute” time and space independent of the observer. In a letter to Robert Hooke, this thinker attributed his success to standing on the “shoulders of giants.” For 10 points, name this author of *Philosophiae Naturalis Principia Mathematica* who, with Gottfried Leibniz, co-discovered calculus.

ANSWER: Sir Isaac **Newton** [accept **Newton**’s flaming laser sword; accept *Elements of the Philosophy of **Newton***]
<Philosophy>

4. The ninth of this language's 15 standard verb "measures" usually signifies a color change or defect. In this language, emphasis spreading moves open vowels further back in the presence of its four obstruent consonants. Feminine nouns in this language are typically indicated with a "tied t" that is pronounced as an "h" except when connected to a following word. This is the most widely-spoken language that constructs words using triconsonantal roots. When written, this language's Modern Standard variant typically omits the diacritics that indicate short vowels. The earliest calligraphic form of this language's *abjad* writing system, which is written from right to left, is Kufic script. For 10 points, name this Semitic language that was used to write the Qur'an.

ANSWER: **Arabic** [or al-'**arabiyah**, accept Modern Standard **Arabic** or Classical **Arabic** or Quranic **Arabic** or al-'**arabiyah** al-fuṣḥā; accept any regional variant like Moroccan **Arabic**]
<Social Science>

5. A scene that depicts one of these things being stolen was permanently inked onto Juan Tepano, who helped Katherine Maria Routledge compile a catalogue of them. Smaller wooden versions of these things were named for their emaciated ribs, or *kavakava*. Maroon and white paint originally decorated one of these things that was carried away by the HMS *Topaze* in 1868 and is now sought to be repatriated from the British Museum. Red scoria was used for additions to the top of these artworks that represent topknots, called *pukao*. Although these artworks originally faced inland, most were toppled before the 1774 arrival of James Cook. Volcanic tuff was used to sculpt these artworks, which have elongated noses and pronounced brows. For 10 points, identify these massive statues found on a certain Pacific island.

ANSWER: **moai** [accept **Easter Island heads** or **Easter island statues** or **Easter island sculptures** or equivalents; accept **Rapa Nui** in place of "Easter Island"; prompt on **heads** or **statues** or **sculptures** by asking "found where?"]
<Painting/Sculpture>

6. An extension to this model introduced an additional condition that involves an integral of momentum dot position in phase space named for Wilson and Sommerfeld. This model predicts a velocity for one component of 2.18 times 10 to the 6th meters per second. This model can be used to derive a law which relates the frequency of the K-alpha line to Z, named for Henry Moseley. This model posited that the angular momentum of one of its components was equal to n times h-bar, which gives an erroneous non-zero value for the ground state. This model's greatest success was recapitulating the Rydberg formula, which explained the Balmer series of hydrogen. For 10 points, name this model of the atom in which electrons exist in fixed circular orbits around a central nucleus, named for a Danish physicist.

ANSWER: **Bohr** model [or **Bohr**-Rutherford model or Rutherford-**Bohr** model; prompt on **atomic** model]
<Chemistry>

7. A parody of this character is hired by the ballerina Virginie Varens in Louisa May Alcott's novella "V.V.: or, Plots and Counterplots." This character is the protagonist of a story that sparked a debate over structuralist readings between Jacques Derrida and Jacques Lacan. This character, who discusses the concept of "acumen" in an analysis of chess players, later leaves behind a gold snuff-box while retrieving an object for Monsieur G—. In another story, this character reads about a bloody razor, strands of grey hair, and a body stuffed in a chimney. This man uses his method of "ratiocination" ("rat-ee-oss-in-AY-shun") to deduce that Madame L'Esplanaye's killer was an "Ourang-Outang." For 10 points, "The Purloined Letter" and "The Murders in the Rue Morgue" feature what detective created by Edgar Allan Poe?

ANSWER: C. Auguste **Dupin** [or C. **Auguste** Dupin]
<American Literature>

8. In one passage, this figure is described as “gliding” and “coiling” while he is killed with a “great and powerful sword” in the end times. In a poem, God crushes the head of this figure before He gives the body “as food to the creatures of the desert.” Thomas Aquinas called this monster the demon of envy. This monster was often syncretized with the Egyptian demon Rahab. The most famous depiction of this monster is believed to be based on Lôtān, a monster fought by Ba‘al (“bahl”). While he speaks to God through a whirlwind, Job (“jobe”) is asked if he can “put a cord through” this monster’s nose or pull it in “with a fishhook.” That passage compares this monster to Behemoth. For 10 points, name this aquatic monster from Jewish lore that titles a book by Thomas Hobbes.

ANSWER: **Leviathan** [or **Līvyātān**; accept **Lôtān** before read; prompt on **Rahab** before read; prompt on **serpent** or **snake**; prompt on **whale**]

<Mythology>

9. A commander during this period legendarily forced his subordinate to flee the Battle of Awazu because he did not want to die with a woman. During this period, a genre of personal writing sometimes known as “follow the brush” emerged. An author from this period who is identified only as “Michitsuna’s mother” chronicled her frustration at being unable to leave her home in the *Kagerō Nikki*. At the end of this period, Tomoe Gozen, one of the first *onna-musha*, or female samurai, fought in the Genpei War. A list of “hateful things” was included in a *zuihitsu* work from this period; that famous *Pillow Book* was written by Sei Shōnagon. Lady Murasaki wrote the *Tale of Genji* during, for 10 points, what 8th-to-12th century period of Japanese history that preceded the Kamakura shogunate?

ANSWER: **Heian** period [or **Heian** jidai]

<World History>

10. *Two answers required.* These two countries are the homelands of the parents of Jess Harrison in the 2005 novel *The Icarus Girl*. Freddie wants to study in one of these two countries in a novel set in the other that partly takes place in Club Tropicana and is titled *Jagua Nana*. While in one of these modern-day countries, an official from the other thinks that a character’s death would merit a “reasonable paragraph” in a book about “The Pacification of The Primitive Tribes.” In a play set in one of these countries, an official from the other wears an *egungun* mask to a ball and fails to stop the deaths of the medical student Olunde and his father Elesin. For 10 points, name these two countries, respectively the European colonial power and African setting of both *Death and the King’s Horseman* and *Things Fall Apart*.

ANSWER: **Nigeria** AND **United Kingdom** [accept in either order; accept **UK** or Great **Britain** or **England** in place of “United Kingdom”; accept Federal Republic of **Nigeria** or Jamhuriyar Taraiyar ta **Najeriya** or Orilè-èdè Olóminiira Àpapò **Nàìjíríà** or Òhànjíkò Òhànézè **Naijíríyà** in place of “Nigeria”]

<World Literature>

11. Uwe Wolf used micro-X-ray fluorescence analysis on a piece in this genre to distinguish its composer’s handwriting from later edits as part of a “New Edition” of his work. The second section of that piece of this type begins with the *vivace* trumpet melody “D, A, D, E, F-sharp–E–D–E.” The first four bars of a piece in this genre may be some of the few that do not parody earlier compositions, contrasting it with “sine nomine” pieces that are based entirely on original material. A 27-movement Baroque-era piece in this genre has a roughly symmetrical structure around a central “Crucifixus” movement. Pieces in this choral genre are often divided into the short “brevis” and longer “solemnis” types. For 10 points, name this genre of a B minor piece by J.S. Bach, which sets Catholic liturgy to music.

ANSWER: **mass** [or **missa** or **Messe**; accept **Mass** in B minor or **Messe** in H moll, accept **missa sine nomine**]

<Classical Music>

12. “Erotic” objects made of this material are displayed with Bernardino Drovetti’s “royal canon” of it at a museum in Turin. At a limestone quarry in Tura, Pierre Tallet found early objects of this material attributed to the official Merer. Uniform vertical lines represent a backdrop of this material behind several hunters in a painting from the Tomb of Ti that depicts this material’s usage in paddling boats. B. P. Grenfell and A. S. Hunt discovered over 500,000 fragments of this material in Oxyrhynchus (“ock-sih-RING-cuss”). “Archives” of ostraca and this material were found at Tebtunis, Deir el-Medina, and Elephantine. This material was cut from a stalk, soaked, and pounded dry to record medical texts and instructions for embalming. For 10 points, what aquatic sedge was processed into an Egyptian precursor of paper?

ANSWER: **papyrus** [or **papyri**; or *Cyperus* **papyrus** or **papyrus** sedge or **paper reed** or **Indian matting plant** or **Nile grass**; prompt on **paper** or **scrolls** or **texts** or **logbooks** or **archives** or similar before read; prompt on **sedges** or **reeds** or **bulrushes** or **grasses** or **plants**; prompt on the **Diary** of Merer]

(The museum is the Museo Egizio. The painting is usually called *Ti Watching a Hippopotamus Hunt*.)

<Other History>

13. In this film, part of the soundtrack from Otto Preminger's film *Whirlpool* plays diegetically as a character runs into a cinema. An actor’s appearance in *Web of Passion* is referenced in this film by his character's alias, Laszlo Kovacs. A novelist in this film, who claims that he wants “to become immortal, and then die” in an interview, was played by the director’s friend Jean-Pierre Melville. To imitate the real-life film *The Harder They Fall*, a character in this film constantly runs his thumb along his lower lip. This film's protagonists ride in a convertible in a sequence that jarringly switches between different shots. In this film, Patricia helps the Humphrey Bogart-obsessed Michel avoid the police. For 10 points, many jump cuts feature in what French New Wave film, the first by Jean-Luc Godard?

ANSWER: **Breathless** [or **À bout de souffle**]

<Other Arts>

14. In a novel by an author with this surname, an art lecturer reads *Brave New World* while she visits her 101-year-old friend who lives in a care home. That author with this surname wrote another novel that is partly told from the perspective of a ghost who visits his old portrait of Saint Vincenzo Ferreri; that novel’s two sections “Eyes” and “Camera” can be read in either order. The author of *How to Be Both* and *Autumn* shares this surname with an author who created the twins Magid and Millat, the latter of whom joins the militant Islamic group KEVIN. That novel by an author with this surname describes the friendship between the Bangladeshi immigrant Samad Iqbal and Archie Jones. For 10 points, give this surname of the author of *White Teeth*, whose first name is Zadie.

ANSWER: **Smith** [accept Ali **Smith**; accept Zadie **Smith** or Sadie Adeline **Smith** or Sadie Adeline **Smith**]

<British Literature>

15. One term in a decomposition of this quantity is used to calculate the Reynolds stress. The line integral of this quantity around a closed material contour is constant over time according to Kelvin’s circulation theorem. The profile of this quantity develops during flow due to the fact that it is zero along certain boundaries when assuming the no-slip condition. One-half density times this quantity squared is equal to dynamic pressure. This quantity times length scale over kinematic viscosity gives the Reynolds number. The product of cross-sectional area and this quantity gives the volumetric flow rate. For 10 points, name this quantity that represents how fast particles in a fluid are flowing and is measured in meters per second.

ANSWER: **velocity** [or fluid flow **velocity**; accept **speed** in place of “velocity”; prompt on **u** or **v**]

<Physics>

16. One of these objects in a fishbowl replaced a goldfish in a picture of the Nowruz celebration of Hassan Rouhani. Samaritans often hang these objects from the ceiling in a holiday during Tishrei (“TISH-ray”). Another kind of these objects forms the base of a Christingle (“chris-tingle”). Religious offerings often include a kind of these objects that is supposedly shaped like the Buddha’s hand. One of these objects may be included on a Seder plate to represent the inclusion of women and LGBTQ Jews. A different kind of these objects is waved alongside palms, willows, and myrtles as part of the four species of Sukkot (“soo-COAT”); that variety is the etrog. A “forbidden” example of these objects imparted original sin. For 10 points, what sort of objects grew on the Tree of Knowledge in the Garden of Eden?

ANSWER: **fruit** [accept **citrus**; accept specific varieties of fruit such as **oranges** or **olives** or **citrons**; accept forbidden **fruit** or **fruit** of the Tree of Knowledge; accept **etrog** or **Buddha’s hand** before read; prompt on **plants** or **food**]

<Religion>

17. A city along this river hosts the world’s largest yearly celebration of George Washington’s birthday; that city also has seven flags on its coat of arms. Many Virgin Galactic launches take place near this river at Spaceport America. This river’s floodplain includes the world’s largest bosque (“BOSS-kay”) ecosystem. This river irrigates the chile fields of the town of Hatch. This river forms the western boundary of the Tularosa Basin, which contains large gypsum dunes in White Sands National Park. This river, whose lower valley names a region that contains cities such as McAllen and Reynosa, forms the eponymous bend of Big Bend National Park. Laredo, Brownsville, and Juárez lie along, for 10 points, what river that forms much of the US–Mexico border?

ANSWER: Río **Grande** [or Río **Bravo** del Norte; or Río **del Norte**; or **Po’soge**; or **Paslápaane**; or **Hañapakwa**; or **Mets’ichi chena**; or **Tó Ba’áadi**; accept Lower Río **Grande** Valley or alle del Río **Grande**]

<CE/Geo/Other/Pop Culture> (The city in the first line is Laredo.)

18. Louis Zukofsky rendered a line from one of this author’s galliambic poems into the nonsense line “the cat’s cut out is cool rare air” in a homophonic translation of this author’s works. The O source is one of three manuscripts directly descended from this author’s lost Verona manuscript. This author feels guilty for stealing “a kiss more sweet than sweet ambrosia” in a poem addressed to a man named Juventius (“yoo-WEN-tee-oos”). This poet places gifts “dripping much with fraternal weeping” on the grave of his brother in a poem that ends with the sendoff “Hail and farewell.” One of this author’s poems thrice asks its addressee to “give me a thousand kisses, then a hundred” and opens by proclaiming “Let us live...and let us love.” For 10 points, name this emotional Roman poet and lover of Lesbia.

ANSWER: **Catullus** [or Gaius Valerius **Catullus**]

<European Literature>

19. *Common or scientific name acceptable.* Members of this family are infected by the reovirus PRV-1 and can suffer from “milky flesh” or “tapioca disease” when they are infected by the only animal to lack mitochondria, the Cnidarian parasite *Henneguya*. The sperm of this family is the original source of the reversal agent for heparin, protamine sulfate, as well as the DNA used to block Southern blots. Males in this family often develop a hook-like secondary sex characteristic on the lower jaw called a kype. These ray-finned fish, which are sometimes placed in cannons to get them over dams, return to their breeding grounds to spawn as part of their namesake “run” from saltwater to freshwater. For 10 points, name these fish whose species include Chinook, coho, and sockeye, and which are eaten by bears in Alaska.

ANSWER: **salmon** [or **salmonids** or **Salmonidae**; accept **salmon** runs or specific salmon species such as Atlantic **salmon**; prompt on **fish** or ray-finned **fish** or **Actinopterygii** or **Teleost** fish bony **fish** or **Osteichthyes**]

<Biology>

20. This university's President Thomas Clap endowed a professorship named for the slave trader Philip Livingston and expelled the missionary David Brainerd. Governor Gideon Tomlinson co-wrote a report from this university that defended a classical curriculum. This university's primary financier traded diamonds as the President of Fort St. George in Madras. In 2017, this university gave the new name "Grace Hopper" to its former Calhoun College. This university funded Hiram Bingham's 1911 expedition to Machu Picchu. This university's literary "Wits" included its 1795–1817 President Timothy Dwight and Joel Barlow. This third-oldest American university was chartered in 1701 as a Congregationalist divinity school with funds from the colonist Elihu. For 10 points, name this Ivy League rival of Harvard in New Haven, Connecticut.

ANSWER: **Yale** University [accept **Yale** College or **Yale** Divinity School or **Collegiate School**; accept **Yale Report** of 1828; accept Elihu **Yale**]

<American History>

21. A larch idol from a bog in this modern country is the oldest known wood sculpture. China's Gǔmùgōu ("goo-moo-go") burials have both arsenical copper like a Chalcolithic culture from this country, and camels like a forerunner of its Karasuk culture. A botanist from this country traced domestic plant diversity to eight "centers." David Anthony argued that the pastoral Yamnaya horizon migrated from this country in *The Horse, the Wheel, and Language*. Mountains in this country's south contained an "Ice Maiden" in the Pazyryk burials, whose tumuli were the first described kurgans, as well as hominin fossils in Denisova Cave. This is the largest country to contain the Proto-Indo-European homeland's steppes. This country's Mal'ta–Buret' culture collected mammoth ivory from its permafrost. For 10 points, humans crossed from what country into North America via the Bering Land Bridge?

ANSWER: **Russia** [or **Rossiya**; or **Russian** Federation or **Rossiyskaya** Federatsiya; accept **Soviet Union** or **USSR** or **Union of Soviet Socialist Republics** or **CCCP** or **Sovetskiy Soyuz** or **Soyuz Sovetskikh Sotsialisticheskikh Respublik**; accept **Russian** Empire or **Rossiyskaya** Imperiya] (The first sentence is about the Shigir Idol. The second sentence refers to the Afanasievo and Andronovo cultures. The botanist was Nikolai Vavilov.)

<Other History>

Bonuses

1. Due to its close association with boxers, this condition was originally known as “punch drunk syndrome.” For 10 points each:

[10m] Name this condition caused by repeated blows to the head. Awareness of this neurodegenerative condition has been raised by former NFL players who suffer from it.

ANSWER: **chronic traumatic encephalopathy** [or **CTE**; accept **dementia pugilistica** or **fightfighter's dementia**; prompt on **traumatic brain injury** or **TBI**]

[10e] Without performing an autopsy, distinguishing CTE from this other condition is essentially impossible. This condition is associated with progressive memory loss and is the most common cause of dementia.

ANSWER: **Alzheimer's** disease [or **AD**]

[10h] Both CTE and Alzheimer's disease are considered to be this type of neurodegenerative condition, which is associated with the aggregation of an eponymous protein into paired helical filaments.

ANSWER: **tauopathy** [prompt on **tau** proteins; prompt on **neurofibrillary tangles**]

<Biology>

2. Answer the following about Nam June Paik's chaotic contributions to the world of music, for 10 points each.

[10m] In one performance, Paik ran into the audience, poured shampoo over this composer, and cut off his tie. This composer used the gamut (“GAM-ut”) technique for the ballet *The Seasons*, choreographed by his partner Merce Cunningham.

ANSWER: John **Cage** [or John Milton **Cage** Jr.]

[10e] In a 1962 performance, Paik played the *Moonlight Sonata* while he slowly attained this state. A person in this state is “Descending a Staircase” in a controversial painting by Marcel Duchamp.

ANSWER: **nude** [or **naked** or obvious equivalents; accept doing a **striptease** or similar; accept **Nude Descending a Staircase, No. 2** or **Nu descendant un escalier n° 2**] (Paik did a striptease while playing the piano.)

[10h] During Paik's work *Opera Sextronique*, his collaborator Charlotte Moorman was arrested while playing this instrument in various states of undress. In 1971, Paik made Moorman one of these instruments out of three TVs.

ANSWER: **cello** [or **celli**; or violon**cello**; accept *TV Cello*]

<Other Fine Arts>

3. While at this location, a grey figure called the Sayer of the Law guides the protagonist of a novel in reciting a chant that repeats the phrase “Are we not Men?” For 10 points each:

[10m] Name this location that titles an 1898 science fiction novel about Edward Prendick, who discovers that a vivisectionist is trying to turn animals into people. Prendick is left at this location in the Pacific after a shipwreck.

ANSWER: the **Island** of Doctor **Moreau** [accept descriptive answers that mention both **island** and Doctor **Moreau**; prompt on **island**]

[10e] *The Island of Doctor Moreau* is a novel by this author, who described the human race's evolution into the Eloi and the Morlocks in his novel *The Time Machine*.

ANSWER: H. G. **Wells** [or Herbert George **Wells**]

[10h] An early cover of *The Time Machine* featured an image of one of these mythical creatures. The Morlocks hide the Time Traveller's machine inside the hollow pedestal underneath a marble statue of one of these creatures.

ANSWER: **sphinx** [accept the White **Sphinx**]

<British Literature>

4. According to legend, the Finger Lakes were created when this figure tripped and used his hand to break his fall. For 10 points each:

[10e] Name this legendary lumberjack who was the companion of Babe the Blue Ox.

ANSWER: Paul **Bunyan** [prompt on Paul]

[10h] Paul Bunyan's clerk with this first name and the last name Inkslinger invented accounting. A folk hero with this first name was in reality a Swedenborgian missionary who supposedly spread alcohol to the Midwest.

ANSWER: **Johnny** [or **John**; accept **Johnny** Inkslinger; accept **Johnny** Appleseed or **John** Chapman]

[10m] Paul Bunyan used giant versions of these animals that only ate snuff to haul lumber. During the Trojan War, Achilles led a tribe of warriors from Aegina who were originally these animals.

ANSWER: **ants** [accept **Formicidae**; prompt on insects or arthropods or hymenopterans; prompt on Myrmidons by asking "what animals were the Myrmidons originally?"]

<Mythology>

5. While visiting this building, Dante allegedly asked how its artist could paint beautiful pictures and yet have ugly children, to which the artist retorted that he made his children at night. For 10 points each:

[10h] Name this building, which probably contains a portrait of Dante in the "heaven" part of its fresco of the Last Judgment. This building also contains monochrome frescoes depicting seven pairs of opposing virtues and vices.

ANSWER: **Scrovegni Chapel** [or **Cappella degli Scrovegni** or **Arena Chapel**]

[10m] In the *Purgatorio*, Dante noted that this painter of the Scrovegni Chapel severely overshadowed his teacher, Cimabue ("chee-mah-BOO-ay").

ANSWER: **Giotto** [or Giotto di **Bondone** or **Giottus**]

[10e] A portrait often attributed to Giotto is an early depiction of Dante mainly wearing this color, as he has since traditionally been depicted. Renaissance painters often used this primary color's pigment vermilion.

ANSWER: **red** [or **rosso**]

<Painting/Sculpture>

6. One of these compounds that contains sulfur is the reagent in the Johnson–Corey–Chaykovsky reaction. For 10 points each:

[10m] Name these zwitterions ("TSVIT-er-ions") that are prepared with phosphonium salts for the Wittig reaction. These compounds have a positive and a negative charge on adjacent atoms.

ANSWER: **ylides** ("ILL-id") [accept phosphonium **ylides** or sulfur **ylides**]

[10e] Because they contain opposite charges on adjacent atoms, ylides have this property. Molecules with this electrical property are generally hydrophilic.

ANSWER: **polarity** [or **dipolarity** or having a **dipole**]

[10h] In 1,3-dipolar cycloadditions, this specific type of nitrogen-based ylide can form pyrrolidines and pyrrolines. These ylides, which contain a carbanion and an iminium cation, can be created with a ring-opening reaction on an aziridine.

ANSWER: **azomethine** ylides

<Chemistry>

7. In *The Age of Robert Guiscard*, Graham Loud notes that the Latin episcopal sees in this state's capital city had resisted Byzantine Hellenization, although its clergy often spoke Greek. For 10 points each:

[10h] Name this Norman principality led from an eponymous city in Puglia, Italy from 1088 to 1465. This state's first ruler, who was the eldest son of Robert Guiscard, founded the Principality of Antioch in 1098.

ANSWER: **Taranto** [or **Tarentum** or **Tárantas** or **Tarento** or **Tarde**; or Principality of **Taranto** or Principato di **Taranto**; accept Bohemond of **Taranto**]

[10m] These people allegedly shipped a flotilla of 12,000 slaves from Taranto to Ifriqiya. Medieval Christians gave this generic name to Arab Muslims in Aghlabid Calabria and Malta, Crete, Cyprus, and the Crusader Levant.

ANSWER: **Saracens** [or variants like **Sarazzin** or **Saraceni** or **Sarakinos** or **Sariqin**; prompt on **Ishmaelites** by asking "what non-biblical name was also applied to them?"] (The account of the Taranto slave market is reported in Tom Holland's *The Forge of Christendom*.)

[10e] *Sacred Swords*, a Muslim-centric history of the Crusades, quotes the *Taktika* of Leo the Wise to explain how Bohemond of Taranto countered Saracen techniques like using these desert-tolerant pack animals to scare horses.

ANSWER: **camels** [or **dromedary** camels; or *Camelus dromedarius*; prompt on ungulates or artiodactyls]
<European History>

8. Slavoj Žižek ("slah-VOY ZHEE-zhek") praised this art form for its ability to "tell you what to desire" in a work that psychoanalyzes various examples of it. For 10 points each:

[10e] Name this art form. Siegfried Kracauer argued that it has "realistic" and "formative" tendencies in a book that examines works in this art form made by the Lumière Brothers and Orson Welles.

ANSWER: **cinema** [or **film**; or **Kino**; accept **movies**; accept *Theory of Film*; accept *The Pervert's Guide to Cinema*]

[10m] An essay by this thinker holds that films do not possess clear "cult value" held by other works of art. That essay by this German thinker holds that reproducibility has made artworks lose their "aura" of authenticity.

ANSWER: Walter **Benjamin** ("BEN-yah-meen") [or Walter Bendix Schönflies **Benjamin**] (The essay is "The Work of Art in the Age of Mechanical Reproduction.")

[10h] This thinker created a taxonomy of film "movement-images" in two books titled *Cinema*. This thinker and a psychotherapist co-wrote a book that compares the realm above the world of appearance to a "body without organs."

ANSWER: Gilles **Deleuze** ("zheel duh-LOOZ") (The other book is *A Thousand Plateaus*, co-written with Félix Guattari.)

<Philosophy>

9. In *What Hath God Wrought*, Daniel Walker Howe traced the benefits of Mexican examples of these institutions, whose supply initially came from goods made by the proto-industrial putting-out system. For 10 points each:

[10e] Name these economic institutions that Charles Grier Sellers blamed for "bourgeois hegemony" during their antebellum "revolution." In 19th-century America's capitalist economy, these competitive systems of exchange were "free."

ANSWER: **markets** [or **marketplaces**; accept free **markets** or open **markets** or **market** economy or **market** competition; accept **Market** Revolution or *The Market Revolution: Jacksonian America, 1815–1846*]

[10m] The Whigs promoted access to markets by advocating these projects, like canals, tunnels, and the National Road. This alliterative two-word phrase refers to infrastructure championed by Henry Clay's "American System."

ANSWER: **internal improvements**

[10h] This Whig cartoon's title figure tramples on the phrases "internal improvements" and "U.S. bank" alongside the Constitution. This cartoon's title figure wields a scepter next to the phrase "of veto memory."

ANSWER: **King Andrew the First** [prompt on descriptions like "the cartoon of Andrew **Jackson**" or "the one with **Andrew** Jackson as a king"]

<American History>

10. You sent a humorous meme to a groupchat. Answer the following about how your multilingual friends might react, for 10 points each.

[10e] Speakers of this language type “MDR” to express that they are “dying of laughter.” English legal terms like *voir dire* derive from this language, whose *verlan* slang reverses words; for example, “meuf” is slang for “femme.”

ANSWER: **French** [or **français**; accept Law **French** or Louai **Français**; accept **Norman** French or **Normand** or **Normand** or variants] (MDR stands for “mort de rire.”)

[10m] Korean and Brazilian Portuguese speakers might laugh by repeating this English letter. This letter precedes “AWS” in the pseudonym of Brian Donnelly, who makes internet- and cartoon-inspired artworks with Xs for eyes.

ANSWER: **k** [or **K**; accept **KAWS**]

[10h] “Ha” means “five” in this country’s official language, so “555” means “LOL.” The app LINE (“line”) banned buffalo stickers that represent UDD Red Shirts in this country, where a star of the show *2gether* inspired the Milk Tea Alliance.

ANSWER: **Thailand** [or Kingdom of **Thailand**; or Ratcha-anachak **Thai**; accept **Siam**] (UDD stands for United Front for Democracy Against Dictatorship.)

<CE/Geo/Other/Pop Culture>

11. The speaker of a Carl Sandburg poem calls this historical figure “a slanting look of the eyes, / A slanting look under a hat on a horse” and beseeches this figure to “Give us again the ache of our boy hearts.” For 10 points each:

[10m] Name this historical figure who used to “break one two three four five pigeons just like that” and “ride a watersmooth-silver / stallion” in a poem that asks “how do you like your blue-eyed boy / Mister Death.”

ANSWER: **Buffalo Bill** [or William Frederick “Buffalo Bill” **Cody**; accept “**Buffalo Bill**’s defunct”]

[10e] “Buffalo Bill’s defunct” is a poem by this author, who experimented with punctuation and capitalization in poems such as “anyone lived in a pretty how town.”

ANSWER: e e **cummings** [or Edward Estlin **Cummings**]

[10h] Another cummings poem, which describes how “the moon rattles like a fragment of angry candy,” is titled for “the Cambridge ladies who live in [this specific location].”

ANSWER: ”**furnished souls**” [prompt on **souls**]

<American Literature>

12. Chanie Wenjack died during his escape from one of these places, where unethical nutritional experiments were conducted by Frederick Tisdall, creator of the cereal Pablum. For 10 points each:

[10e] Identify these places whose history is traced prior to the Macdonald government’s Davin Report in *A National Crime*. In recent years, mass graves of Cree and Mohawk children have been found near these places across Canada.

ANSWER: **residential schools** [or **Indian schools**; or **IRS** system; or Indian **boarding schools**; accept **industrial schools** or **manual labour schools**; accept **First Nations schools** or **Native residential schools** or **schools** for **Indigenous** peoples of Canada or **Inuit schools** or **Métis schools** or equivalents; prompt on **schools** or equivalents]

[10m] The assimilatory Māori Native Schools Act passed in the 1860s, when Dunedin’s University of Otago opened after one of these events. Johannesburg and Melbourne grew during these events in Witwatersrand

(“vut-VAH-tuz-rahnt”) and Victoria.

ANSWER: **gold** rushes [or **gold** fever; accept Otago **gold** rush or Victorian **gold** rush or Witwatersrand **gold** rush; accept **gold** mining or **Au**; prompt on **mining** or **mineral** revolution or similar]

[10h] Scottish Presbyterians founded schools in Blantyre for this colony’s Chewa people, who attended Salisbury’s university during its federation with Rhodesia. John Chilembwe created this colony’s Providence Industrial Mission.

ANSWER: **Nyasaland** [or **Nyasaland** Protectorate; accept **Malawi** or Republic of **Malawi** or Dziko la **Malaŵi** or Charu cha **Malaŵi**; accept **Maravi** Empire or Kingdom of **Maravi**; accept Federation of Rhodesia and **Nyasaland** or University College of Rhodesia and **Nyasaland**]

<Other History>

13. *Two answers required.* The von Neumann bottleneck occurs because these two concepts cannot be accessed simultaneously. For 10 points each:

[10h] Name these two concepts that share a bus in the von Neumann architecture. Flynn’s taxonomy for parallel computing considers whether an architecture has single or multiple streams for each of these concepts.

ANSWER: **data** AND **instructions** [accept in either order; accept machine **code** or **programs** or similar answers in place of “instructions”; prompt on **SISD**, **SIMD**, **MISD**, or **MIMD** with “what does that stand for?”]

[10e] Parallel computing architectures with multiple data streams can exploit data parallelism by accessing this resource in several different places at once. This resource includes registers, caches, and its random-access type.

ANSWER: **memory** [accept random-access **memory**; prompt on **RAM**]

[10m] In addition to the data and instruction levels, parallelism can occur on the level of these constructs.

Schedulers allocate resources between these individual sequences of instructions that run in parallel on a single core.

ANSWER: **threads**

<Other Science>

14. The former MIT student Lori Berenson was accused of collaborating with a modern organization named for this person. For 10 points each:

[10m] Identify this man who names a “Revolutionary Movement” led by Víctor Campos. This Indigenous rebel, who took his name from a monarch executed at Vilcabamba, was defeated at the 1780 Battle of Sangarará.

ANSWER: **Túpac Amaru II** [in place of “Túpac” accept **Thupaq** or **Thupa** or **Topa**; in place of “Amaru” accept **Amaro**; accept **Túpac Amaru** Revolutionary Movement; prompt on José Gabriel **Condorcanqui** by asking “what name did he adopt?”; prompt on **MRTA**]

[10e] This country’s President Alberto Fujimori fought the Túpac Amaru Revolutionary Movement with the Grupo Colina death squad. Túpac Amaru II rebelled against the Spanish Viceroyalty based in this country’s city of Lima.

ANSWER: **Peru** [or **Perú** or **Piruw**, or Republic of **Peru** or República del **Perú** or **Piruw** Ripuwlika or **Piruw** Suyu; accept Viceroyalty of **Peru** or Virreinato del **Perú** or Kingdom of **Peru**]

[10h] Fujimori launched an operation named for this ancient Peruvian site to end a hostage crisis caused by the Túpac Amaru Revolutionary Movement. Underground passages led to the Lanzón stela at this Early Horizon site.

ANSWER: **Chavín de Huántar** [prompt on **Chavín** culture]

<World History>

15. A work in this poetic form has the epigraph “Pale hands I loved beside the Shalimar,” taken from an American poem by Laurence Hope that imitates this form. For 10 points each:

[10h] Name this poetic form used for Agha Shahid Ali’s poem “Tonight,” in which the title word is the poem’s *radif*.

ANSWER: **ghazals** (“guzzles”)

[10e] A line from the ghazal “Tonight” asks the listener to do this three-word action “tonight.” This three-word instruction opens Herman Melville’s novel *Moby-Dick*.

ANSWER: “**call me Ishmael** tonight”

[10m] This poet predicted his death in one of his many ghazals. This poet is often claimed to be the “best-selling poet” in the U.S. on the strength of Coleman Barks’s questionable translations of his *Spiritual Couplets*.

ANSWER: **Rūmī** [or **Jalal ad-Din** Muhammad Balkhi; or **Jalal ad-Din** Muhammad Rumi; or **Mowlana**]

<World Literature>

16. One of these equations can be derived by minimizing the sum of the magnetic field's energy and its induced electron kinetic energy. For 10 points each:

[10h] Name these equations. The gauge ("gayj") associated with these equations, whose conditions include fixing the vector potential to zero in the superconductor bulk, allows them to be condensed into a single linear expression.

ANSWER: **London** equations

[10m] Applying this law to the second London equation shows that magnetic fields exponentially decay within a superconductor, quantifying the Meissner effect. This law relates current density to the curl of the magnetic field.

ANSWER: **Ampère's** law [or **Ampère's** circuital law]

[10e] The first London equation is derived by applying this law to superconducting electrons in an electric field. This law states that force is equal to mass times acceleration.

ANSWER: **Newton's second** law of motion [prompt on partial answers]

<Physics>

17. This person allegedly discovered that musical notes could be represented numerically by listening to a blacksmith's hammers. For 10 points each:

[10e] Name this ancient Greek philosopher who names a system of tuning based on the ratio 3:2 ("three-to-two"). He is better known for deriving a theorem that relates the side lengths of a right triangle.

ANSWER: **Pythagoras** [accept **Pythagorean** tuning; accept **Pythagorean** theorem]

[10h] Pythagorean tuning is an example of this type of tuning, which represents all notes of the scale by numeric ratios. The practical difficulties of using this system led to its replacement by meantone temperament in the 16th century.

ANSWER: **just** intonation [or **pure** intonation]

[10m] Using principles of just intonation, this musician developed the alpha scale, which has no octave, for her album *Beauty and the Beast*. This transgender musician used the Moog synthesizer on her album *Switched-On Bach*.

ANSWER: Wendy **Carlos**

<Classical Music>

18. This economist's book *The White Man's Burden*, which was released after the Live 8 concert series, criticized the humanitarian efforts of figures like Bono as a modern form of colonialism. For 10 points each:

[10h] Name this economist, whose "misadventures in the tropics" are chronicled in a 2001 book which argues that past failures to apply economic principles to policy work have led to the disappointing results of foreign aid.

ANSWER: William **Easterly** [or William Russell **Easterly**]

[10e] That Easterly book is titled *The Elusive Quest for* [this phenomenon], which occurs due to technological progress in the Solow–Swan model. This phenomenon is typically measured in percent change in GDP.

ANSWER: economic **growth** [accept *The Elusive Quest for* **Growth**]

[10m] Easterly is critical of the use of structural adjustment loans to promote development as practiced by these two Washington D.C.-based international economic organizations, which were founded after World War II as part of the Bretton Woods system.

ANSWER: **IMF** AND **World Bank** [accept in either order; accept **International Monetary Fund** for "IMF"; accept **WB** for "World Bank"]

<Social Science>

19. In some Haredi communities, this person carries out the controversial Metzitzah B'Peh ("meh-tsee-TSAW buh-PAY") rite, which has been linked to several cases of herpes transmission. For 10 points each:

[10h] Name this person who carries out the rite of *brit milah*, or *bris*, using an *izmel*. This person usually circumcises a Jewish infant eight days after the child's birth.

ANSWER: **mohel** [or **mohala** or **mohelet**; accept **mohalim** or **mohalot**; prompt on any descriptive answer such as **circumcizer**]

[10e] Following the *brit milah*, the *mohel* recites a prayer over some of this substance and gives the baby a Hebrew name. The Passover seder is typically centered on four cups of this substance.

ANSWER: **wine** [or **yavin**; prompt on **alcohol** or **beverages**]

[10m] During a *brit milah*, a chair is set aside for this prophet. The Bible compares John the Baptist to this prophet in recognition of his role in announcing the arrival of the Messiah.

ANSWER: **Elijah** [or ' **Ēlīyyāhū** or **Elias**; do not accept or prompt on "Elisha"]

<Religion>

20. In a poem, consuls and praetors wear embroidered, scarlet togas with amethyst and emerald-studded bracelets in order to dazzle these people. For 10 points each:

[10m] Name these people. A poem by Constantine P. Cavafy ("cuh-VAH-fee") ends with the observation that these people were "a kind of solution" after the speaker realizes that they no longer exist.

ANSWER: **barbarians** [accept "Waiting for the **Barbarians**"]

[10e] Cavafy wrote in this language's modern form. Many of his poems, such as "Oedipus" and "The Trojans," reframed mythical figures who inspired literature in the ancient form of this language used by Sophocles.

ANSWER: **Greek** [or **Hellenic**; accept Modern **Greek** or **Elliniká**; accept Ancient **Greek** or **Hellēniké**]

[10h] A different Cavafy poem instructs its addressee to "say goodbye" to this city "you are losing." E.M. Forster, who may have had a crush on Cavafy, quoted that poem at the start of his guidebook for this city.

ANSWER: **Alexandria**, Egypt [or al-' **Iskandarīyah**] (The Cavafy poem is "The God Abandons Antony").

<European Literature>

21. Lorraine O'Grady wrote that "to name ourselves rather than be named we must first see ourselves" in an essay that analyzes this painting's Eurocentric depiction of a maid. For 10 points each:

[10m] Name this controversial painting that features a black cat. The confrontational gaze and posture of this painting's subject were inspired by Titian's *Venus of Urbino*.

ANSWER: **Olympia**

[10e] *Olympia* is a work by this Impressionist painter, who included a large mirror behind a barmaid in *A Bar at the Folies-Bergère*.

ANSWER: Édouard **Manet**

[10h] This other artist was the model for the nude in *Olympia*. Her own works include a self-portrait that was accepted for the 1876 Salon, at which Manet's own self-portrait was rejected.

ANSWER: Victorine **Meurent** [or Victorine-Louise **Meurent**; or Victorine **Meurant**]

<Painting/Sculpture>