

## 2022 ARCADIA □

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**Packet 3:** It's like a "pencil and paper ready" question but with more roleplaying and less pain

Tossups

1. **This process is coupled with a shorter-range process in a reaction whose mechanisms are visualized with square schemes. Intersecting parabolic free energy curves are used to model the kinetics of this process in a theory that predicts a decrease in rate when  $\Delta G$  is very negative. A "proton-coupled" variant of this reaction similar to HAT ("hat") is key to energy conversion.  $\text{Ru}(\text{bipy})_3$  ("ru-bippy-three") belongs to a class of (\*) photocatalysts that activate their substrates via this process. The kinetics of these reactions, which have "inner-sphere" and "outer-sphere" mechanisms, is described by Marcus theory. When balancing these reactions in acidic solution, one adds  $\text{H}_2\text{O}$  ("H-two-O") to one side, then  $\text{H}^+$  ("H-plus") to the other side. Equations for these reactions are broken down into half-reactions. For 10 points, name this class of reactions that involve the transfer of electrons.**  
ANSWER: **redox** [accept **reduction** or **oxidation**; accept proton-coupled **electron transfer** or single **electron transfer** until "transfer of electrons" is read] (The first clue refers to proton-coupled electron transfer reactions.)  
<VD, Chemistry>

2. **One character in this novel is inspired by a play about a drunk monk to say, "If there is no 'I' then neither is there 'you.'" While two characters in this novel exchange lines from a romantic play, one of them is brought to tears on a line about falling flowers. After one character in this novel is beaten for sheltering an actor, a misunderstanding leads another character to symbolically bury flower petals. A man in this novel runs away to become a monk after the death of his lover, who was a (\*) reincarnation of a flower that he watered in a previous life. An inscription on a golden locket predestines this novel's protagonist to marry his cousin, Xue ("shway") Baochai. A request from a stone in this novel's frame story results in its reincarnation as a piece of jade in the mouth of Jia Baoyu. For 10 points, name this 18th-century Chinese novel by Cao Xueqin ("tsao shway-CHEEN").**  
ANSWER: ***Dream of the Red Chamber*** [or A ***Dream of Red Mansions*** or ***Hónglóumèng***; accept ***The Story of the Stone*** or ***Chronicles of the Stone*** or ***Shítóu jì***]  
<JF, World Literature>

3. **Dovidio and Gaertner reported an "aversive" form of this attitude that drew from a theory proposed in the 1970s by Chester Pierce. A book titled for "the nature of" this attitude promotes institutional sanctioning of common interests to address this attitude as part of the contact hypothesis. "Antilocution" is the first point in a five-point scale introduced to measure levels of this attitude in a society by (\*) Gordon Allport. The introduction of superordinate goals into a study involving the Rattlers and the Eagles decreased this attitude. Muzafer Sherif developed realistic conflict theory to explain this attitude following the Robber's Cave experiment. This attitude manifests in microaggressions. For 10 points, name this attitude related to a stereotype and defined as a preconceived opinion towards others.**  
ANSWER: **prejudice** [or **prejudicial** attitude; accept **racism**; accept **inter-group conflict** until "conflict" is read; accept ***The Nature of Prejudice***; prompt on **microaggression** or **discrimination** until "microaggressions" is read by asking, "It results from individuals having what attitude?"; reject "stereotypes"]  
<GP, Social Science>

4. In Emesa, this group stripped a lead and copper monastery roof during a war against the Fatimids. This group names part of the harbor at Bari due to its role in a conflict against the Normans ended by the Battle of Dyrrhachium (“dir-RACK-ee-um”). Members of this group are responsible for etchings on the side of the Piraeus Lion. This group was first employed to fight Bardas Phokas. As punishment for replacing this group with loyal Scythians, (\*) Michael V (“the fifth”) was castrated and blinded by Harald Hardrada. Vladimir the Great converted to Orthodoxy and married Anna Porphyrogenita (“POR-fir-uh-JEN-nit-uh”) in exchange for providing this group to Basil II (“the second”). This group is named after the Medieval Greek word for Vikings. For 10 points, name this elite force that protected Byzantine emperors.

ANSWER: Varangian Guard [or Tagma ton Varangon; accept Varangian mercenaries; accept Mare dei Guaranghi; prompt on Vikings or Norsemen until “Vikings” is read]  
<GP, European History>

5. This body of water’s dangerous tradition of deep sea saturation divers is depicted in the 2019 documentary *Last Breath*. Farouk Al-Kasim is credited with pioneering an industry in this body of water in which the companies Petoro and Equinor operate. The Brent Complex, based around this body of water, sets global price benchmarks for an industry that predominates in this body of water. In 1977, *The Economist* connected the discovery of a resource south of this body of water near (\*) Groningen (“KHRO-ning-un”) with one country’s namesake “disease.” The world’s largest sovereign wealth fund is financed with revenue from this sea’s Ekofisk Field. Stavanger (“stah-VONG-er”) and Aberdeen, cities on this sea, are centers of Europe’s petroleum industry. For 10 points, name this sea whose resources have boosted the GDPs of the Netherlands and Norway.

ANSWER: North Sea [accept Noordzee or Nordsjøen; prompt on Atlantic Ocean or Atlantische Oceaan or Atlantehavet until “sea” is read; anti-prompt (ask, “Can you be less specific?”) on Wadden Sea or Waddenzee]  
<RR, Geography>

6. Members of this ethnicity worked on gambier and pepper plantations under a system administered by “kapitans.” This ethnic group’s secret societies fought over mining areas in Perak in the Larut Wars. A set of “republics” governed by this ethnicity competed with a European “Ethical Policy” in a series of wars with the Dutch. Families of this ethnic group and the Indigenous Orang Asli were forcibly resettled into “New Villages” under the 1950 Briggs Plan. The 13 May incident targeted members of this ethnicity due to the (\*) bumiputera-promoting policies of Tunku Abdul Rahman. A Raffles-educated prime minister of this ethnicity turned his country into an Asian Tiger following its expulsion from Malaysia. For 10 points, give this ethnicity of Singaporean Prime Minister Lee Kuan Yew, who launched the Speak Mandarin Campaign.

ANSWER: Hàn Chinese [or Hàn people or Hànzú; accept Malaysian Chinese or Singaporean Chinese; prompt on Malaysians or Singaporeans by asking, “Of what ethnicity?”; reject “Malay”] (The “kapitans” administered the *kangchu* system and the *kongsi* republics are mentioned in the second sentence.)  
<AS, World History>

7. A poem in this language refers to a name as “a ball caught in flight,” the “click of hooves at night,” and “a kiss of snow” and is included in the collection *Milestones*. Letters exist between the author of that poem and another author in this language, who told his sister, “Life’s overflowing today,” in one poem. That author’s childhood friend wrote a poem in this language that opens with the speaker having (\*) “lit my treasured candles one by one” to “hallow the night.” A woman with “lips blue with cold” asked the speaker of a poem in this language, “Can you describe this?” in a section of a “Requiem” titled “Instead of a Preface.” For 10 points, “Poem without a Hero” was written in what language also used in poems by Marina Tsvetaeva (“svit-TAH-yiv-uh”), Boris Pasternak, and Anna Akhmatova?

ANSWER: Russian [or Russkiy] (The poem from the first clue is Tsvetaeva’s “Poems for Blok I.”)  
<JF, European Literature>

8. **Monitoring concentrations of this molecule was the main objective of SeaWiFS (“sea whiffs”), a sensor on the SeaStar satellite. Vertical mixing contributes to seasonal oscillation in the heights of regions called “deep maxima” of this molecule. Low levels of micronutrients like iron in the oceans create HNLC regions, which have low levels of this molecule. A new form of this molecule was discovered in stromatolites in Shark Bay in 2010. Accessories to this molecule called (\*) phyco-bili-proteins include phyco-erythrin and phyco-cyanin. This molecule’s c subtypes are found in diatoms and dinoflagellates. Concentrations of this molecule are often measured as a proxy for oceanic primary production. In algae, this molecule is located in the membrane of thylakoids. For 10 points, name this green pigment that phytoplankton use to carry out photosynthesis.**

ANSWER: chlorophyll [accept chlorophyll a; accept chlorophyll c; accept chlorophyll f]

<AS, Other Science: Earth Sciences>

9. **In one film from this country, billowing smoke from a chemical plant represents a sick woman’s anxiety. A woman in a film from this country awakens and opens a shack door to reveal a sunrise before investigating the disappearance of a woman on a yacht trip. People hold hands and dance around a circus ring in a film from this country that opens with a man crawling out of his smoking car and (\*) floating into the sky. A bicyclist at dawn interrupts a tabloid journalist from kissing a woman in a black dress while wading in a fountain in a film from this country. The film *Red Desert* is from this country, as is a film in which a science fiction director struggles with writer’s block. For 10 points, name this home country of directors Michelangelo Antonioni and Federico Fellini.**

ANSWER: Italy [or Italia]

<JF, Other Arts: Visual>

10. **Worshippers seek forgiveness from this substance during the Thai Loi Krathong festival. On Mondays during the month of Shrāvana, this substance is used to perform *abhisheka* on Shivalingams. The annual Mātā Mūrti kā Melā festival at the Badrīnāth Temple celebrates the descent of this substance to Earth, called the *avatarana*. During that descent, (\*) Shiva knotted his hair to catch this substance and attenuate its flow to Earth, where it was received by Bhagiratha, who used it to release the 60,000 slain Sagarputras from Patala. Haridwar’s Kumbh Mela celebrations are clouded by worries of pollution in this substance from bodies of the dead and ashes of the cremated, all of whom attain moksha via contact with it. For 10 points, pilgrims to Varanasi descend *ghats* to wash away their sins in what substance that makes up the most sacred river of Hinduism?**

ANSWER: water from the Ganges River [or gangājal; accept Ganga in place of “Ganges”; prompt on water by asking, “From where?”]

<AS, Beliefs>

11. **Contemporary composers Ivan Moody and John Tavener have primarily set texts in this language for a Portland-based choir. Nicola Vincentino designed the manuals of the *archicembalo* (“ar-kee-CHEM-buh-lo”) to experiment with a system created in this language. This language is sung by a sinful woman who anointed Jesus’s feet in a hymn composed by the abbess Kassia. Theorists who used this language formulated a system that musicians apply when using expressive (\*) intonation. One setting of a hymn in this language is a double fugue that borrows its theme from Handel’s *Messiah*. “Pure” perfect fifths are stacked in tuning system named for a theorist who used this language. The Mass Ordinary begins with a hymn in this language whose title translates as “Lord, have mercy.” For 10 points, the words *Kyrie eleison* (“KEE-ree-ay el-LAY-iss-sawn”) are sung in what classical language used by Pythagoras?**

ANSWER: Classical Greek [or Elliniká; reject “Demotic Greek” or “Modern Greek”] (The choir in the first clue is Cappella Romana.)

<VD, Auditory Arts>

12. A Margaret Gilbert work titled for one of this thinker's concepts argues that, in order for humans to form a collective, they must first form a "plural subject." Desirability and obligation are characteristics of morality compared to sacredness in this thinker's "Determination of Moral Facts." One work by this thinker tries to demonstrate its discipline's goal by establishing a distinction between (\*) normal and pathological phenomena. That work identifies the "data" of this thinker's discipline as "any way of acting, fixed or not, capable of exerting over the individual an external pressure." This thinker introduced a definition of "social facts" in *The Rules of Sociological Method*, and he differentiated between mechanical and organic solidarities in *The Division of Labor in Society*. For 10 points, name this French sociologist who wrote *Suicide*.

ANSWER: Émile Durkheim [or David Émile Durkheim] (The Margaret Gilbert work is *On Social Facts*.)  
<MB, Social Science>

13. A failed punitive raid against this tribe was launched by Diego Ortiz Parrilla after a raid on the San Sabá Mission. Santa Anna's son "Death Meat" led a band of this tribe called the Quahadi. A.S.C. Gwynne's book *Empire of the Summer Moon* chronicles a chief of this tribe who surrendered to Randal S. Mackenzie during the Red River War and was the son of the assimilated White woman Naduah. Warriors from this tribe contorted themselves around their horses to avoid gunfire while fighting the Lipan Apache. This tribe once led by (\*) Quanah Parker branched off the Shoshone as the first Native Americans to master the use of horses. This tribe provided historical research and dubbing for the 2022 film *Prey*. For 10 points, name this Native American tribe dubbed the "Lords of the Southern Plains."

ANSWER: Comanche [or Comanche Nation; accept Comanchería; accept Nermernuh; accept Numunuu Sookobitu; accept Yamparika; accept Kotsoteka; accept Nokoni; accept Penateka; accept Quahadi until read]  
<DA, American History>

14. In 2020, NASA approved Slava Turyshev's proposal to create a space telescope that uses this phenomenon for high definition surface images. Profiles reconstructed by measuring the shear due to this phenomenon can be compared to the theoretical Navarro-Frenk-White profile. The Jansky Very Large Array used this phenomenon to detect radio galaxies around a large (\*) cluster. An angle associated with this phenomenon can be approximated for a point object as four GM divided by  $c$ -squared times the impact parameter. In deep space images, this phenomenon causes characteristic rings named for Einstein. For 10 points, name this phenomenon from general relativity in which a mass distribution will bend light passing by it.

ANSWER: gravitational lensing [accept gravitational lens; prompt on gravity bending light or equivalent descriptions]  
<BW, Physics>

15. This character battles the Leviathan during a fishing trip with Jim Billings in a story titled for "[this character] and the Sea Serpent." Another story describes this man as having "a mouth like a mastiff, a brow like a mountain and eyes like burning anthracite." This character notes that "there was sadness in being a man" in a speech that describes "the simple things that everybody's known and felt." This man is told, "some will call you (\*) Ichabod," by a character who brings in Edward Teach, King Philip, and ten other damned men to undermine this character. A struggling farmer named Jabez Stone asks this character for assistance after Stone sells his soul to a stranger nicknamed Mr. Scratch. For 10 points, name this lawyer who argues a court case against the Devil in a Stephen Benet short story.

ANSWER: Daniel Webster [or Daniel Webster]  
<HG, American Literature>

16. The Mohists identified three types of these things: unrestricted, or dá, classifying, or lèi, and private, or sī. A group whose modern title refers to its ability to manipulate these things was called *Bian Zhe* ("b'YEN juh") for its expertise in disputations. "A white horse is not a horse" was cited by Xunzi ("SHOON-dzih") as an

**incorrect usage of these things by Gongsun Long, a member of a (\*) “school” of these things.** Confucius argued that because these things are not used properly, language does not function, and said that he would “rectify” these things. According to the *Dao de Jing*, these things cannot be applied to the true Dao. For 10 points, identify these things that are used to designate persons, examples of which include “Mozi” and “Confucius.”

ANSWER: names [or míngzi; accept nouns, prompt on words; prompt on utterances]

<MB, Philosophy>

17. *Description acceptable.* **This person is not an artist, but a Carrie Mae Weems series alluding to them includes the caption “I took a tip from Frida” and is titled for being “Not [one artist’s] Type.” A portrait of this person’s model inspired two paintings by Bazille of women with peonies. This person titles an essay that describes her as a “robot conveniently made to disappear,” by Lorraine O’Grady. This person’s model, (\*) Laure (“lore”), appears in the painting *Children in the Tuileries* (“TWEE-luh-reez”) wearing a similar madras headscarf. This person appears in a light dress presenting a bouquet of flowers from a suitor to a woman lying on a bed next to a black cat. For 10 points, identify this Black woman who stands behind a nude, reclining prostitute in a painting by Edouard Manet.**

ANSWER: Olympia’s maid [or the Black woman or maid from Olympia; accept synonyms such as servant in place of “maid”; accept African in place of “Black”; accept Manet’s nursemaid; accept Laure until read; prompt on a model of Manet; reject “slave” or answers indicating that she is enslaved]

<VD, Visual Arts>

18. **In crocodilians, this process is enabled by a “high walk” and a hepatic piston system. Turtles’ unique anatomy forces them to rely solely on the hypaxial muscles and the movement of the shoulder girdle to perform this action, which is impossible while retracting their heads into their shells. Mammals flex vertically instead of sideways to circumvent Carrier’s constraint and perform this action while (\*) moving. Birds perform this process unidirectionally rather than bidirectionally like mammals, which employ a “tidal” form of this process. Amphibians use skin folds to increase the rate of this process, which they perform cutaneously and under positive pressure, unlike the negative pressure used by humans. For 10 points, the contraction and relaxation of the diaphragm and ribs facilitate what process that allows humans to take in oxygen?**

ANSWER: breathing [accept respiration; accept tidal breathing; anti-prompt (ask, “Can you be less specific?”) on gas exchange or inhalation or exhalation or word forms; reject “cellular respiration”]

<KT, Biology>

19. **The author lists methods like “pollution of agency” and “the double standard of content” in the book *How to Suppress [this activity]* by Joanna Russ. Freud’s “dark continent” is “neither dark nor unexplorable” according to an essay which claims that this activity is bisexual. The opening of an essay compares a thought on this activity to lowering a fishing line into a stream and catching a small, insignificant fish. A feminine form of this activity is proposed in the essay “The Laugh of the Medusa.” An essay claims that all (\*) women “ought to let flowers fall upon the tomb of” a woman who inspired them to do this activity. In that essay, a fictional woman kills herself because she cannot do this activity, unlike her brother Shakespeare. For 10 points, Virginia Woolf claimed that women must have money and a room of one’s own in order to do what activity?**

ANSWER: writing [or word forms; accept writing fiction or writing literature; accept creating literature or similar descriptions; accept becoming an author; accept *How to Suppress* Women’s Writing or écriture (“ay-kree-TURE”) feminine]

<CM, British Literature>

20. **In relation to this event, Archbishop Geoffrey Fisher criticized one politician’s use of evasive words like “physical force” instead of war. Iraq refused to send troops to a neighboring country during this event since they would have been under the control of Ali Abu Nuwar rather than the recently-dismissed Glubb Pasha.**

**For escaping political fallout from this event, a different politician was described as “first in, first out” by Harold Wilson. This conflict created the first international financial crisis addressed by the IMF despite (\*)** Dwight D. Eisenhower’s threats to withhold loans to the United Kingdom in the absence of a ceasefire. Two months after ending this conflict, Prime Minister Anthony Eden resigned. For 10 points, name this 1956 attempt to overthrow Gamal Abdel Nasser for nationalizing an Egyptian waterway.

ANSWER: Suez Crisis [or Second Arab–Israeli War or al-‘Udwān ath-Thulāthiyy; accept Sinai War or Milchemet Sinai; prompt on Arab–Israeli War] (Fisher criticized Eden’s use of evasive words and Wilson gave the unsavory description of Harold Macmillan.)

<AS, Other History: British>



## Bonuses

1. One of these animals appears to sit on the frame of a *Portrait of a Carthusian* in an example of an early Renaissance *trompe l'oeil* (“**tromp LOY**”) trick of depicting them. For 10 points each:

[10m] Name these animals that represented sin in paintings. According to Vasari, Giotto (“**JO-toh**”) would fool his teacher Cimabue (“**chee-mah-BOO-ay**”) by painting these animals hyper-realistically onto portraits by him.

ANSWER: **flies** [accept **houseflies**; accept **musca** depicta]

[10h] The realistic fly in the *Portrait of a Carthusian* was painted by this artist, who may have inherited Van Eyck’s workshop and introduced geometric perspective to Flemish painting. He also painted *A Goldsmith in His Shop*.

ANSWER: Petrus **Christus**

[10e] A frequent interpretation of the fly is as a moralizing reminder of death, like the *vanitas* skull paintings in this genre. Dutch artists painted flies and other insects in works in this genre that depict fruits and flowers.

ANSWER: **still life**

<VD, Visual Arts>

2. Answer the following about notable female gunslingers in the Wild West, for 10 points each.

[10e] The freedwoman Mary Fields was the first Black woman to work for the U.S. Postal Service as an “express messenger” for these vehicles. The term “riding shotgun” originated from guards who would ride on these carriages owned by Wells Fargo.

ANSWER: **stagecoaches** [or **stagewagons**; accept mud-**coaches** or mud-**wagons**; accept **Stagecoach Mary**; prompt on **coaches** or **carriages** or **wagons**]

[10m] The horse thief and gunslinger Belle Starr was nicknamed the “Queen of [this state’s] Outlaws.” This recipient of the “No Man’s Land” strip in 1850 saw a settlement boom under the notoriously loud David Payne.

ANSWER: **Oklahoma** (**Payne’s loudness is the source of the term “Boomer.”**)

[10h] Calamity Jane challenged gender norms by wearing men’s clothes in this town, the center of an 1874 Gold Rush on Lakota land. The “Dead Man’s Hand” originated from the poker cards that a gunslinger in this town was holding when he was shot.

ANSWER: **Deadwood**, South Dakota (**The unnamed gunslinger is Wild Bill Hickock.**)

<GE, American History>

3. This novel was attributed to the Muslim historian Cide Hamete Benegeli by its real-life author. For 10 points each:

[10m] Name this novel. The “Knight of the Sorrowful Face” fights a crew of Yanguesan carriers, steals and wears a barber’s basin, and is lured home by “Princess Mico-miconá” with help from the local priest in this novel.

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

[10e] Cervantes claimed to have translated *Don Quixote* from Arabic works inspired by this code, such as Beatriz Bernal’s *Cristalián de España*. Knights were supposed to abide by this code of honor and courtly love.

ANSWER: **chivalry** [accept word forms, accept **chivalric** romances]

[10h] Cervantes lambasted an unauthorized sequel to *Don Quixote* by describing using a reed to inflate one of these animals into a ball. In a short story, a man witnesses Cipión and Berganza, two of these animals, talking.

ANSWER: **dogs** [or **perros**; accept “The Conversation of the **Dogs**” or “El coloquio de los **perros**”]

<AS, European Literature>

4. During Aztec festivals, psilocybin (“**sy-luh-SY-bin**”) mushrooms, or *teonanacátl*, were consumed with *pulque*, a drink made from the sap of this plant. For 10 points each:

[10m] Name this plant sacred to the goddess Mayahuel. The “heart” of this plant was cooked after being struck by lightning, resulting in the first mezcal.

ANSWER: agave [or maguay; or American aloe; reject “aloe”]

[10h] *Pulque* and psilocybin mushrooms were consumed during festivals honoring this “prince of flowers.” A cross-legged statue of this god from Popocatepetl features carvings of various entheogens on its body.

ANSWER: Xochipilli (“sho-chee-PEE-lee”)

[10e] The Aztecs drank psilocybin by mixing it with this food, which was also used to make a bitter drink. The head of the Maize God was depicted hanging on a tree that produced this sweet when Europeans added sugar.

ANSWER: chocolate [or cocoa beans or cacao beans]

<EG, Beliefs>

5. Using the assumptions of the Free Electron Model, electrons in a metal can be modeled as this type of gas. For 10 points each:

[10m] Name this type of gas that is also used to model white dwarf stars, whose degeneracy pressure arises from how the constituents of this type of gas obey the Pauli exclusion principle.

ANSWER: Fermi gas [reject “fermion gas”]

[10e] The Fermi energy of a Fermi gas is equal to the chemical potential at this temperature in Kelvin. The third law of thermodynamics states that entropy approaches a constant value when approaching this lowest temperature.

ANSWER: absolute zero [or zero K]

[10h] This scientist names an approximation method for computing integrals over the Fermi-Dirac distribution. This scientist’s namesake expansion is important for calculating properties in the Free Electron Model, which he developed.

ANSWER: Arnold Sommerfeld [or Arnold Johannes Wilhelm Sommerfeld]

<JF, Physics>

6. In June 2022, Blake Lemoine sparked controversy after claiming that LaMDA, a language model that Google developed using these algorithms, was sentient while testing it for bias. For 10 points each:

[10e] Name these machine learning algorithms modeled on the human brain.

ANSWER: neural networks [or artificial neural networks or ANNs or neural nets]

[10h] This researcher claimed that the debate over LaMDA ignored the “sexism, racism, [and] AI colonialism” of Google’s AI. This former co-lead of Google’s Ethical AI team was fired in 2020 after being asked to withdraw a paper on the environmental costs of large language models.

ANSWER: Timnit Gebru (“GEB-roo”)

[10m] Some of Gebru’s PhD work examined racist biases in machine learning in the “predictive” form of this practice. This activity’s “community” form was pioneered by William Bratton.

ANSWER: policing [accept word forms like police; accept predictive policing or community policing]

<KJ, Current Events>

7. Janet Stephens is an independent archeologist who specializes in this material, which was worked by slaves called *ornatrices* in Roman times. For 10 points each:

[10h] Name this material that was darkened using a mixture of fermented leeches and vinegar. Juvenal satirizes examples of this material as multi-tiered buildings.

ANSWER: hair [accept hairstyles or coiffure; accept buns; accept wigs]

[10e] Stephens was the first person to reconstruct the *seni crines* hairstyle of these people on a modern human. These virgin priestesses wore a veil called the *suffibulum* while tending a sacred hearth.

ANSWER: Vestal Virgins

[10m] This man’s sculptures portray him with an *anastole* hairstyle in an attempt to solidify his legacy as Alexander the Great’s successor. This enforcer of the *lex Gabinia* annexed Syria and incorporated Judaea as a client state of Rome.

ANSWER: Pompey the Great [or Gnaeus Pompeius Magnus]



<EG, Other History: Ancient>

8. At the end of a novel titled for these people, a boy named Bakha rushes home to tell his father about the introduction of the flush toilet to their country. For 10 points each:

[10m] Name these people. In *The God of Small Things*, a Communist one of these people named Velutha dies in prison after Estha and Rahel tell Inspector Thomas Mathew that he had murdered their cousin Sophie Mol.

ANSWER: Dalits [accept untouchables] (The first novel is *Untouchable* by Mulk Raj Anand.)

[10e] Balram Halwai describes his untouchability as “the Darkness” to Wen Jiabao in an Aravind Adiga novel titled for a white one of these animals. One of these animals named Richard Parker accompanies the title character in *Life of Pi*.

ANSWER: tigers [accept *The White Tiger*; or Bengal tiger; or *Panthera tigris tigris*]

[10h] The untouchable Ishvar has his legs amputated and his nephew Om is castrated because they disrespect an upper-class gangster at the end of this novel set during the Emergency.

ANSWER: A *Fine Balance* (by Rohinton Mistry)

<AS, World Literature>

9. Unlike statins, which inhibit HMG-CoA reductase, other drug candidates for inhibition of cholesterol biosynthesis inhibit this 30-carbon molecule’s synthase. For 10 points each:

[10m] Name this triterpene derived from the condensation of two farnesyl pyrophosphate moieties. After being epoxidized, this molecule undergoes a series of ring closures and hydride shifts to yield a precursor to cholesterol.

ANSWER: squalene

[10h] Epoxidation of squalene’s double bond yields this first recognizable steroid ring system. All animal steroids are derived from this molecule.

ANSWER: lanosterol

[10e] Since steroids of this other kingdom are also lanosterol-derived,azole drugs that target steroid synthesis via lanosterol 14- $\alpha$ -demethylase can kill its members. *Candida* and *Saccharomyces* are members of this eukaryotic kingdom.

ANSWER: Fungi [or fungus]

<JZ, Biology>

10. Doz and Houlgate have argued that this book should be interpreted as an ontological work rather than a classical work on its title subject, arguing against Russellian claims that it is outdated. For 10 points each:

[10h] Name this philosophical work whose three books address being, essence, and Notion.

ANSWER: *The Science of Logic*

[10e] G.W.F. Hegel’s *Science of Logic* constructs a logical system based on earlier interpretations of this concept defined by a thesis, antithesis, and synthesis. Karl Marx applied this concept to a materialist framework.

ANSWER: dialectic [accept word forms; accept dialectical materialism]

[10m] Hegel’s dialectic draws on the ideas of this earlier philosopher, who argued that reason led to “antinomies” that consisted in theses like the world having a limit in space and time, and antitheses like the world having no limit. This philosopher tried to solve that antinomy by making space and time mental concepts.

ANSWER: Immanuel Kant

<JS, Philosophy>

11. Handa et al. developed a variation of this reaction that can be run in water without the need for organic solvents or a metal co-catalyst. For 10 points each:

[10h] Name this palladium-catalyzed cross-coupling reaction that has largely replaced the Castro-Stephens coupling reaction thanks to its mild temperature conditions and avoidance of shock-sensitive acetylide salts. It can couple alkynes to  $sp^2$  (“s-p-2”) carbons.

ANSWER: Sonogashira cross-coupling

[10e] The Sonogashira reaction replaced Castro-Stephens's use of acetylide complexes with halide salt co-catalysts of this metal commonly found in conducting wires. It is alloyed with zinc in brass.

ANSWER: copper [accept Cu]

[10m] The coupled product is formed from a "reductive" type of this process. Bimolecular reactions of this type require a strong base like potassium *tert*-butoxide ("[tert-byoo-TOK-side](#)").

ANSWER: elimination [accept E2 or E1]

<JZ, Chemistry>

12. A book by this author praises the hard-working "Philistines" of the middle class and disparages the content, aristocratic "Barbarians." For 10 points each:

[10m] Name this British author and cultural critic, who described the title concept as "the best which has been thought and said" in the book *Culture and Anarchy*.

ANSWER: Matthew Arnold

[10h] *Two answers required.* *Culture and Anarchy* suggests that culture should be defined by these two attributes, which was inspired by Aesop's judgment that bees provide these two things in Jonathan Swift's "The Battle of the Books."

ANSWER: sweetness AND light

[10e] *Culture and Anarchy* claims that those raised in this city know that "beauty and sweetness are essential." Arnold called this city, home to the oldest English-speaking university, "the city of dreaming spires."

ANSWER: Oxford

<HG, British Literature>

13. The use of this dance to intimidate opponents before rugby matches has inspired similar uses of dances like Tonga's *kailao*. For 10 points each:

[10m] Name this dance. Sticking out the tongue, widening the eyes, and slapping the hands against the body while stomping are common features of this Māori war dance.

ANSWER: haka [accept kapa haka]

[10e] In the 1920s, the Springboks responded to the haka with the *indlamu*, a Nguni war dance characterized by these movements. The can-can was controversial for having examples of these movements that were high enough to reveal dancers' undergarments.

ANSWER: kicks [accept word forms; accept high kicks]

[10h] Inspired by the haka, this country has recently performed the *khorumi* before rugby matches. A ballet competition in this country is named for Vakhtang Chabukiani and the choreographer of *Jewels*, whose father was from this country.

ANSWER: Georgia [or Sakartvelo] ([George Balanchine choreographed Jewels.](#))

<AS, Other Arts: Auditory>

14. In a 2022 book, Philip Gorski and Samuel L. Perry explain how a form of this ideology threatens American democracy by implicitly promoting violence to maintain social and racial order. For 10 points each:

[10h] Name this concept, which arose as a response to the alienating effects of modern life and whose growth was fostered by shared formal education according to Ernest Gellner.

ANSWER: nationalism [accept White Christian nationalism] ([The Gorski and Perry book is \*The Flag and the Cross: White Christian Nationalism and the Threat to American Democracy\*; the Gellner work is \*Nations and Nationalism\*.](#))

[10m] This thinker argued that nationalism emerged during the Enlightenment due to the spread of print and the focus on vernacular, which fostered the creation of "imagined communities."

ANSWER: Benedict Anderson [or Benedict Richard O'Gorman Anderson]

[10e] Anderson argued that this economic system helped nationalism emerge by incentivising entrepreneurs to print in languages more people could read. This economic system is contrasted with communism.

ANSWER: **capitalism** [accept print **capitalism**]  
<MB, Social Science>

15. According to local lore, some Washanga people in Kenya's Lamu Archipelago claim descent from the survivors of a shipwreck that occurred during one of these events. For 10 points each:

[10h] Name these events that supposedly reached the Americas according to pseudohistorian Gavin Menzies, who used copper coins with square holes found in the Yukon Territory as evidence.

ANSWER: **Ming treasure voyages** [or **Zhèng Hé Xià Xīyáng**; accept descriptions like **expeditions of Zhèng Hé**; accept **Zheng He's Voyages** Down the Western Seas or **Chinese treasure voyages**; prompt on answers like **treasure voyages** or **treasure expeditions** or **Chinese voyages**]

[10m] A Shòu Lǎo figurine made of this material and found near Darwin is evidence that the Ming treasure voyages reached Australia. Bird sculptures found at Great Zimbabwe were made of this material.

ANSWER: **soapstone** [or **steatite**] (**The Baijini, mythical figures of the Yolngu's Djanggawul song cycles, are likely based on Ming treasure voyagers who reached Australia.**)

[10e] Historian Robert Finlay notes how folk memory of the Ming treasure voyages in India and East Africa led to the conflation of this Portuguese explorer, the first to reach India by sea, with the light-skinned Chinese.

ANSWER: Vasco **da Gama**  
<AS, World History>

16. One brother claims, "It is dreams that have destroyed us," while the other argues, "Dreams are not a bad thing," in this author's poem "Libertad! Igualdad! Fraternidad!" For 10 points each:

[10m] Name this American writer who drew on his Puerto Rican heritage for his collection *Al Que Quiere!*. A long poem by this writer repeats the phrase, "no ideas but in things."

ANSWER: William Carlos **Williams** (**The poem is *Paterson*.**)

[10e] In his poem "Canthara," Williams recalls learning about the Spanish fly from an "old black-man" who also owned this object. A short Williams poem describes this object as "glazed with rain water."

ANSWER: the red **wheelbarrow** (**Though not named in "Canthara," the man is Thaddeus Marshall.**)

[10h] Williams saw "an inhuman shapelessness" that he compared to "a sack of rags" in his poem "The Desert Music," which is set in this location. The chapter "How to Tame a Wild Tongue" is part of a book titled for this location.

ANSWER: the **US–Mexico border** [or equivalents; accept the **El Paso–Juárez border**; accept the **Borderlands** or **La Frontera**; accept **Borderlands/La Frontera: The New Mestiza**; prompt on the **border** by asking, "Between what two countries?"]

<CM, American Literature>

17. Rudolf II ("the second") maintained a location of this type at Prague's Hradshin ("huh-RAHD-shin") Palace that contained a rotating globe and clock designed by Gerhard Emmoser and, supposedly, the indecipherable Voynich manuscript. For 10 points each:

[10h] Give either a German name an English translation for this type of location popular among Enlightenment-era monarchs to display bevvies of odd or unique objects in an encyclopedic manner.

ANSWER: **kunstkammer** [or **wunderkammer** or **cabinets of curiosity** or **cabinets of wonder** or **wonder chamber**]

[10e] Rudolf II also dabbled in this tradition, inviting to his court practitioners like Edward Kelley and John Dee, who attempted to transmute metals into gold.

ANSWER: **alchemy**

[10m] This thing was legendarily created with alchemy in response to a bout of persecution by Rudolf II. This thing gained its powers from an inscription etched into its forehead meaning "truth."

ANSWER: **Golem** of **Prague** [prompt on **golem**]

<GP, European History>

18. Music from this ballet inspired an underscore from *Star Wars: A New Hope* in which flutes repeat a broken minor second over sustained strings while R2-D2 and C-3PO wander on Tatooine. For 10 points each:

[10e] Name this ballet. In *A New Hope*, John Williams also imitates a repeated, accented E-flat and F-flat major polychord from this Stravinsky ballet, which opens with a high bassoon solo.

ANSWER: *The Rite of Spring* [or *Le Sacre du printemps* or *Vesna svyashchennaya*] (The imitation polychord plays while Han Solo chases stormtroopers.)

[10m] After the opening crawl, the orchestra repeats a dissonant C Phrygian chord that similarly ends this opening movement of a different suite. This movement starts with a foreboding *col legno* (“LEN-yo”) ostinato in 5/4.

ANSWER: “Mars, the Bringer of War” [prompt on *The Planets*, Op. 32 (by Gustav Holst)]

[10h] Seven French horns blast this theme when Luke returns to his torched homestead. In the seventh variation of a piece by Rachmaninoff, a solo bassoon plays as blocked piano chords introduce this theme.

ANSWER: *Dies irae* (The piece is *Rhapsody on a Theme of Paganini*.)

<JE, Auditory Arts>

19. Emil Bächler’s discovery of unusual bone deposits in the “Dragon’s Cave” led him to propose that Neanderthals worshipped these animals. For 10 points each:

[10h] Name these animals whose spirits are sent to Heaven after their skulls are filled with flowers during the *iomante* ceremony. The Nivkh held festivals honoring these animals.

ANSWER: bears [accept cave bears; accept brown bears; accept bear worship or bear cult; accept Cult of the Cave Bear; accept bear sacrifice]

[10m] Bears are reared from birth and then peppered with arrows during the *iomante* ceremony of this Asian ethnic group. These people revere *kamuy* (“kuh-MOO-ee”) spirits and wear crowns called *sapanpe* and *matanpushi* during ceremonies.

ANSWER: Ainu

[10e] The *peijaiset* (“PAY-eye-set”), a celebratory one of these events, acted as both a wedding and a funeral for a bear following a successful Finnish hunt. A reincarnating boar was the centerpiece of these events in Valhalla.

ANSWER: feasts [or banquets]

<EG, Beliefs>

20. In 2014, a team led by this state’s university discovered that the Virgo supercluster is a lobe of a larger supercluster. For 10 points each:

[10e] Name this state whose native language is the source of the name of the Milky Way’s home supercluster, the Laniakea, meaning “immeasurable heaven.” The Keck Telescope is located in this state’s Mauna Kea Observatory.

ANSWER: Hawai‘i

[10m] The team redefined boundaries between superclusters as where flows of the “peculiar” form of this quantity diverge. The Faber-Jackson relation relates the luminosity of an elliptical galaxy to the dispersion of this quantity.

ANSWER: peculiar velocity [accept radial or orbital velocity; accept velocity dispersion; prompt on speed]

[10h] These spherical regions of low matter density occur between galaxy clusters and filaments. The CMB cold spot is hypothesized to be one of these features in the direction of the constellation Eridanus.

ANSWER: cosmic voids [or supervoids; accept dark spaces]

<VD, Other Science: Astronomy>