FLopen 2020j
Packet G: Tossup idea: Saladin_was_a_Coptic_Christain.jpg
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Tossups

Note to moderator: read the answerline carefully.
1. **The first FDA approved TSEC for this treatment includes bazedoxifene, chosen because it is more effective in OVX mice than raloxifene and lasofoxifene. A 1966 Robert Wilson book championed the supposed anti-aging effects of this treatment that commonly uses an MPA/CEE pairing. A large clinical trial of this treatment by the WHI concluded that its risks outweigh its health benefits, causing a sharp decline in its prescription in the 2000s. One group of medications used in this treatment is typically (*)** conjugated to sulfate; those medications include Premarin. Somewhat dubious salivary measurements are taken before making bioidentical medications for this treatment. Blood clots have been linked to this treatment that can reduce the frequency of hot flushes. For 10 points, name this treatment that prescribes progestins and estrogens to manage the symptoms of menopause.
ANSWER: menopausal **hormone** therapy [or M**HT**; accept answers like taking **hormone**s; accept **estrogen** or **progesterone** therapy until "progestins" is read; accept **hormone replacement** therapy; accept bioidentical **hormone replacement** therapy; accept bioidentical **hormone** therapy; accept natural **hormone** therapy; accept postmenopausal **hormone** therapy or **PMHT**; accept treating **postmenopausal osteoporosis**; prompt on treating symptoms of postmenopause] (The Robert Wilson book is *Feminine Forever*.)
<Biology, TH>

2. **A two-pronged test for the legality of combating these events requires proportional response and a credible threat to policy; that test is named for Unocal ("YOU-no-CALL"). The Williams Act made the "Saturday Night Special" strategy for these events obsolete by requiring a seven day window between an announcement and deadline. A 1986 case in the Delaware supreme court centering on one of these events established a set of duties usually named for Revlon. Strategies for combating these events include the (*)** Pac-Man Defense and the Crown Jewel Defense, in which one participant sells off its most valuable properties. Investors usually make a tender offer to stockholders to initiate one of these events, which requires owning 50.1 percent of shares to complete. Target and acquirer companies participate in, for 10 points, what kind of merger that can come in friendly or hostile forms?
ANSWER: corporate **takeover** [accept corporate **buyout** or a **company** being **bought** by another; prompt on corporate acquisition or merger; prompt on making a tender offer until "tender" is read]
<Social Science: Other, TH>

3. **A 2007 CGSIC conference in Fort Worth established a voting time table for the abolition of these events, ultimately to be decided by the ITU in 2012, but that decision was deferred until 2015 and then 2023. Amazon and Google servers used a "smearing" technique to deal with one of these events in 2016 that caused outages on Reddit and Gawker. Two of these events occurred in 1972, the first year they began to be implemented on either June 30th or (*)** December 31st. The GPS and TAI timescales are not affected by these events, which are added or subtracted to DUT, calculated by taking the difference between the UT1 and UTC. IERS makes these adjustments to account for the slowing of the Earth's rotation, causing a deviation from the time measured by atomic clocks. For 10 points, name these small adjustments made to Universal Standard Time.
ANSWER: **leap second**s [accept addition or subtraction of a **second** to **Coordinated Universal Time** or **UTC**; prompt on seconds]
<Other Academic, TH>

4. **A character who lives in a shack outside this location eats only bread and foraged mushrooms and claims to have seen the Holy Spirit in the form of a goldfinch and a swallow. A man on a wooden portico in front of this location comforts a peasant woman who is grieving over the death of her three year old son Alexey. A man in this location thinks of the parable of the onion as he listens to the Biblical story of the Wedding at Cana read aloud. An elderly character who lives in this location dies with his arms spread (*)** wide open before his corpse unexpectedly starts to rot, to the delight of the "holy fool" Ferapont. In this location, Father Zossima kneels between Dmitri and his father Fyodor to end a fight. Alyosha Karamazov eventually leaves, for 10 points, what location where he was spending time as a novice monk?
ANSWER: the **monastery** from *The Brothers Karamazov* [prompt on the church or chapel from *The Brothers Karamazov*; anti prompt on Father Zosima's cell or room by asking "that room appears in what building?"]
<Long Fiction, TH>

5. **Nicky, a character played by this man, jokes in front of his mother's grave while his friend tries to remember the Kaddish in a film directed by Elaine May. In a film by this director, Mr. Sophistication performs a Paris-themed number alongside dancers in a nightclub owned by a character who commits the title act as his target wades in a pool to pay a gambling debt. While waiting to pick up her children, a woman in a film by this director blows a (*)** raspberry and gestures with her thumb at two women who ignore her; that tick is imitated by the Young Woman as she discusses this director in the 2020 film *I'm Thinking of Ending Things*. In a film by this director, a character played by Gena Rowlands is institutionalized for her erratic behavior by her husband played by Peter Falk. For 10 points, what actor-director made the films *The Killing of a Chinese Bookie* and *A Woman Under the Influence*?
ANSWER: John **Cassavetes**
<Other Arts: Film, AD>

6. **Phase-transfer catalysts derived from *Cinchona* alkaloids are used in a reaction that forms these compounds from benzophenone ("ben-zoh-FEE-nohn") imines ("IH-meenz"), also called O'Donnell's Schiff bases. An SN2 reaction between potassium phthalimide and a di·ethyl bromo·malonate is the first step in the Gabriel malonic ester synthesis, which produces these compounds. Trt and Alloc are protecting groups for these compounds. One of these compounds used as a drug was synthesized with an asymmetric hydrogenation by (*)** William Knowles. Carbo·di·imides such as DCC and DIC activate one end of these molecules before they couple to a growing chain of them in Merrifield's SPPS. A nitrile is hydrolyzed to form one of these compounds in the Strecker synthesis. For 10 points, name these compounds that have amine and carboxyl groups, as well as a side chain.
ANSWER: alpha-**amino acid**s [or **AA**s; prompt on amines, carboxyls or carboxylic acids with "what larger compounds containing those functional groups is being referred to?"]
<Chemistry, JS>

7. **An innovation in the production of this good involved reusing waste products known as clinkers in a certain "reverberatory" apparatus. It's not wool, but the industrialist Cockerill family is largely responsible for the flourishing of an industry producing this good in early 19th-century Belgium. The potting and stamping processes developed by the Wood Brothers greatly improved the efficiency in making this product, which was mass-exported by the former clockmaker Benjamin Huntsman. The innovation of (*)** Henry Cort's puddling and rolling system improved the quality of this good so much that formerly prominent imports of it from Sweden ceased. Abraham Darby was the first to use coke as the reducing agent in the production of this stuff in blast furnaces. For 10 points, name this metal smelted from magnetite during the industrial revolution to make its low-quality "pig" form.
ANSWER: **iron** [accept pig **iron**; accept bar **iron**; prompt on metal; anti-prompt on steel by asking "steel is an alloy of what simpler metal?"]
<Post-500 European History, TH>

8. **This event is compared to "Death's swart suncar, spinning down and apart" in a Hindi-language poem by Agyeya ("uh-g'YAY-uh"). A short poem about this event compares its victims to camellias and suggests "if I were you, / I'd leap into the torrent." Though it didn't occur in the Middle East, Mahmoud Darwish's prose poem** *Memory for Forgetfulness* **repeatedly notes that the 1982 Israeli invasion of Lebanon began on the anniversary of this event. A poet present at this event described a woman going into labor in a dark basement following it in her poem (*)** "Let Us Be Midwives." This event and its aftermath are the subject of Masuji Ibuse's novel *Black Rain*, and a piece of New Journalism that took up an entire issue of *The New Yorker*. For 10 points, name this 1945 event described in a book-length article by John Hersey.
ANSWER: the atomic bombing of **Hiroshima** and Nagasaki [accept the **atomic bombing** or **nuclear bombing** of Japan or equivalent answers; prompt on World War II] ("Let Us Be Midwives" is by Sadako Kurihara.)
<Poetry, TH>

9. **The comparative illusion arises from unacceptable examples of these entities that are innately deemed to be legitimate, which are sometimes examples of paraprosdokians ("para-PROSS-DOE-key-ens"). These entities are represented by an italicized *f* in a notation system developed by Richard Montague. Kellog Hunt's theory of t-units seeks to identify the shortest acceptable examples of these entities. Examples of these entities that are usually misunderstood on first encounter are their (*)** "garden path" type. Digital corpuses known as treebanks collected annotated examples of these entities. These entities are called nominal or equational if they lack a finite verb. "Colorless green ideas sleep furiously" is a grammatical but nonsensical example of, for 10 points, what type of linguistic unit that must contain an independent clause?
ANSWER: **sentence**s [accept Escher **sentence**s; accept garden path **sentence**s; prompt on phrases; prompt on independent clauses until "independent]
<Social Science: Linguistics, TH>

10. **Six men all have different reactions to a painting in this artist's print "Wow! Amazing! Gosh! Superb! It Speaks!" In another print by this artist, a man remarks that his potted plant will at last get sunlight while gesturing at men demolishing a nearby building. A literary woman leaves to meet her editor while her husband feeds a baby in an entry from this artist's series of prints gently mocking bluestocking women. Violence in (*)** Lyon inspired a print by this artist showing four slaughtered members of a silk working family in their apartment, his *Rue Transnonain* ("roo trawns-noh-NAN"). In a painting, this artist depicted a sleeping boy, an old woman, and a younger woman breastfeeding while sharing a bench on a train. This artist depicted a ruler both as Gargantua and as a pear. For 10 points, name this French realist who frequently caricatured Louis Philippe and painted *The Third-Class Carriage*.
ANSWER: Honoré **Daumier** ("oh-noh-RAY dohm-YAY") [or Honoré-Victorin **Daumier**]
<Painting/Sculpture, TH>

11. **This politician connected idealism with a tiered society and materialism with an egalitarian society in a work that lays out a philosophical system that asserts both the independent existence of matter and the capability of matter for self-motion. In another work, this politician examined the ever-changing structure of Consolidated Gold Fields, one of Harry Frederick Oppenheimer's many companies. This politician cited the work of his countryman Anton Wilhelm Amo to discard Descartes's notion of parallelism in a book that sought to unite Western, Islamic, and African traditions. This author of the books (*)** *Consciencism* and *Neo-Colonialism* was overthrown by the CIA-backed National Liberation Council while on a state visit to North Vietnam and China. For 10 points, name this pan-Africanist founder of the Convention People's Party of Ghana.
ANSWER: Kwame **Nkrumah**
<World History, JS>

12. **The number of bound states is equal to one over pi times the difference between this quantity at zero and infinite energies in a simplified Levinson's theorem. The scattering length can be defined as the negative of the derivative of this quantity with respect to the wavenumber, *k*, as *k* goes to zero. For a hard sphere of radius *a*, the *l*-equals-zero wave does not penetrate at all, so this quantity is simply negative *k* times *a*. Prefixes for waveplates describe the amount of this quantity they impart. In partial wave analysis, the (*)** cross section goes as the sine-squared of this quantity. The vector potential imparts this quantity in electron wave functions in the Aharonov–Bohm effect, causing fringe positions to move. This quantity is constant between two coherent waves. For 10 points, destructive interference occurs between two waves when what quantity is 180 degrees?
ANSWER: **phase shift** [or **phase difference**; accept **delta**; prompt on phase by asking "be more specific, but we're not looking for a type of phase"]
<Physics, LL>

13. **Geoff Hollister's book** *Out of Nowhere* **documents how a single company popularized the "culture" of this activity in the US. Jock Semple infamously attempted to physically prevent Katherine Switzer from participating in this activity. Frank Shorter's televised achievements in this activity is widely credited to have started a boom in this activity in the 1970s. Inspired by practices he observed in New Zealand, Bill (*)** Bowerman wrote a 1967 book on the benefits of this activity. In 1980, Rosie Ruiz was believed to have set a record at this activity until it was discovered she cheated. The feats of men like Phil Knight and Steve Prefontaine in this activity has led Eugene, Oregon to become a hub for it. In 2013, the Tzarnaev brothers bombed an event centered on this activity. For 10 points, name this activity that people in Boston do on Patriots Day for 26.2 miles.
ANSWER: **running** [accept **jogging**; accept running a **marathon** or **marathoning**; accept Boston **Marathon**; accept **cross country** or **track** and field; prompt on exercise]
<US History, LM>

14. **In 2018, eighty wooden dragons were restored to this facility's "Great Pagoda," which had earlier provided research space for the dropping of inert bombs during World War II. A triangular prism-based building here is home to Lord Blechnum, one member of this facility's famed population of Chinese water dragons. A namesake gallery hosts the 832 paintings that Marianne North bequeathed to this facility, whose early growth was spurred by the informal directorship of (*)** Joseph Banks. This non-Norwegian facility co-runs the Millenium Seed Bank Partnership with nearby Wakehurst. Following the Great Storm of 1987, a "Tree Gang" was established to protect the lush arboretum at this facility, whose Princess of Wales Conservatory houses the Sumatran corpse flower among its millions of plants. For 10 points, name this massive botanical nursery in southwest London.
ANSWER: **Kew** Gardens [accept **Royal** Botanic **Garden**s, Kew; accept the **Royal Garden**s at Kew; accept **Kew** Botanical Gardens]
<Geography, TM>

15. **A woman in this story detests the modern novel, which she defines as one where the hero strangles his mother and a drowned body turns up. After sneaking past a sleeping porter into a mansion, a man in this story observes a room lavishly decorated with artifacts of the era "when the Montgolfier's Balloons were all the rage." The protagonist of this story attempts to woo a lady by plagiarizing a love letter from a German novel. In this story, a woman called the "Muscovy Venus" wins back half a million francs in (*)** faro by listening to the advice of the Count St. Germain. At this story's climax, a ghostly countess tells a young engineering officer to play a three, five and ace at a high roller table, only for him to lose big and end up in a madhouse. The gambler Herman appears in, for 10 points, what Alexander Pushkin story named for a card?
ANSWER: "The **Queen of Spades**" [or "***Pikovaya dama***"]
<Short Fiction, TH>

16. **The properties of these substances are measured by four-ball testers and SRV instruments, which stands for Schwingung, Reibung, Verschleiž. Pour point depressants, which inhibit wax formation, and extreme pressure additives, which include chlorinated or sulfurized fatty acids, are used to augment these substances. The slope of lines for these substances on plots of a quantity measured in centistokes vs temperature is their viscosity index. These substance's lambda ratio equals their thickness over surface (*)** roughness. Molybdenum disulfide is a solid used as one of these substances. In the hydrodynamic regime, these substances prevent asperity contacts. The shape of a Stribeck curve varies with the thickness of these substances that usually contain additives to reduce wear and corrosion. For 10 points, name these substances that reduce friction between sliding surfaces.
ANSWER: **lubricant**s [accept **grease**s; accept **oil**s; accept **dry lubricant**s; accept **solid lubricant**s; prompt on <u>fluid</u>s by asking "what purpose do they serve?"] (Schwingung means oscillating, Reibung means friction, and Verschleiž means wear.)
<Physics, LM>

17. **Colin Howson argued for the rejection of a criterion central to this problem with the example "everybody in the room leaves with somebody else's hat." Irving John Good disputed this problem's original formulation in his paper "The White Shoe is a Red Herring." The 1945 paper that introduced this problem identifies the converse consequence condition as the assumption that renders this problem's relations trivial. The presentation of this (*)** paradox hinges on Nicod's criterion, which states that universal generalizations are confirmed by their instances. The equivalence condition assumed in this paradox leads to statements in the form "all Fs are Gs" to give negative confirmation to inductive hypotheses. For 10 points, name this paradox introduced by Carl Hempel, according to which seemingly irrelevant statements confirm the blackness of certain birds.
ANSWER: **raven** paradox [accept Hempel's **raven**s; accept **Hempel**'s paradox or problem until "Hempel" is read; accept paradox of **indoor ornithology**]
<Philosophy, TH>

18. **One character in this book gets promoted in the Swedish department store where he works by importing nylon stockings from the US. Later in life, that character in this book still owns four separate 1965 Dry Dock Savings Bank calendars but has burned the diaries of his first wife. Several sections of this book are narrated by a character using an exercise bike to avoid leg cramps. This work fictionalizes the suicide of the author's mother in a section rendered in a different style titled (*)** *Prisoner on the Hell Planet: A Case History*. The protagonist of this book is accidentally called "Richieu," the name of his "ghost brother," immediately before an image of a tombstone with Anja's name on it appears in its final panel. The first part of this book closes with Vladek arriving at Auschwitz. For 10 points, name this graphic novel about the Holocaust by Art Spiegelman.
ANSWER: ***Maus**: A Survivor's Tale* [accept *The Complete **Maus***; accept ***Maus**: My Father Bleeds History*; accept ***Maus**: And Here My Troubles Began*]
<Other Literature, MB>

19. **Gregory White created a computer program that stochastically plays a new variation on this piece each time it is run. The Malian kora player Defily Sako improvises solos on a recording of this piece that is part of Damon Albarn's Africa Express project. The first section of this piece features groups of three rising major third gracenotes that land on the mediant (*)** E. The notes to this piece suggest that a "beautiful girl" should play steady eighth notes throughout it to keep time. Recordings of this piece include the 1998 Bang on a Can version and the original 1968 version featuring the composer on keyboard. The score of this occasionally heterophonic piece consists of 53 numbered phrases that performers proceed through sequentially after playing each phrase an arbitrary number of times. For 10 points, name this minimalist piece by Terry Riley, whose title alludes to its sharps-and-flats-lacking key signature.
ANSWER: **In C** (The piece/program in the leadin is called *In C++*.)
<Classical Music, TH>

20. **In this game, the whispered line "I just look in the mirror and don't know who I'm looking at" is included in a reversed monologue that plays when the player enters a mirror. Speedrunning techniques for this game includes "demodashing" directly through walls of dust bunnies and hypering off Kevin blocks. Players of this game are twice required to keep a golden feather within a slowly rising box to slow the protagonist's (*)** breathing. That protagonist attempts to clean up an abandoned resort before being chased away by a big-headed ghost in this game, whose soundtrack was composed by Lena Raine. Mr. Oshiro and the amateur photographer Theo appear in this game, whose purple-haired antagonist is the embodiment of the protagonist's anxiety. For 10 points, name this 2018 platformer in which Madeline confronts her mental health issues while climbing the title mountain.
ANSWER: **Celeste**
<Pop Culture, TM>

21. **The credibility of this man was challenged by the insane asylum heads François Roy and Daniel Clarke, who cited a letter this man wrote claiming he was Jewish. This man repeatedly tore off his clothes in public while calling himself King David and the Prophet of the New World after suffering a breakdown around the time he met with Ulysses S. Grant. This man's cousin Charles Nolin testified against him, claiming that this man's (*)** insanity defence was fraudulent because of his willingness to accept a thirty-five thousand dollar government bribe. After taking Fort Garry, this man had Thomas Scott executed for spouting a series of racist harranges. John A. Macdonald dispatched Garnet Wolseley to put down a rebellion led by this man in modern-day Manitoba. For 10 points, name this Métis leader who was executed after leading the Red River and Northwest Rebellions.
ANSWER: Louis **Riel** [or Louis David **Riel**]
<Commonwealth/International History, TH>

22. **They're not a Biblical figure, but Jean Gaignet ("ghen-YAY") composed a hymn inspired by the life of this person. This person compared themselves to a "broom put behind the door again" when asked about an event investigated by Dominique Peyramale ("pay-rah-MAHL"). Devotees of this person often visit a tiny one-room basement known as "the dungeon" where they lived with their entire family following their miller father's destitution. This person used the word (*)** *aquero*, meaning "that," to refer to a figure she saw who had a blue girdle and yellow roses on her feet. The life of this saint inspired a novel by Franz Werfel and numerous pilgrimages of sick people to the healing waters of Massabielle ("mass-ah-B'YELL"). For 10 points, a Marian apparition calling itself the "Immaculate Conception" appeared in a grotto to what fourteen year old girl from Lourdes ("loord")?
ANSWER: Bernadette **Soubirous** ("soo-bee-ROO") [or Saint **Bernadette** of Lourdes; or Bernadeta **Sobirós**; accept Marie-Bernarde **Soubirous**]
<Religion, TH>

Bonuses

1. This language's "synthetic" form was used in the poems "The Watergaw" and the long "A Drunk Man Looks at the Thistle." For 10 points each:
[m] Name this language. The phrase "timor mortis conturbat me" ends each verse of "Lament for the Makaris" ("makers"), a poem whose title refers to a term describing 16th-century poets in this language.
ANSWER: **Scots** [or Lowland **Scots**; or Early **Scots**; or Middle **Scots**; or Modern **Scots**; or Synthetic **Scots**; accept **Lallans**; accept **Scottish English**; prompt on Middle English; prompt on Scottish; reject "Scottish Gaelic," "Scots Gaelic," or "English"] (The two poems in the lead-in are by Hugh MacDiarmid, and "Lament for the Makaris" is by William Dunbar.)
[h] Whereas Hugh MacDiarmid is credited for the 20th-century renaissance of Scots poetry, the main figure in the parallel rebirth of Scottish Gaelic was this author of the poem "Hallaig," which admires nature on the Isle of Raasay.
ANSWER: Sorley **MacLean** [or Somhairle **MacGill-Eain**]
[e] This poet wrote lyrics mixing Scots and English for "Scots Wha Hae," a longtime unofficial anthem of Scotland. This poet's popular fully-Scots poems include "Auld Lang Syne."
ANSWER: Robert **Burns** [or Rabbie **Burns**]
<Poetry, AP>

2. Answer the following about German art movements associated with certain cities, for 10 points each:
[m] This expressionist movement flourished in Dresden and included Karl Schmidt-Rottluff and Erich Heckel. Paintings from this movement were typically more muted in color than those produced by a roughly contemporary movement based in Munich.
ANSWER: Die **Brücke** [accept The **Bridge**] (The Munich movement was The Blue Rider.)
[e] New Objectivist painters like Otto Dix painted in this city between the World Wars. This city was the original location of the Bauhaus before it moved to Dessau, then Berlin.
ANSWER: **Weimar**
[h] An "old" group of figurative artists from this city were associated with documenta 6 and included the muralist Werner Tubke. A contemporary group of artists named for this city that often draws comparisons with the Young British Artists includes Neo Rauch and Matthias Weischer.
ANSWER: **Leipzig** [accept New **Leipzig** School or Old **Leipzig** School]
<Painting/Sculpture, TH>

3. The four basic generating functions of these transformations are related to each other by Legendre transformations. For 10 points each:
[m] Name these elegant transformations of coordinates that preserve the validity of Hamilton's equations.
ANSWER: **canonical** transformations [accept **contact** transformations]
[h] In the language of differential geometry, canonical transformations are these mappings between phase spaces represented as cotangent bundles that preserve the symplectic form. In general, these smooth mappings, whose inverses are also required to be smooth, take a smooth manifold to another smooth manifold.
ANSWER: **diffeomorphism**s [prompt on isomorphism]
[e] Likened to "cracking a peanut with a sledge hammer," canonical transformations can be used to solve this system. This system's potential energy is given by Hooke's law.
ANSWER: simple **harmonic oscillator** [or S**HO**; prompt on oscillator; prompt on spring; prompt on pendulum]
<Physics, JS>

4. In the book *Slavery and [this status]*, Orlando Patterson lays out the essence of slavery as the slave possessing this status, and "[living] on the margin between community and chaos, life and death, the sacred and the secular." For 10 points each:
[h] Name this condition of not being fully accepted as human by society, which is akin to being natally alienated.
ANSWER: **social death**
[e] Patterson grounds the extrusive mode of social death, where an insider is rejected from the community, in two societies: the Goryeo kingdom and late 17th-century Russia, particularly during the reign of this modernizing tsar.
ANSWER: **Peter the Great** [or **Peter I**; accept **Pyotr Alekseyevich**; prompt on Peter or Pyotr]
[m] Later on in *Slavery and Social Death*, Patterson explores the meaning of this practice of an owner freeing slaves, beginning with the problem that this transaction cannot be expressed in legal terms, unlike conveyance.
ANSWER: **manumission**
<Historiography/Archaeology, JS>

5. Several books by University of Chicago anthropologist Gilbert Herdt describe this ethnic group's low degree of contact between the sexes and their practice of "ritualized homosexuality." For 10 points each:
[h] Name this widely-studied tribe from the Eastern Highlands of Papua New Guinea. In a complex series of rites of passage, boys from this tribe are taken from their mothers at age nine, are bloodletted, beaten, and required to ingest the semen of older boys for several years before becoming adults.
ANSWER: **Sambia** people [or **Simbari** Anga]
[e] Herdt has been criticized for his application of the theories of this thinker to the sexual rituals of the Sambia. This French thinker wrote *The History of Sexuality* and *Discipline and Punish*.
ANSWER: Michel **Foucault** ("foo-COH")
[m] John Cowan Messenger wrote another classic ethnography of sexuality about an extremely repressed island off this country's coast where all touching, kissing, nudity and bathing was banned. After making *Nanook of the North*, Robert Flaherty made a partly fictional ethnographic film depicting high cliff fishing and shark hunting on a stark archipelago in this country.
ANSWER: Republic of **Ireland** [accept Northern **Ireland**] (The island is Inis Beag, and the documentary is *Man of Aran*.)
<Social Science: Anthropology/Sociology, TH>

6. Answer the following about fashion in 17th and 18th-century France, for 10 points each:
[m] The sale, importation, and production of this plain-woven, cotton textile was banned in France from 1686 to 1759 to protect the French cloth industry. French textile makers' copies of Indian designs using this fabric were called "indiennes" ("an-DYEN").
ANSWER: **calico**
[e] The Tavernier Blue was one of these gems that was crafted into the French Blue by Jean Piteau. A necklace featuring these extremely valuable gems was the subject of a scandal involving the Countess de la Motte and the Cardinal de Rohan ("ROH-aw").
ANSWER: **diamond**s [accept the Affair of the **Diamond** Necklace]
[h] A pillow and a metallic frame were used to support this tall hairstyle and that often integrated props such as ships, fruit, plumage, or flowers. This hair style was popularized by Marie Antoinette, who wore it at the coronation of Louis XVI.
ANSWER: **pouf** [or **toque**]
<Other Arts: Visual, AD>

Note to moderator: read the answerline to the third part carefully.

7. Following a son's death after being encouraged to drink poisoned mead by his dad, this man creepily disappears with his body after claiming that there isn't enough room in a boat for all three of them. For 10 points each:
[m] Name this weird dude who advises a child to build a series of runoff ditches before that kid's fight with a fat reptile. Early in that poem, this guy crashes a party by walking into a hall and plunging his sword into a tremendous tree.
ANSWER: **Odin** [accept **Wotan**; accept **Wodan**]
[e] Odin stabs Barnstokkr after waltzing into a feast hosted by this man. After receiving a golden apple sent by Odin, Rerir's wife gives birth to this man, whose namesake Icelandic saga includes characters like Fafnir and Brynhildr.
ANSWER: **Völsung** [accept **Völsung**a saga or Saga of the **Volsung**s]
[h] In the Völsunga saga, Odin's numerous interventions into the lives of mortals include his sudden appearance and performance of this action. Hjordis remarries Alf as a result of this action, whose victim interprets it as his luck forsaking him, thus refusing offers to be healed.
ANSWER: he **breaks Sigmund's sword** [accept synonyms for break such as **shatter**, **smash**, or **fracture**; prompt on answers that describe causing Sigmund to lose a battle, abandoning Sigmund, or causing Sigmund to die by asking "what physical action does Odin perform that results in Sigmund's defeat?"; prompt on breaking Sigmund's weapon by asking "what type of weapon?"; prompt on breaking a sword by asking "whose sword?"; prompt on breaking a weapon by asking "whose weapon, and what type of weapon was it?"; reject "killing Sigmund"; reject answers mentioning "Sigurd" or "Siegfried"]
<Mythology, TM>

8. Locals who live near this feature claim that it contains exactly 1969 conical limestone towers, a figure referencing the year of Ho Chi Minh's death. For 10 points each:
[h] Name this bay in the Quang Ninh province of Vietnam. This feature is actually a massive flooded series of karst sinkholes and is home to a pair of oft-photographed rocks known as the kissing chickens.
ANSWER: **Ha Long** Bay
[e] Another impressive karst feature in Vietnam is the Hang Son Doong, the largest one of these features in the world by volume. One of these features named for being "mammoth" is the namesake of a Kentucky national park.
ANSWER: **cave**s [or **cavern**s; accept **Mammoth Cave** National Park; accept underground **cave**s or **tunnel**s]
[m] The city of Guilin in this Chinese autonomous region is known for its numerous karst limestone towers. The Zhuang people are the designated minority of this southernmost autonomous region, which borders Vietnam.
ANSWER: **Guangxi** Zhuang Autonomous Region [accept **Kwangshi**; accept **Gvangjsih**; prompt on GZARU]
<Geography, TH>

9. Answer the following about euphemisms for sexual intercourse from English drama, for 10 points each:
[e] Thomasina Coverly's tutor tells her that "carnal embrace" means throwing one's arms around a side of beef in *Arcadia*, a play by this author of *Rosencrantz and Guildenstern are Dead*.
ANSWER: Tom **Stoppard** [or Tomáš **Straussler**]
[m] In Act I of *Othello*, Iago informs Brabantio that Othello and Desdemona are "making" this four or five word euphemism for sex.
ANSWER: (making the) **beast with two backs**
[h] In Harold Pinter's *The Homecoming*, Lenny, Sam, Joey, and Teddy use this euphemism for intercourse when discussing their amorous interactions with Teddy's wife-turned-prostitute Ruth.
ANSWER: going the **whole hog**
<Drama, TH>

10. The Chinese Civil War was interrupted by this incident, which forced the Kuomintang to form a United Front with the Communist Party. For 10 points each:
[m] Name this event in which Zhang Xueliang captured Chiang Kai-Shek and held him hostage to force him to ally with Mao Zedong in preparation for war against Japan.
ANSWER: **Xi'an** Incident [accept **Xī'ān** Shìbiàn]
[e] The Xi'an incident ended a decade-long period of prosperity named after this capital city of the Chinese Nationalists, also the site of a brutal massacre during the Second Sino-Japanese war known as its "rape."
ANSWER: **Nanjing** [or **Nanking**; accept Rape of **Nanking**]
[h] Throughout the Nanjing decade, this head of the Bureau of Information and Statistics worked to stamp out Communism in urban areas, inadvertently strengthening Mao's hold on the party. This secret police chief was the leader of the fascist Blue Shirts Society and died in 1946 in a plane crash believed to have been plotted by the Communists.
ANSWER: **Dai** Li [or **Tai** Li; accept **Dai** Chunfeng]
<World History, MJA>

11. Although BAN logic had proven the correctness of the public-key protocol developed by these (emphasize) *two* computer scientists, Gavin Lowe found that the protocol was vulnerable to a man-in-the-middle attack. For 10 points each:
[h] Name these two computer scientists that developed two foundational security protocols, one for symmetric key transport and one for public-key exchange. The former serves as the basis for the Kerberos protocol.
ANSWER: Roger Michael **Needham** AND
        Michael **Schroeder**
[m] Contemporary public-key exchange relies on CAs to verify these documents that prove key ownership. SSL/TLS and many other protocols use these documents' X.509 ("X-dot-five-zero-nine") format.
ANSWER: digital **certificate** [accept public-key **certificate**s; accept identity **certificate**s]
[e] By far the most common use of SSL/TLS certificates is the secure extension of this protocol. This protocol allows for communication over the web based on server responses to requests like GET ("get"), POST ("post"), and PUT ("put").
ANSWER: **HTTP** [or **Hypertext Transfer Protocol**; accept **HTTPS** or **Hypertext Transfer Protocol Secure**; accept **HTTP** over TLS; accept **HTTP** over SSL]
<Other Science: Computer Science, JS>

12. The white Jack and the Black Billy fall in love while in one of these places in Don Carpenter's classic gay novel *Hard Rain Falling*. For 10 points each:
[e] Name this type of institution where Jack Henry Abbott wrote the crime memoir *In the Belly of the Beast*. Malcolm X was assisted in writing his autobiography by Alex Haley while doing time in one of these places.
ANSWER: **prison** [or **jail**; accept **correctional** facility]
[m] Robert Beck wrote the bestselling memoir *Pimp: The Story of My Life* under a penname mentioning this substance shortly after his release from prison. Eldridge Cleaver's prison memoir is titled *Soul on [this substance]*.
ANSWER: **ice** [accept **ice**bergs; accept **Ice**berg Slim; accept *Soul on **Ice***]
[h] This contemporary author set her 2018 novel *The Mars Room* in a Central Valley women's prison. This author wrote about an artist from Reno who dates the heir to a motorcycle company in her novel *The Flamethrowers*.
ANSWER: Rachel **Kushner**
<Other Literature, TH>

13. A Douglass Adair paper on this text "revisited" explored how early historians completely ignored it until it was reinterpreted through a lens of class struggle by Charles A. Beard. For 10 points each:
[m] Name this essay that identifies several "interests" in its discussion of how the unequal distribution of property leads to social class it calls "factions." It advocates a large republic over a small one to ensure that undesirable passions cannot spread to the majority of people.
ANSWER: **Federalist** No. **10** [accept the **tenth** **Federalist** Paper; prompt on *The Federalist* or *The Federalist Papers*]
[e] Federalist 10 was written by this Founding Father, who wrote all the Federalist papers along with Alexander Hamilton and John Jay.
ANSWER: James **Madison**
[h] Madison's discussion of faction in Federalist 10 was most influenced by these two European Enlightenment thinkers. One's notion that republics can only exist in physically small states is explicitly refuted in Federalist 9, while the other wrote that the parts of a large republic are "so distant and remote" that insurrection cannot occur in his "Idea of a Perfect Commonwealth." Name both.
ANSWER: **Montesquieu** [or Charles-Louis de **Secondat**, Baron de la Brède et de Montesquieu] AND
David **Hume** [accept David **Home**]
<Philosophy, TH>

14. Answer the following about what happened to the large amounts of gold held by the Confederate Treasury during the final days of the Civil War, for 10 points each:
[m] Much of the Confederate gold was distributed to deserting soldiers from this southern Virginia town, where the Confederate government was based after the retreat from Richmond. George Stoneman's cavalry destroyed the tracks of a train line ending in this town, as described in the song "The Night They Drove Old Dixie Down."
ANSWER: **Danville**, Virginia
[e] Many wannabe treasure hunters scour Lincoln County in this state because of a legend that the retreating Confederate treasure train deposited gold there. Sherman's March to the Sea took place in this state.
ANSWER: **Georgia**
[h] The gold treasure train that fled to Florida following Jefferson Davis's capture was led by this Confederate whose memoir *Recollections of a Naval Officer* is considered a vital primary source on 19th-century naval warfare.
ANSWER: William Harwar **Parker**
<US History, TH>

15. In 1980, the musicologist Alfred Dunning discovered a correspondence in the palace library at Twickel indicating that this composer wrote a series of pieces formerly attributed to Carlo Ricciotti. For 10 points each:
[h] Name this Dutch Baroque composer and aristocrat who is believed to have written the anonymously published six *Concerti Armonici*.
ANSWER: Unico **Wilhelm** van **Wassenaer** [accept either underlined portion; accept either underlined portion of Unico **Wilhelm**, Count van **Wassenaer** Obdam]
[e] Giovanni Pergolesi, a composer born in this modern-day country, was long thought to have written the *Concerti Armonici* before the attribution to Van Wassenaer. Another composer born in this country wrote *The Four Seasons*.
ANSWER: **Italy** [or **Italia**]
[m] Pergolesi himself is best known for *La serva padrona* and his setting of this text scored for soprano and alto soloists, violins, violas, and *continuo*. This hymn describes Mary's experience watching the Crucifixion.
ANSWER: **Stabat Mater** dolorosa
<Classical Music, TH>

16. This ruler defeated the forces of the Kingdom of Naples at the 1348 Battle of Capua, motivated by Queen Joanna's alleged murder of his brother Andrew. For 10 points each:
[m] Name this Angevin ruler of Hungary who inherited a neighboring kingdom after the death of Casimir III.
ANSWER: **Louis I** [or **Louis the Great**; prompt on Louis]
[h] In order to secure succession of his daughter Jadwiga, Louis the Great gave power to the szlachta ("SH'LAH-tah") in this 1374 set of concessions that released knights from their obligations to pay tribute.
ANSWER: **Privilege** of **Koszyce** ("koh-SHEET-seh") [accept **pact** in place of **privilege**; accept **Košice** or **Kassa** in place of **Koszyce**]
[e] Jadwiga later succeeded Louis the Great and married the Grand Duke Jogaila, forming this basis for this state by the Union of Krewo ("CRAY-voh"). The Habsburgs, Prussia, and Russia divided this state's territory in three partitions beginning in 1772.
ANSWER: **Polish-Lithuania**n Commonwealth [or **Poland-Lithuania** Commonwealth; prompt on Poland or Lithuania]
<Post-500 European History, GP>

17. Illumina provides platforms that automate the next-generation type of this technique. For 10 points each:
[e] Name this technique. The original Sanger approach to it was used by the Human Genome Project.
ANSWER: DNA **sequencing** [accept next generation **sequencing**; accept Sanger **sequencing**; prompt on NGS]
[m] As an alternative to PCR-based enrichment, some next-generation sequencing protocols use this process between immobilized RNA baits and shotgun libraries to enrich for target sequences. Chromosomal sequences are detected by incorporating fluorescent probes into genes via this process in FISH protocols.
ANSWER: nucleic acid **hybridization** [accept fluorescence *in situ* **hybridization**]
[h] For certain applications, sequencing technologies that produce reads described by this adjective are preferable to next generation sequencing technologies because they improve detection of structural variants. Reads described by this adjective require correction because of the error rate of SMRT and nanopore sequencing.
ANSWER: **long**-reads [or **long**-read sequencing]
<Biology, JS>

18. The US is a party to the Minamata Convention, an agreement which seeks to reduce the rates of this substance in the environment. For 10 points each:
[e] Name this toxic element, a liquid metal at room temperature. In April 2020, the Trump administration gutted restrictions on how much of this metal that coal plants could emit.
ANSWER: **mercury** [or **Hg**]
[m] The space startup Apollo Fusion is worryingly planning to use mercury in these devices rather than the more conventional krypton or xenon. A type of these devices used by spacecraft create force by accelerating ions using electricity.
ANSWER: **thruster**s [accept mercury **thruster**s; or ion **thruster**s; or **ion drive**; or **satellite engine**s; or **satellite propulsion** systems; or spacecraft **propulsion** systems; reject "rockets"]
[h] This satellite system, China's answer to GPS, does not rely on mercury thrusters. This system went fully online in July 2020 and offers accuracy down 10 centimeters, three times as precise as the GPS system.
ANSWER: **BeiDou** ("bay-doh") [or **BeiDou** Navigation Satellite System; or **BDS**; or **Běidǒu** Wèixīng Dǎoháng Xìtǒng; prompt on The Big Dipper]
<Zeitgeist, MB>

19. Answer the following about objects that fascinate the young narrator of Marcel Proust's *Swann's Way*, for 10 points each:
[e] A series of rhapsodic and highly detailed reminiscences of summers at Combray early in the novel are triggered by Marcel's consumption of tea with one of these cookies.
ANSWER: **madeleine**s
[h] During one of his reminiscences, Marcel thinks about one of these objects in Combray that he compares to "hands joined in prayer." While on a carriage ride, a young Marcel jots down a short prose piece reflecting on three of these things he sees in the distance, before resolving never to become a writer.
ANSWER: church **spire**s [accept church **steeple**s; prompt on churches or cathedrals]
[m] Towards the beginning of *Swann's Way*, Marcel is excited to learn that his mother bought him four pastoral novels by this author for his birthday. This author wrote *The Devil's Pool* and *Consuelo*.
ANSWER: George **Sand** [or Amantine Lucile Aurore **Dupin**]
<Long Fiction, TH>

20. The steps to this dance were first choreographed by Jenny Dolly and its namesake at the 1913 edition of the Ziegfeld Follies. For 10 points each:
[m] Name this partner dance that, like the waltz, uses long, flowing steps but, unlike the waltz, is in 4/4 time. Styles of this dance include the American Continuity style and the American Social style.
ANSWER: **foxtrot** [accept American Continuity style **foxtrot** or American Social Style **foxtrot**] (named for Harry Fox)
[e] The foxtrot, waltz, tango, and rumba are all this kind of partner dance that exploded in popularity at the beginning of the 20th century. The name of this class of dances suggests their performance in large rooms at parties.
ANSWER: **ballroom** dancing
[h] This married ballroom dancing duo popularized the foxtrot with their rendition in Irving Berlin's show *Watch Your Step*. This duo danced in many Broadway shows and silent films of the 1910s, such as *The Whirl of Life*. Their shared surname is acceptable.
ANSWER: Irene and Vernon **Castle** [accept the **Castles**; accept William Vernon **Blyth** AND Irene **Foote**]
<Other Arts: Visual, TH>

21. The first direct detection of the kinetic Sunyaev–Zeldovich effect, or SZ effect, occurred in a highly disturbed one of these astronomical objects called MACS J0717 ("M-A-C-S J-zero-seven-one-seven"). For 10 points each:
[m] Name these most massive, gravitationally bound objects in the universe. They are smaller than filaments.
ANSWER: **galaxy cluster**s [prompt on clusters; reject any other type of cluster or "galaxy superclusters" or "galactic cluster"]
[h] The SZ camera on the South Pole Telescope is a bolometer made using these devices. SQUID ("squid") ammeters are used to read out the current through these devices that are kept near their Tc ("T-C") using negative electrothermal feedback.
ANSWER: **transition edge sensor**s [or **TES**]
[e] The SZ effect is a distortion in this phenomenon that has an average temperature of 2.7 Kelvin. This phenomenon is leftover light from the Big Bang.
ANSWER: **CMB**R [or **cosmic microwave background** radiation]
<Other Science: Astronomy, ND>

22. The first two verses of this text states that "humans at birth, are naturally good." For 10 points each,
[h] Name this text that, while not considered a Confucian Classic, is commonly used to teach children the teachings of Confucius. This text, part of the *San Bai Qian*, is alternatively attributed to Wang Yinglin or Ou Shizi, and consists of concise lines of short verses, as reflected by its name.
ANSWER: ***Three Character Classic*** [or ***Sanzi Jing***; or ***Trimetric Classic***]
[e] Another old text commonly studied by Chinese youth and second member of the *San Bai Chan* consists of verses on the "hundred" of these things referring to families. A phrase attributed to Confucius states that if he was a governor, he would "rectify" these things.
ANSWER: **name**s [or sur**name**s; accept **Bǎi jiā xìng**; accept the rectification of **name**s or **zhèngmíng**]
[m] The last member of the *San Bai Qian* is the *Thousand Character Classic*, which opens with a character representing this concept. Confucius believed that he was the servant to this concept and therefore would not be killed until his work is done.
ANSWER: **heaven** [or **tiān**; prompt on sky by stating "either name the Chinese character for sky or name the more common translation for the Chinese character for sky in the context of Confucianism."]
<Religion, LL>