

FLopen 2020

Packet C: A packet submission tournament where you, the player, submits to the packet

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Tossups

1. **Diversity curves of these structures show two declines: one in the Late Riphean attributed to grazers, and one in the Vendian attributed to burrowers. The oldest of these structures are found in the Pilbara region and the Barberton Mountain Land. The Conophyton form genus of these structures attests to their brief resurgence in the Ordovician. The columnar-branching and conical varieties of these structures are temporally restricted, but the cause of their difference in morphology is unknown. While these structures are most abundant in the Proterozoic, they are found today in (*) Shark Bay.** These structures' biotic origin is indicated by the presence of aragonite mixed with organic compounds. These structures are formed by calcium carbonate precipitating over a growing mat of cyano-bacteria. For 10 points, name these sheet-like sedimentary rocks that contain Precambrian fossils.

ANSWER: **stromatolites** [or **stromatoliths**; prompt on **microbialites**]

<Other Science: Earth Science, JS>

2. **In her writings about this conflict, ethnologist Germaine Tillion coined the term “clochardisation” to describe the transition from the peasant condition to the urban. People protesting this conflict were crushed to death on a stairwell of the Charonne metro station. The trial of the Jeanson Network led to the issuing of the Manifesto of the 121, which condemned one side in this conflict. Jacques Soustelle, a supporter of the 13th of May coup, changed his approach to resolving this conflict after the (*) Philippeville Massacre.** Infighting in the metropole during this conflict is dubbed the “Café Wars.” Writer Mouloud Feraoun was murdered by the OAS in an attempt to sabotage a truce during this conflict. Ahmed Ben Bella became president after the Évian Accords ended, for 10 points, what conflict in which a North African country threw off the yoke of French colonial rule?

ANSWER: **Algerian War** of Independence [or **Algerian Revolution**; accept descriptions of **Algeria**'s **war** to gain independence from **France**; prompt on **Battle of Algiers**; reject “French Invasion of Algeria”; reject “Algerian Civil War”]

<Post-500 European History, GP>

3. **An aphorism from this book provides the title to a novel in which the translator Janina investigates a series of murders she believes to be caused by woodland animals; that novel is *Drive Your Plow Over the Bones of the Dead* by Olga Tokarczuk (“toh-KAR-chook”). This book compares a historical mystic to an angel sitting by a tomb and his writings with “linen cloth folded up.” The opening “argument” of this book states that “Roses are planted where thorns grow” and twice mentions the (*) prophet Rintrah, who “roars, and shakes his fires in the burden'd air.” This book borrows symbols from Dante, Milton, and Swedenberg and features cryptic aphorisms like “The tigers of wrath are wiser than the horses of instruction” in its section “Proverbs of Hell.”** For 10 points, name this William Blake book titled for the merging of two disparate Christian realms.

ANSWER: *The **Marriage of Heaven and Hell***

<Other Literature, TH>

4. A John Oswald essay advocates this technique as a “compositional prerogative” and favorably cites James Tenney’s use of it in the 1960s. This is the most notable technique used in the compositions of the albums *Dispepsi* and *Feed the Animals*. Rex2’s can be used in this technique, which is widely used by the groups **Evolution Control Committee and Negativland**. (*) “Amen, Brother” by the Winstons holds a notable distinction according to a website tracking the use of this technique. Emulator and Akai keyboards combine functions allowing the use of this technique with sequencers. This technique was used to make all of the music on the albums *Since I Left You* by The Avalanches, *Donuts* by J Dilla, and *Endtroducing* by DJ Shadow. For 10 points, name this technique commonly employed in making hip-hop beats, which may involve altering or looping bits from other songs.

ANSWER: **sampling** [accept using **samples**; accept **WhoSampled.com**; accept **plunderphonics**; accept **sound collage**; accept **mashups**; accept answers like **borrowing** or **stealing** from other artists; prompt on **looping** by asking “what compositional technique is used prior to looping in electronic music?”] (A drum break from “Amen, Brother” is the most-sampled bit of music of all time according to WhoSampled.com.)

<Pop Culture, TH>

5. A lecherous introduction to this work asks about a “little ole lonely elevator girl [...] sighing in an elevator full of blurred demons.” The only parts of a Detroit bar visible in one section of this work are framed portraits of Washington and Lincoln. A recent *New York Times* “Close Read” of part of this work connects the Walgreens “W” to the “governing establishment” of a scowling woman seated two rows in front of a Black man. Walker Evans secured the Guggenheim grant that made this book possible, but his draft intro was rejected in favor of one by (*) Jack Kerouac. A tuba covers the face of an Adlai Stevenson supporter in this book, while a flag covers another person’s face in its first image, *Parade - Hoboken, New Jersey*. The cover of this photobook depicts several of the title people staring out of a trolley car in New Orleans. For 10 points, name this patriotically titled photobook by Robert Frank.

ANSWER: *The Americans*

<Other Arts: Visual, MB>

6. Frank Hamilton Cushing led the Pepper-Hearst Expedition to excavate an island in this body of water, which uncovered a wooden sculpture of a seated cat from a site called the Court of the Pile Dwellers. Alonso Álvarez de Pineda was the first European to map the boundaries of this body of water, dubbing the region around it “Amichel.” A 2017 book about this body of water recounts how mud and mutiny led to the death of Robert (*) La Salle, who was trying to find the mouth of a river emptying into this body. That Pulitzer Prize-winning book by Jack E. Davis begins by describing the Calusa people’s shell middens in and near this body. While guiding ships from this body of water into a smaller bay, David Farragut uttered the line “Damn the torpedoes.” The Narváez Expedition explored the coast of, for 10 points, what body of water encompassing Mobile and Tampa Bays?

ANSWER: **Gulf of Mexico** [prompt on **Mobile Bay** or **Tampa Bay** before mentioned by asking “what larger body of water does it belong to?”]

<US History, TH>

7. A doubly degenerate energy level of this motion is split by *I*-type doubling, which is analogous to how unpaired electrons induce lambda-type doubling. In molecules like water that belong to the C_{2v} point group, the reducible representation corresponding to this motion is a combination of the A-sub-1 and B-sub-2 Mulliken symbols. This motion is analyzed by diagonalizing the mass-weighted Hessian (“HESH-en”) of the Born–Oppenheimer potential energy surface. The energy levels of this motion are shifted down by the square root of two when (*) deuterium is substituted for hydrogen. If the derivative of mu with respect to Q is nonzero for this motion, then it is active in a technique that prepares solid samples with nujol (“NEW-jahl”) oil. This motion must cause a change in polarizability to be Raman active. For 10 points, what periodic motions in a molecule absorb IR light?

ANSWER: molecular vibration [accept vibrational modes or normal modes until “mode” is read; accept specific vibrational modes: asymmetric, symmetric, wagging, twisting, scissoring, and rocking]
<Chemistry, JS>

8. At the beginning of a play by this author, a chorus of common women intone “For us, the poor, there is no action, / But only to wait and witness.” A play by this author ends with the screenwriter Peter seeking a woman for a screentest, only to find she was crucified and cannibalized on the island of Kinkanja. A character created by this playwright resists three Tempters by repeatedly asking why he would “Descend to desire a punier power.” In a play by this author, the (*) Unidentified Guest is revealed to be the psychiatrist Harcourt-Reilly, who reunites the estranged married couple Edward and Lavinia Chamberlayne by revealing their affairs. In another play by this author, four knights loyal to Henry II kill Thomas Becket in Canterbury. For 10 points, name this playwright who wrote *The Cocktail Party* and *Murder in the Cathedral*, as well as the poem “The Hollow Men.”

ANSWER: T. S. Eliot [or Thomas Stearns Eliot]
<Drama, TH>

9. *Original language word required.* Sadiq al-Madhi founded a political party named for this concept, which is generally thought to be incompatible with loyalty to *watan*. Bernard Lewis has noted how the meaning of this term changed between Quranic sources and the Constitution of Medina, with the latter document extending its use to refer to the Banu Shutayba. Muhammad Zafarullah Khan unusually translated this word as “paragon of virtue,” though most other philologists note its similar connotation to the Hebrew word *em*. This word precedes (*) *al-dawa* and *al-ijaba* in terms referring to groups that have been “invited to the message” and “accepted the message.” This word, which is derived from a word for “mother,” refers to a supra-national community, making it broader than the *sha’b*. For 10 points, give this Arabic-language term meaning “community” that refers to the entire body of Muslim believers.

ANSWER: ummah [accept ummat al-Islam; accept ummah al-dawa; accept ummah al-ijaba; accept Umma Party; prompt on community until it is read]
<Religion, TH>

10. A 2009 book by David Eagleman on this phenomenon advocates the use of form constants and introspective reporting in developing third-party tests for it. The theories of disinhibited feedback and pathway convergence both seek to explain how inducers lead to concurrents in this phenomenon. Richard Cytowic proposed applying the theory of microgenesis to its emergence rather than the usual neurological theories of it. A theory by (*) Ramachandran and Hubbard posits that one form of this phenomenon arises from increased connectivity between the fusiform gyrus and the V4 area. Common types of this phenomenon include ordinal linguistic personification and its grapheme-color type. For 10 points, name this phenomenon in which stimulation in one cognitive or sensory pathway leads to experiences in another, exemplified by associating certain letters with colors.

ANSWER: synesthesia [accept grapheme-color synesthesia or any more specific answers that mention synesthesia; accept ordinal linguistic personification until “ordinal” is read]

<Social Science: Psych, TH>

11. A communist artist born in this country painted highly abstracted calligraphic poem-paintings he called logograms. In 1965, an artist from this country painted male and female human femur bones with the colors of this country’s flag and that of a larger neighbor, thus commenting on the arbitrary gendering of nation states. A pioneer of institutional critique from this country created an assemblage made up of hundreds of depictions of eagles in his *Department of Eagles*. A city in this country makes up the (*) middle third of the name of the radical arts group COBRA. This is the home country of Christian Dotremont (“doh-truh-MOH”) and Marcel Broodthaers (“broh-TARS”), who alluded to an earlier painting from this country with a sign reading “This is not a work of art.” For 10 points, name this country where a surrealist painter arguably invented conceptual art by employing the phrase “this is not a pipe” in his *The Treachery of Images*.

ANSWER: Belgium [or België; or Belgique; or Belgien]

<Painting/Sculpture, TH>

12. Cigar-shaped portions of this material were used to make dwellings at the pre-pottery village of Nemrik. Evidence from the Tell Brak dig house suggests that one civilization only built with this material during summer months. Neolithic dwellings at the Mehrgarh (“MAYR-gud”) site in Pakistan were made of this material. The Chogha Zanbil complex is made of this material, much like most of the other large structures of the (*) Elamite civilization. The name of mastabas reference their usual construction out of this material. Most Sumerian structures were made of blocks of this material formed into a plano-convex shape strengthened with bitumen and reeds. In Sahelian architecture, structures made of this material are called banco, exemplified by the Great Mosque of Djenné. For 10 points, name this sundried building material used to make adobe structures.

ANSWER: mudbrick [accept earth; accept loam; accept clay; accept adobe until mentioned; prompt on bricks; reject “fired bricks” or “red bricks”]

<Historiography/Archeology, TH>

Note to moderators: please read the answer line carefully before reading the question.

13. **In one of these structures, L, M, and S proteins are anchored by their S domains, which contain the CYL-I (“C-Y-L-one”) segment and the “a”-determinant. BG505.SOSIP.664 was engineered to mimic a trimeric complex found in one of these structures. A myristoylated (“my-riss-TOY-ul-ay-ted”) preS1 domain mediates the binding of proteins in one of these structures to the Ntcp transporter. Amantadine and rimantadine target a protein that forms a proton channel in one of these structures, the (*) M2 protein. Furin cleaves gp160 into two glycoproteins that form part of one of these structures. Since hepatitis B virus lacks dedicated matrix proteins, this structure is formed from the direct interaction of the nucleocapsid and membrane-bound proteins. For 10 points, name this outer lipid bilayer possessed by some viruses.**

ANSWER: viral envelopes [accept HBV envelope; accept HIV envelope; accept viral membranes; accept spikes; prompt on ion channel or proton channel with “what structure does the ion channel form in?”; prompt on membranes, ER membranes, cell membranes, or plasma membranes by asking “what structure is derived from it?”; prompt on virus; prompt on HIV or human immunodeficiency virus; prompt on HBV or hepatitis B virus; prompt on influenza virus]

<Biology, JS>

14. **A mute character inspired by this real-life person is traded for a piece of jade and has her story related by her sister Memory in Rikki Durcornet’s novel *The Jade Cabinet*. Though this person did not write them, the “cut pages in the diary” document uncovered by Karoline Leach likely discussed a wish involving this person. A photo portrait by Julia Margaret Cameron depicts this person with her hand on her hip in front of some vines in the guise of (*) Pomona. The first letter of each of the lines of the poem “A Boat Beneath a Sunny Sky” spell out this person’s name. This person is shown in a shabby dress in a portrait “as a Beggar Child” and was often photographed along with her sisters Edith and Lorina by an author who took an 1862 rowboat trip with them. For 10 points, name this girl who may have inspired, and shares a first name with, the protagonist of *Through the Looking Glass*.**

ANSWER: Alice Liddell [accept either underlined part; accept Alice Hargreaves]

<Other Academic, TH>

15. **A composer in this novel transcribes the snores of Edward Elgar and his aging mentor, with whom he composes a piece at the center of a later annual celebration. In this novel, a nuclear engineer and a gossip columnist-turned-investigative journalist befriend each other while stuck in an elevator. After witnessing an author push a critic to his death for a bad review, another character in this novel is unwillingly committed to a retirement home in the section “The (*) Ghastly Affair of Timothy Cavendish.” In this novel, Pacific sailor Andrew Ewing assists a stowaway Moriori man. Another section of this novel consists of an interview transcript with the replicant Sonmi-451, who is viewed as a deity by the residents of post-apocalyptic Hawaii in this novel’s middle-most section. For 10 points, name this 2004 novel consisting of six nested stories, written by David Mitchell.**

ANSWER: Cloud Atlas

<Long Fiction, TH>

16. A paper by David Sachs claims that an earlier thinker committed the fallacy of irrelevance by equivocation of this concept with possession of a “balanced soul.” After forbidding all ordinary definitions of this concept in frustration, one man rhetorically asks how he can know what twelve is without saying it is two times six or three times four. Series of three “proofs” for why one should pursue this concept are an appeal to (*) psychological health and the two seemingly redundant “pleasure” proofs. Near the beginning of a dialogue, Cephalus and Thrasymachus’s (“thruh-SIM-uh-kus”) definitions of this concept as paying one’s debts and the “interest of the stronger” are dismissed by Socrates. In that dialogue, Glaucon claims that anyone with the Ring of Gyges (“JYE-jeez”) would *not* act in this way. For 10 points, the *Republic* seeks to define what concept by describing characteristics of an ideal city-state?

ANSWER: **justice** [accept being **just** or acting **justly**; accept *dikaiosyne*; prompt on *virtue*]
<Philosophy, TH>

17. In European black magic traditions, a specific type of these objects are used to make “Thieves’ candles,” which ignite from thought alone and can induce sleep. The Edo people of Benin make small cylindrical “altars” dedicated to these objects, which were believed to be the roots of individuals’ success. One of these body parts removed from a hanged murderer can be dried out and used to make a hexed object known as one of these “of Glory.” Legendarily, both (*) the Kyrgyz culture hero Manas and Genghis Khan were born with a blood clot on this body part. The protective *hamsa* amulet popular in the Middle East depicts one of these objects and is believed to ward off the Evil Eye. In Inuit myth, Sedna removed bits of this body part to make the whales and seals. For 10 points, the Norse god Tyr is depicted missing what body part as a result of Fenrir’s aggression?

ANSWER: human **hands** [accept the **palm** of the hand; accept **Hand of Glory**; accept **fingers**; accept babies’ **hands** or **fingers**]
<Mythology, TH>

Note to moderator: look at the list of notes that appear in this question. When reading the notes, pause briefly at each comma but do not pause between notes separated by hyphens.

18. *Composer and type of piece required.* In a notable moment in the fourth of these pieces, the violins sustain sixteenth notes while a voice leaps down a twelfth to a low E-sharp on the word “death” before leaping upward almost two octaves to land on a high D on the word “murderer.” The autograph on the 61st of these pieces is used by musicologists in dating other examples of these works. The soprano line from an excerpt of one of these pieces begins with the following melody: (read slowly) F, F-D, F, F-D, F, G, G, B-flat. The formal innovations of Erdmann Neumeister and a Martin (*) Luther chorale inspired the 80th of these pieces, “Ein feste Burg.” While working as kantor in Leipzig, their composer completed three cycles of 58 of these pieces, including one that features the aria “Sheep may safely graze.” For 10 points, name this type of work for choir and instrumental accompaniment by the composer of the *St. Matthew Passion*.

ANSWER: **cantatas** by Johann Sebastian **Bach** [accept **Bach cantatas**; prompt on *cantatas* by asking “by what composer?”; prompt on *aria* by asking “what larger piece is that aria a part of?”]
<Classical Music, TH>

19. An erotic poem in this language describes a “hilltribe girl” jostling a shell necklace hanging from a vine while making love on makeshift bedding in a cucumber garden; that poem was written by a mysterious poetess whose name translates as “knowledge” or “science.” Andrew Schelling’s collection *Dropping the Bow* translates many love poems in this language, including a set of a “hundred stanzas” by an author who is believed to be either a king or well-known philosopher. A poem in this language closes with its narrator declaring “mayst thou never [...] be parted from the (*) lightning” to the title figure, which “delays on this peak and that” on its way to Alaka (“UH-luh-kuh”). That poem in this language centers on a yaksha exiled on a mountain who asks a passing cloud to report his status to his far away wife. *The Cloud Messenger* was written in, for 10 points, what language used by the Indian poets Amaru (“UH-muh-roo”) and Kālidāsa?

ANSWER: Sanskrit [or Samskr̥tam] (The first clue refers to the poet known alternatively as Vijjā, Vidyā, or Vijjakā.)

<Poetry, TH>

20. With no boundary, the expansion of this equation’s Green’s function has a radial term equal to r -sub-less-than to the l -power over r -sub-greater-than to the l -plus-one-power. Green’s reciprocity theorem is proven by considering solutions to this equation for two different configurations. Two instances of this equation are written in chalk in a black box surrounded by blue on the cover of the Fourth Edition of Griffiths’ *Introduction to (*) Electrodynamics*. For the vector potential, this equation’s source term is the current density. Derived by plugging the electric field expressed as the gradient of a potential into the differential form of Gauss’s law, this inhomogeneous equation is ubiquitous in electrostatics. For 10 points, name this equation that, when charge density is zero, reduces to Laplace’s equation.

ANSWER: Poisson’s equation

<Physics, LM>

21. In some East Asian countries, this product is sold inside a J-shaped object called *jipangyi*, the Korean word for “cane.” A type of this product from Ecuador is made by spinning thin metal bowls called *paila*. A vendor of this product on Penn State’s University Park campus claims that Bill Clinton is the only person to have ever been allowed to modify the way it is sold there. Turkish vendors of a stretchy variety of this product made with (*) mastic often whip it out of customer’s hands at the last minute. A novelty type of this product from Germany is shaped like spaghetti. Despite containing an incompatible diacritic and digraph, the name of a famous brand of this product was originally chosen to sound Danish. In 2005, a different company changed its logo to highlight the 31 types of this product they sold. For 10 points, name this product sold in varieties like rocky road and cookies ’n cream.

ANSWER: ice cream [accept soft serve; accept gelato; accept frozen yogurt or fro-yo; accept dondurma; accept helado de paila; prompt on Spaghettieis; prompt on dairy; prompt on cream; prompt on corn by asking, “what product fills the corn?”] (Bill Clinton is said to be the only person allowed to mix flavors at the Penn State Creamery. The Danish-sounding brand is Häagen-Dazs, and the company with 31 flavors is Baskin-Robbins.)

<Geography, AP>

22. A ruler from this dynasty expelled merchant Robert Hunter after he failed to purchase the steamship *Express*. That ruler from this dynasty repelled an invasion with aid from Lady Mo, on whom he bestowed the title *Suranari*. Attempts to centralize finances by a ruler from this dynasty ended in the Front Palace Crisis engineered by the House of Bunnag. A ruler from this dynasty developed a complex system of honorifics with a name meaning “royal words” and formed the (*) *Thammayut* order of Buddhism. The British signed the unequal Burney and Bowring Treaties with this dynasty, whose territory was sacked during the Haw Wars. The reign of Taksin preceded this dynasty, whose members include Bhumibol Adulyadej. For 10 points, name this current ruling dynasty of Thailand, which has had ten kings take the name Rama.

ANSWER: **Chakri** dynasty [accept Ratchawong **Chakkri**] (The honorific system is *rachasap*.)

<Post-500 World History, GP>

Bonuses

1. *Two answers required.* Though neither is Tajikistan, the Sokh enclave of one of these countries within the other has a population of which ninety-nine percent is ethnically Tajik. For 10 points each:

[e] Name these two enclave-containing central Asian countries that share the Fergana Valley with Tajikistan. Their capitals are Tashkent and Bishkek.

ANSWER: **Uzbekistan** AND
Kyrgyzstan

[h] In 2011, India leased (emphasize) *this corridor* to Bangladesh to grant access to the Dahagram–Angarpota enclave from mainland Bangladesh, which due to a 2015 resolution is still the only enclave between the two countries.

ANSWER: **Tin**-Bigha Corridor [or **Teen**-Bigha Corridor]

[m] This narrow corridor belonging to Afghanistan completely separates Tajikistan from Pakistan. Afghanistan shares a small land border with China along this region between the Pamir and Karakoram mountains.

ANSWER: **Wakhan** Corridor
<Geography, TH>

2. In Akhil Sharma’s introduction to this novel, the title character’s position in the Indian Administrative Service is likened to being a movie star. For 10 points each:

[h] Name this Upamanyu Chatterjee novel in which the title character spends much of his time in the parochial town of Madna smoking, masturbating, and reading Marcus Aurelius.

ANSWER: **English, August**

[m] *English, August* opens with Agastya’s friend telling him he’s “going to get hazaar fucked in Madna” while they smoke in New Delhi. This 2017 novel focusing on Anjum, a Muslim *hijra*, is set in New Delhi and Kashmir.

ANSWER: *The **Ministry of Utmost Happiness*** (by Arundhati Roy)

[e] A blurb from the NYRB edition of *English, August* draws parallels between it and this John Kennedy Toole slacker novel centering on obese New Orleans pseudo-intellectual Ignatius J. Reilly.

ANSWER: *A **Confederacy of Dunces***
<Long Fiction, JS>

3. This party took its name from a peasant guerrilla leader who supported the Liberal general José María Moncada in the non-Brazilian Constitutionalist War. For 10 points each:

[e] Name this left-wing political party that took power in Nicaragua in 1979.

ANSWER: **Sandinistas** [or **Sandinista** National Liberation Front; accept **FSLN**; accept Frente **Sandinista** de Liberación Nacional]

[m] After the Sandinistas ousted Anastasio Somoza Debayle, he tried to flee to Miami with his family’s caskets, but was denied entry, so he accepted this leader’s invitation. Atrocities committed by this leader’s secret police are detailed in over 700,000 documents discovered by Martin Almada known as the Archives of Terror.

ANSWER: Alfredo **Stroessner** [or Alfredo **Stroessner** Matiauda]

[h] Servicemen in the National Guard under Somoza were trained by this institution that trained many anti-Communists including Hugo Banzer and Leopoldo Galtieri. This institution is based in Fort Benning, Georgia.

ANSWER: US Army **School of the Americas** [or **SOA**; accept **WHINSEC** or **Western Hemisphere Institute for Security Cooperation**]

<Post-500 World History, GP>

4. This thinker extended Ferdinand de Saussure's ("soh-SOOR'z") conception of the sign in his elucidation of the content and expression planes in his *Prolegomena to a Theory of Language*. For 10 points each:

[h] Name this linguist who, along with Hans Uldall, applied structuralist theories to language in what he called "glossometrics." This thinker's conception of signs as being manifested in both form and content influenced the Copenhagen School of linguistics.

ANSWER: Louis Trolle **Hjelmslev** ("YELM-slev")

[e] Hjelmslev was a major figure in the development of this field, which studies signs. Roland Barthes ("bart") and Umberto Eco have also made contributions to this field.

ANSWER: **semiotics** [prompt on **semantics**]

[m] In his *Prolegomena*, Hjelmslev calls raw "not-yet-signs" out of which new signs can be formed "figurae," a term that has been compared to this term coined by Lévi-Strauss to refer to terms like *mana* and *oomph*. These terms lack referents and are said to "absorb" rather than "project" meaning.

ANSWER: **floating signifiers** [accept **empty signifiers**; prompt on **signifiers**]

<Social Science: Linguistics, TH>

5. This thinker's work as a courtesan may have informed her progressive views on gender equality and her naturalistic metaphysics, in which romantic love is considered the ethical ideal. For 10 points each:

[h] Name this philosopher and *salonnière* during the reign of Louis XIV who defended libertinism as a valid lifestyle in her book *The Coquet* ("ko-KAY") *Avenged*.

ANSWER: Ninon de **Lenclos** ("lawn-CLO") [or Anne de **l'Enclos**; or Ninon de **Lanclos**]

[m] Because of the centrality of pleasure to her conception of ethics, de Lenclos is considered to be a key figure in the 17th-century revival of this school of thought. The tetrapharmakos was an aphoristic ethical code attributed to this school's ancient practitioner Philodemus.

ANSWER: **Epicureanism** [accept Neo-**Epicureanism**]

[e] Another female French philosopher of the early modern period was Jacqueline, a Port-Royal nun who wrote an early work of pedagogical thought in her *A Rule for Children* and had this surname. Her more famous brother with the same surname names a "wager" concerning the existence of God.

ANSWER: **Pascal** [accept Jacqueline **Pascal** or Blaise **Pascal**]

<Philosophy, TH>

6. In 2005, Brown et al. first observed these stars, which were theoretically predicted by Hills in 1998. For 10 points each:

[h] Name these stars traveling faster than the galactic escape speed. Although the spatial and velocity distribution of these stars overlaps with runaway stars, these stars originate from an interaction with a massive black hole.

ANSWER: **hypervelocity** stars [prompt on **high-velocity** stars]

[m] A star's tangential velocity in kilometers per second equals 4.74 times this quantity, measured in arcsecond per year times distance. Barnard's star has the largest known value for this quantity.

ANSWER: **proper** motion

[e] The radial velocity of a star is found by measuring the degree of this effect, which causes redshift or blueshift.

ANSWER: **Doppler** effect

<Other Science: Astronomy, TH>

7. Name the following jazz musicians whose tracks were covered by contemporary English artists on Blue Note Records' 2020 collection *Re:imagined*, for 10 points each:

[e] The collection features Mr. Jukes' cover of this musician's song "Maiden Voyage," which was originally written on an airplane napkin as a cologne ad jingle. Poppy Ajudha added lyrics to her cover of this musician's instrumental "Watermelon Man."

ANSWER: Herbie **Hancock** [accept Herbert Jeffrey **Hancock**]

[m] The first cover released was Ezra Collective's version of "Footprints," a song this saxophonist wrote for Miles Davis's Second Great Quintet before releasing his album *Speak No Evil* through Blue Note.

ANSWER: Wayne **Shorter**

[h] The collection features two songs from *Mode for Joe*, an album by this hard bop tenor saxophonist who introduced Kenny Dorham's "Blue Bossa" as a standard on his album *Page One*.

ANSWER: Joe **Henderson**

<Other Arts: Auditory, AP>

8. Beaumont et al. demonstrated the *de novo* evolution of this strategy in *Pseudomonas fluorescens* subjected to fluctuating selection imposed by an exclusion rule and a bottleneck. For 10 points each:

[h] Name this strategy that reduces the variance of rewards, at the price of a reduction in the mean reward.

Stochastic phenotype switching is characteristic of this strategy.

ANSWER: **bet-hedging**

[e] Dan Cohen used a bet-hedging model in his classic study of strategies for this process in desert annual species. Seeds remain dormant until gibberellins induce endosperm breakdown, kicking off this process.

ANSWER: **germination** [accept word forms like **germinate** or **germinating**; accept **sprouting**]

[m] Models of germination and other behavior that account for limits to growth formulate the problem into a game and look for one of these strategies. Maynard Smith and Price defined these strategies as those that could not be invaded by any rare alternative strategy.

ANSWER: **evolutionarily stable** strategy [or **ESS**; accept **evolutionary stable** strategy; prompt on **stable** strategy]

<Biology, LL>

Note to moderator: some of the words in the third part of this bonus have no "correct" pronunciation. It is up to the reader to give their own verbal best guess/interpretation.

9. A poet of this ethnicity wrote of waking "to CFCs humming out of coils" and "all day digging ... bones out of the Syrian desert" in the title poem of his 2016 Pulitzer-winning collection *Ozone Journal*. For 10 points each:

[h] Name this ethnicity. Extremely minimalist poems by a different poet of this *paternal* heritage include one that doubles the digraph "gh" in the word "light" and another one entirely consisting of the letter "m" with four legs.

ANSWER: **Armenian**-American [or **Hayer**; accept **Armenia** or **Havastan**]

[m] The author of *Ozone Journal*, Peter Balakian, studied this poet's final collection, *The Far Field*. In his most famous poem, this Michigan-born poet wrote of a whisky-drunk father beating "time on my head / With a palm caked hard by dirt."

ANSWER: Theodore **Roethke** ("RET-kee") (The poem is "My Papa's Waltz.")

[e] In a 2007 interview, Aram Saroyan said he was inspired to write one-word poems like "aapple," "eyeye," and "light" by this poet of *Tender Buttons*, who wrote "A rose is a rose is a rose is a rose."

ANSWER: Gertrude **Stein**

<Poetry, AP>

10. Answer the following about the history of the first planned colonial city in America, for 10 points each:

[h] In this city, three regicides of Charles I sought refuge in Judges Cave. The Nine Square Plan was the plan for this city, which was the capital of a theocratic colony that was governed under the “Fundamental Agreement.”

ANSWER: **New Haven**, Connecticut

[e] Members of a slave revolt aboard this Spanish ship were imprisoned in New Haven during their initial trial. The slaves aboard this ship won their freedom at the Supreme Court while represented by John Quincy Adams.

ANSWER: *La **Amistad***

[m] Yale student David Bushnell invented this craft, the world’s first submersible vehicle used in combat. This craft was destroyed before it could place explosive charges on British warships in New York Harbor during the Revolutionary War.

ANSWER: **Turtle** [accept *American **Turtle***]

<US History, ZK>

11. American-based journalist Jawar Mohammed has rallied the Qeerro (“KAY-roh”) separatist movement in this country. For 10 points each:

[e] Name this country rocked by protests in June 2020 after popular musician Hachalu Hundessa, an activist for its Oromo ethnic group, was shot to death in Addis Ababa.

ANSWER: **Ethiopia**

[m] This first Oromo prime minister of Ethiopia and recipient of the 2019 Nobel Peace Prize alleged that Hachalu’s murder was intended to distract his government from constructing the Grand Ethiopian Renaissance Dam.

ANSWER: **Abiy Ahmed** Ali [accept either underlined part]

[h] Abiy denounced a 2020 election held in this region that resulted in a landslide win for its People’s Liberation Front. In November 2020, Abiy proposed to designate that group as a terrorist organization and ordered a military offensive in this region.

ANSWER: **Tigray** Region [accept **Tigray** People’s Liberation Front; prompt on **TPLF**]

<Current Events, AP>

12. One character in this novel repeatedly smashes his head against a hickory tree after confronting his wife’s lover Andre in his front yard. For 10 points each:

[h] Name this 2018 novel about the disintegrating relationship between newlyweds Roy and Celestial as a result of Roy’s prison sentence on a false rape accusation.

ANSWER: *An **American Marriage*** (by Tayari Jones)

[m] *An American Marriage* concerns a Black man incarcerated in Louisiana, much like this Ernest Gaines novel in which the death row inmate Jefferson is mentored by Grant and Father Ambrose before being executed.

ANSWER: *A **Lesson Before Dying***

[e] *An American Marriage* is largely set in Georgia, the setting of *The Third Life of Grange Copeland* by this Black author who also wrote *The Color Purple*.

ANSWER: Alice **Walker** [or Alice Malsenior Tallulah-Kate **Walker**]

<Long Fiction, WG>

13. Though this substance has recently been embraced by the Western alternative medicine and recreational drug communities, it has been central to the religion of the Peruvian Urarina people for centuries. For 10 points each:
[m] Name this psychoactive substance made from the caapi vine and the chacruna shrub. It is widely employed in rituals from the indigenous shamanistic religions of the Amazon Basin.

ANSWER: **ayahuasca** [accept **spirit vine** or **vine of the soul** or answers mentioning both the a **vine** and the **spirit** or **soul**]

[h] Ayahuasca consumption is the central ritual of this syncretic religion started by rubber worker Mestre Irineu (“ee-ree-NAY-oo”) in the Brazilian state of Acre. This religion combines spiritism, Christianity, and indigenous African and South American traditions.

ANSWER: **Santo Daime**

[e] Santo Daime, like Candomblé and Santeria, combines various indigenous traditions and animism with what large branch of Christianity?

ANSWER: Roman **Catholicism** [accept the **Catholic** Church]

<Religion, TH>

14. Answer these questions about Franz Schubert’s tendency to write harmonies based on the circle of thirds. For 10 points each:

[m] Schubert used a descending C, A-flat, E, C harmony in an F major chamber piece for this many musicians. A sixteen year old Felix Mendelssohn composed an acclaimed E-flat major piece for this many string players.

ANSWER: **eight** [accept string **octet**]

[e] Schubert used a circle of thirds progression in measures 181 through 240 of his C Major, “Great” ninth work in this genre. Schubert left his eighth one of these pieces unfinished at his death.

ANSWER: **symphony** [accept Great C-Major **Symphony**; accept Unfinished **Symphony**]

[h] Each of the four movements in this Schubert piece end in a key that forms a major circle of thirds. This piece, which is played completely *attacca*, was transcribed for piano and orchestra by Franz Liszt, who often played it as a showpiece.

ANSWER: **Wanderer Fantasy** [accept **Fantasia in C Major**, Op. 15]

<Classical Music, TH>

15. In his biography of this king, David Carpenter claims that we know more about this monarch’s personal views than his contemporaries because copies of his personal letters survive on rolls kept by the chancery. For 10 points each:

[m] Name this relatively easy-going English king whose reign saw the building of Salisbury Cathedral and Westminster Abbey. This king was deposed by Simon de Montfort, who led the 1258 revolt against him.

ANSWER: **Henry III** [accept **Henry of Winchester**; prompt on **Henry**]

[e] Part of the reason for the revolt against Henry was his financially draining bid to place his son Edmund Crouchback on this island’s throne. A revolt on this island against Charles of Anjou was known as its “vespers.”

ANSWER: **Sicily** [accept **Sicilian** Vespers]

[h] This Benedictine monk from St. Albans repeatedly chided Henry III in his *Chronica Majora*, an often inaccurate but richly illustrated universal history of the world. This historian baselessly claimed that King John sent a delegation to the Almohad caliph offering to convert England to Islam and become a vassal state.

ANSWER: **Matthew Paris** [accept either underlined name; accept **Matthew** of **Paris**]

<Post-500 European History, TH>

16. A garment developed in this country features five buttons representing the branches of the government and four pockets representing the four virtues of propriety, justice, honey and shame. For 10 points each:

[e] Name this country where individuals wore a type of tunic suit named for Mao or Zhongshan as a symbol of proletarian unity.

ANSWER: **China** [or People's Republic of **China**; accept **PRC**]

[m] This type of body-hugging dress was popularized by Chinese socialites such as First Lady Wellington Koo during the Republic of China era. Its Manchu origin is reflected in its name meaning "banner gown."

ANSWER: **qipao** [or **cheongsam**]

[h] The Chinese *doudou* bodice is similar to the *yém*, a type of undergarment worn with this national garment of Vietnam, once worn by both sexes but now worn primarily by women. This garment consists of a long split tunic worn over trousers.

ANSWER: **áo dài** [prompt on **áo**]

<Other Arts: Visual, LL>

17. Answer these questions about neoclassical sculptors who created noted busts, for 10 points each:

[e] This Italian derived a bust of Napoleon from his giant marble statue *Napoleon as Mars Pacificus*. His classical subjects include *Psyche Revived by Cupid's Kiss* and *The Three Graces*.

ANSWER: Antonio **Canova**

[m] This Frenchman traveled to the early United States to sculpt busts of Washington and Jefferson from life and depicted a smiling Voltaire in another work. This artist used bronze to depict a shivering woman in *La Frileuse* ("free-LOOZ").

ANSWER: Jean-Antoine **Houdon**

[h] The discomfort of Crohn's disease and recurring nightmares inspired this German-Austrian artist's series of "character heads," which feature exaggerated and often pained expressions. This artist attempted to depict the 64 "canonical grimaces" with works like *The Beaked Man* and *The Incapable Bassoonist*.

ANSWER: Franz Xaver **Messerschmidt**

<Painting/Sculpture, TH>

18. This approach begins by taking in a point cloud and then builds Rips or Čech complexes. For 10 points each:

[h] Name this approach that looks for features in data sets by computing a persistence module, which is uniquely decomposed into a barcode. The barcodes produced by this approach are then visualized to determine what features are persistent, rather than just noise.

ANSWER: **TDA** [or **topological data analysis**]

[m] The Rips or Čech complexes in TDA are sets of these structures that, for a dimension n , are the convex hull of n plus one points. These structures in zero, one, and two dimensions are points, lines, and triangles, respectively.

ANSWER: **simplexes** [or **simplices**]

[e] A barcode is a persistent structure analogous to a Betti number. The first Betti number is two for this shape obtained from revolving a circle around an axis outside of the circle.

ANSWER: **torus** [prompt on **coffee cup**; prompt on **doughnut**]

<Other Science: Mathematics, JS>

19. This is the larger of the two countries where a World War I-era temperance act requiring the closure of bars by 6 PM resulted in reckless mad dashes from workplaces to bars and chaotic binge drinking. For 10 points each:

[e] Name this modern-day commonwealth country where the six o'clock swill occurred. Governor William Bligh's ("bly's") alcohol policies in this country contributed to a coup known as the Rum Rebellion.

ANSWER: **Australia** [or Commonwealth of **Australia**]

[h] The laws that led to the six o'clock swill in Australia were promoted by the WCTU and this other international temperance organization. Chapters called "tents" make up this Biblically named, still extant benefit society founded in Manchester.

ANSWER: Independent Order of **Rechabites** [or **IOR**; accept **Sons and Daughters of Rechab**; prompt on **Healthy Investment**]

[m] A 1915 ordinance that led to the nationalization of hotel bars led to a rebellion named for this city that was the largest in Australia since the Eureka Stockade. This city was decimated by Cyclone Tracy in 1974.

ANSWER: **Darwin** [accept **Darwin** rebellion]

<Commonwealth/International History, TH>

20. In a story titled for this exact number, the narrator recounts a tale about a couple who unnecessarily tested if their love could be described by this number by parting as soon as they met. For 10 points each:

[h] Give this number that is used to describe a girl the narrator sees on "one beautiful April morning" in that story from the collection *The Elephant Vanishes* by Haruki Murakami.

ANSWER: **100** percent [accept **1**; accept "**On Seeing the 100% Perfect Girl One Beautiful April Morning**"; reject "1 percent"]

[e] U. Rochester's world fiction magazine is called "Three Percent" in reference to a famous statistic that only three percent of published books in the U.S. have undergone this general process, which Murakami did to Raymond Carver stories as a budding writer.

ANSWER: **translation** [accept being **translated** to or from English]

[m] An ad executive craves dark chocolate in "99%," a story written in this language also used to write the novels *Human Acts* and *The White Book*. In 2017, Grove Press published an English translation of *The Accusation*, a collection of stories in this language by an author with a pen-name meaning "firefly."

ANSWER: **Korean** [or **Hanguk-eo**; or **Hanguk-mal**; reject "Hangul"] ("99%" is by Kim Kyung-uk. *Human Acts* and *The White Book* are by Han Kang. The author of *The Accusation* is the purportedly North Korean author Bandi.)

<Short Fiction, AP>

21. Answer the following about bewildering results in high-energy physics, for 10 points each.

[e] The OPERA (“opera”) experiment observed these fermions traveling faster than the speed of light due to an improperly connected fiber optic cable. These neutral fermions come in electron, muon, and tau flavors.

ANSWER: **neutrinos**

[m] Scientists at this facility reportedly detected the upsilon particle, but, after realizing the detection was a statistical coincidence, dubbed that “particle” the Oops-Leon. The top quark was discovered at this facility that contains the now-defunct Tevatron (“TEH-vah-tron”).

ANSWER: **Fermilab** (“FUR-mee-lab”) [or **Fermi National Accelerator Laboratory**] (Leon refers to physicist Leon Lederman.)

[h] Strange periodic modulations in the decay rate of praseodymium-fifty-eight-plus and promethium-sixty-plus ions were observed in this type of particle accelerator. The Touschek effect is the transformation of a small transverse momentum into a large longitudinal momentum due to Coulomb scattering in this type of particle accelerator.

ANSWER: **storage ring** [prompt on ring; prompt on circular accelerator; prompt on synchrotron by asking “what more specific type of accelerator has the same geometry?”]

<Physics, LL>

22. This dataset consists of a time series of pre- and post-presidential election surveys conducted continuously since 1948. For 10 points each:

[h] Name this dataset jointly maintained by Stanford University and the University of Michigan.

ANSWER: **American National Election Studies** [accept **ANES**]

[e] Face to face interviews recorded in the ANES consistently overreport on this factor of an election. The 2012 presidential campaigns used programs such as ORCA and Project Narwhal to increase this statistic, which is the percent of eligible voters who voted in an election.

ANSWER: voter **turnout**

[m] Black voter turnout has dropped since this 2013 Supreme Court case invalidated Section 4b of the Voting Rights Act. Because of this ruling, states are no longer required to prove that changes to their voting laws will not limit the voting rights of minorities.

ANSWER: **Shelby County v. Holder** [prompt on Holder]

<Social Science: Political, ZK>