TOSSUPS

1. **19th century expats from one of these countries living in the other primarily got their news from the Mulhall brothers' paper. Devastating measles outbreaks among natives in one of these countries were investigated by Lucas Bridges, who was born in the other. Eight railroads in one of these countries were conceded to the other via the Roca–Runciman Treaty. A teacher from one of these countries named Isaac Newell founded a club called his "Old Boys," which became the other country's first (*)** professional soccer team. Neither is Singapore, but risky investments in one of these countries by Barings Bank, headquartered in the other, nearly tanked the world financial system in 1890. A conflict between these two countries occasioned the headline "Gotcha!" after the sinking of the *General Belgrano*. For 10 points, name these two countries who maintain a contentious relationship over Goose Greene, Stanley, and other locales on the Falkland Islands.
ANSWER: **Argentina** [or República **Argentina**] AND Great **Britain** [or **UK** or the **United Kingdom**; accept **Wales** or **Cymru** before "Welsh"; accept **Ireland**, though in the context of the lead-in it's mostly British expats]
<CW / International Hist, Foster et al.>

2. **Two men with this job argue after Margaret Thatcher's death in the play *Approaching Empty* by Ishy Din, who had this job before becoming a writer. A different character with this job denies a debt of 30 cents to his coworker, claiming he never drank a cup of coffee bought for him. The girlfriend of a character with this job suspects that he is cheating on her with her sister Peaches and is angry about his plan to buy a house without her consent. In another play, an offstage character yells "HE'S MY OWN LOUSY BROTHER" to explain how a (*)** "rat" is posing as a man with this job named Tom Clayton. A steel mill accident kills the employer of the characters Turnbo, Doub, and Youngblood, who work this job in the Hill District of Pittsburgh. Another play ends after a man with this job named Agate ("ah-GAH-tay") yells "WE'RE STORMBIRDS OF THE WORKING CLASS." For 10 points, what workers go on strike in Clifford Odets's play *Waiting for Lefty*?
ANSWER: **taxi** drivers [or **cab** drivers or **jitney** drivers; prompt on drivers]
<Drama, Will Alston>

3. **The O(3) ("oh-3") nonlinear sigma model with this quantity introduced for hedgehogs describes quantum phase transitions in paramagnets. The intrinsic deflection that contributes to the anomalous Hall effect arises because this quantity causes electrons to have an anomalous group velocity. A curvature whose integral over a closed surface gives a material's Chern number is used to rewrite this quantity as a surface integral. This quantity is the line integral over a closed curve in parameter space of the inner product of phi and i times grad phi. Global change without local change causes this quantity, which emerges in (*)** Foucault's pendulum when the swing direction does not return to its original value after the local vertical completes a circle. An instance of this quantity is proportional to magnetic flux for particles coupled to potentials in a field-free region. For 10 points, the phase change in the Aharonov–Bohm effect is an instance of what phase named for an English physicist?
ANSWER: **Berry phase** [or **geometric phase**; or **Pancharatnam–Berry phase**; or **Pancharatnam phase**; accept **Berry curvature** until "curvature"; accept just **geometric**, **Berry**, **Pancharatnam–Berry**, or **Pancharatnam** after "the phase change"; prompt on phase; prompt on phase change or phase difference]
<Physics, Jonathen Settle>

4. **The question of "What Breaks?" during the origin of this condition is examined in a book that compares**

Zeus, Athena, and Apollo to REMFs. The case of a man who was buried in earth for 18 hours is discussed in the first medical paper on this condition, written by Charles Samuel Myers. Methods of treating this disorder were outlined in the book _Instinct and the Unconscious_ by the psychologist W. H. R. Rivers. People experience this disorder on account of being unable to prevent severe (*) transgressions, resulting in "moral injury," according to Jonathan Shay, who analyzed depictions of it in the Homeric epics. Treatments for this disorder include psychological debriefing, eye movement desensitization, and prolonged exposure therapy. For 10 points, what disorder historically known as "shell shock" is suffered by many soldiers?
ANSWER: **PTSD** [or **post-traumatic stress** disorder; accept **shell shock** before "shell shock"; accept **combat neurosis**; prompt on trauma or combat fatigue or neurosis] (Shay's book is titled _Achilles in Vietnam_.)
<Social Science: Psych, Will Alston>

5. **A Korean artist who works in this medium uses negative space to create designs that resemble shattered glass and rims of wire. The MoMA exhibit Vanity Projects included works in this medium by Fleury Rose and Naomi Yasuda. The Oceanside Museum of Art hosted a Jan Arnold collection of works in this medium for its "Tiny Canvases" exhibit. A New York-based artist working in this medium developed her signature style by incorporating Swarovski crystal, earning the nickname "Queen of (*)** Bling." This is the primary artistic medium of Park Eun-kyung, Jenny Bui, and Deborah Lippmann, the last of whom developed the colors "Cake by the Ocean" and "Get Lucky" for it. In the "water marbling" technique used for making works in this medium, lacquer is dripped into a solvent and then applied to the desired surface. Gel and acrylic can be used to create more durable examples of, for 10 points, what type of body art commonly removed with buffing or acetone?
ANSWER: **nail** art [or **nail** painting or **nail** polish; accept any answer indicting human **nails**; prompt on body art before mentioned; prompt on makeup or cosmetics]
<OArts: Visual, Brad McLain>

6. **In a short story, a betrothed student from this country living in the U.K. remarks that the title institution tells "lies" by only exhibiting "jungles and antelopes" to her companion Bryan. The memories of a child from this country are interspersed with the fictional life of Nya in Linda Sue Park's novel _A Long Walk to Water_. The inaugural Caine Prize went to an author born in this country for her short story "The Museum." The narrator of a novel from this country spends a night in a secret library of English books with a completely unnecessary fireplace, then nearly (*)** drowns in the river the next morning. Leila Aboulela is from this country, as is a character who returns to the village of Hamid after spending seven years in prison for murdering Jean Morris. A novel from this country is structured as an inversion of _Heart of Darkness_ and centers on Mustafa Saeed. For 10 points, name this African country, the home of _Season of Migration to the North_ author Tayeb Salih.
ANSWER: **Sudan** [or Republic of the **Sudan** or Jumhuriyah as-**Sudan**; reject "South Sudan"]
<Misc. Lit, Will Alston>

7. **As seen on the coins of Ptolemy III Eurgetes, this symbol was first used to denote a word meaning "good" or "useful." This symbol appears behind the head of the man at the center of a mosaic found in the village of Hinton St Mary in Dorset. Two birds use their beaks to hold up a wreath containing this symbol on the sarcophagus of Domitilla. This symbol was displayed at the tip of a "long spear, overlaid with gold" inside a wreath inlaid with precious stones, which became a widely-used design of** *vexillum* **called the** *labarum***. An elaborate illustration of this symbol comprises an entire page of the (*)** *Book of Kells*. A battle standard with this insignia at the top was widely used by the Byzantine Empire after first being employed by Constantine the Great at the Battle of Milvian Bridge. For 10 points, give this Christian monogram which consists of two overlaid Greek letters, which are the first two in the word for "Christ."
ANSWER: **Chi-Rho** monogram [or **Christogram**, or **Crismon**, or **Sigla**; accept **labarum** before "labarum"; prompt on Christ before "Christ"; reject "cross"]
<Ancient History, Will Alston>

8. **One member of this genus commonly infects wounds created by skin-popping heroin; that is its** *sordellii* **("sor-DELL-ee-eye") species. Dupuytren's ("DEW-puh-trenz") contracture can be treated with a collagenase ("cull-AHH-jen-ace") derived from a member of this genus. One member of this genus produces a zone of double hemolysis on blood agar and an alpha toxin that causes myonecrosis. This genus contains the most common obligate anaerobes used in industrial fermentations. This genus'** *novyi* **("NOH-vee-eye"),** *septicum* **("SEP-ti-cum"), and (*)** *perfringens* **("per-FRINGE-enz") species causes gas gangrene. Strabismus ("struh-BIZ-muss"), a condition where the eyes do not align, can be treated with a protein from this genus; that protein from this genus cleaves SNAP-25 to prevent acetylcholine export, and is why you shouldn't give honey to infants. For 10 points, name this bacterial genus that includes the causative agents of tetanus and botulism.**
ANSWER: *Clostridium* [accept specific species to the answer, like *Clostridium* sordellii, perfringens, novyi, septicum, histolyticum, acetobutylicum, tetani, botulinum]
<Biology, Cheyne et al>

9. **This book quotes Angelica Balabanoff's description of the dulling effects of "hunger and cold" in an analysis of the abjectly poor, remarking "we dare more when striving for superfluities than necessities." This book ends with a quote by J. B. S. Haldane on the "four really important inventions from 3000 BC to 1400 AD" in describing an attitude which is both "malady of the soul" and "instrument of resurrection." Its last section quotes "The Second Coming" to describe conditions created by irreverent "men of words," as contrasted with "men of practical action" such as (*)** Stalin, who turn their goals into "holy causes" through "religiofication." Divided into four sections including "The Potential Converts" and "United Action and Self-Sacrifice," this is the first book by the self-taught "longshoreman philosopher." For 10 points, name this set of "thoughts on the nature of mass movements" by Eric Hoffer.
ANSWER: The *True Believer*
<Philosophy, Will Alston>

10. **The landscape of a painting by this artist is interpolated over Sandro Botticelli's face in a contemporary painting by Iranian artist Aydin Aghdashloo ("eye-DEEN eg-DAHSH-loo"). Adolfo Venturi challenged the usual attribution of a painting by this artist since it lacked the "sweet" character of this artist, instead crediting it to his brother Davide ("dah-VEE-day"). In a painting by this artist, one of the title characters, who is possibly modeled on the artist Francesco Sassetti, wears a** *chaperon* **(*)** hood and a fur-lined robe. In that painting by this artist, the other title character is depicted with long hair flowing out of his doublet hat, gazing at a man who is likely Giovanni Tornabuoni ("tor-nah-BWOH-nee"), who commissioned this artist to decorate a chapel. This artist employed the three-quarters perspective to gracefully depict a man with a nasal deformity in *Portrait of an Old Man and His Grandson*. For 10 points, name this artist who taught Michelangelo.
ANSWER: Domenico **Ghirlandaio**
<Painting/Sculpture, Ike Jose>

11. **Seven articles of this treaty required the turnover of war criminals for prosecution in the Malta Tribunals. This treaty names a so-called "syndrome" analyzed by IR scholars such as Michelangelo Guida, which today often manifests as fears of conspiracies by a "Western Club." This treaty created a commission to enforce freedom of navigation within a naval zone it designated, which was replaced in 1936 by the Montreux Convention. This treaty formalized the territory divisions laid out four months prior at the (*)** San Remo Conference, as well the earlier end of hostilities in the Armistice of Mudros. A "Zone of the Straits" encompassing the Sea of Marmara was created by this treaty, which the British quit trying to enforce after the failure of the Smyrna offensive. Three years later, the Treaty of Lausanne replaced, for 10 points, what 1920 peace agreement which partitioned the Ottoman empire?
ANSWER: Treaty of **Sèvres** ("SEHV-ruh")
<Euro History, Will Alston>

12. **Warmuth photochemically generated this molecule within the cavity of a hemi-carcerand to record the first N·M·R spectra of it. Enediyne ("EN-uh-dine") antitumor antibiotics are synthesized using the Myers–Saito rearrangement and a thermally driven reaction whose product is formed from H-atom abstraction from this molecule. This molecule is generated by using the hexa·de·hydro-Diels-Alder reaction on a molecule with three tethered groups. The existence of this molecule was shown by Roberts' C14-labelling experiment, which showed a 50:50 mixture of (*)** amine products. This molecule is the product of the elimination in the elimination-addition mechanism of nucleophilic aromatic substitution. This molecule's resonance with cumulene is typically elided. This molecule is prepared by reacting a strong base with an aryl ("AIR-ull") halide ("HAY-lied"). An unusual triple bond between s·p·2 hybridized carbons is found in, for 10 points, what aryne ("air-ahyn")?
ANSWER: **benzyne** [or **C6H4**; accept **aryne**s until mentioned; reject "benzene" or "arenes"] (The reaction is the Bergman cyclization)
<Chemistry, Jonathen Settle>

13. **At the beginning of a novel by this author, the protagonist states "one of my first glories was my name," describing how he came to identify with a star in the constellation Boötes. In that novel by this author, the death of the title character's dog in childbirth mirrors the death of that character's German mother. In another novel by this author, a teenage cigarette smuggler is shot by the police, after which his epileptic kid brother befriends the sheepdog Bella. The title character of a novel by this author lives alone in the "House of the Boys," a decaying mansion on Procida ("PROH-chee-dah") in the (*)** Bay of Naples, until his father Wilhelm arrives with his 16-year-old bride Nunziata. The child Useppe ("oo-ZEP-pay") is conceived when a German soldier rapes Ida Ramundo in a novel by this author set in Rome during World War II. This author was married to the author of *The Conformist*, Alberto Moravia. For 10 points, name this Italian author of *Arturo's Island* and *History: A Novel*.
ANSWER: Elsa **Morante**
<Long Fiction, Will Alston>

14. **A piece by this composer calls for an organ to enter playing loud chords accompanying a chorus singing "All men, all things." That piece by this composer begins with a trombone chorale playing the theme that later accompanies the lines "Everything that has breath praise the Lord." The finale of this composer's fifth symphony begins with a solo flute playing the notes [read slowly] "three Gs, followed by D, F, G, E, then a fermata on D," and is played *attacca* after a slow third movement ending in the piece's dominant key of (*)** G major. That symphony by this man begins with low strings and bassoons outlining the same six-note motif that Wagner later used as the "grail theme" in *Parsifal* ("PART-zee-fall"). His Symphony No. 2 in B-flat major is a choral piece called the *Lobesgang* ("LOH-bes-gong"). For 10 points, name this composer who quoted the "Dresden Amen" and the hymn "A Mighty Fortress Is Our God" in his "Reformation" Symphony.
ANSWER: Felix **Mendelssohn**
<Classical/Opera, Will Alston>

15. **In 2019, the artist Luke Cornish painted a mural titled "Not Welcome to…[this place]" which was later defaced. It's not in New York, but a massive Chabad Lubavitch center called the Central Synagogue is found in a suburb called this place's "Junction." The Sculpture by the Sea exhibition was started in this place, where hundreds of men gathered wearing women's clothing in 1907 to protest a requirement that they wear a tunic at this place instead of just trunks, which was passed by the Waverley Council. The obscenely wealthy (*)** Bellevue Hill neighborhood is northwest of this place, which was controversially locked down in March 2020 by the Liberal government of Scott Morrison after thousands gathered here, resulting in its country's first COVID cases. An Aboriginal word for surfing lends its name to, for 10 points, what suburb of Sydney which is home to Australia's most-visited beach?
ANSWER: **Bondi** Beach [accept North **Bondi** or South **Bondi** or **Bondi** Junction; prompt on Waverley before "Waverley"; prompt on Sydney with "What specific location in Sydney?"]
<Geography, Cheyne et al.>

16. **This poem's then-recent revival is likened to Thomas Percy's *Reliques* in an essay which ends by saying this poem sheds "feeble twilight" into "deeps of primeval time" and was written by Thomas Carlyle. The strophic form named for and used in this poem adds irregular "long lines" to conclude stanzas whose four lines each begin with three feet, followed by a caesura ("suh-ZURR-uh"). Twenty distinct sources for this non-English poem were identified from analysis of its A, B, and C manuscripts by the philologist Karl Lachmann. In this poem, the daughter of Uta sets a hall on fire to trap (*)** Gernot and his fellow warriors. This anonymous poem, structured as 39 adventures, is thought to have been written by minnesingers employed by bishop Wolfger von Erla ("VOLF-gare von AIR-lah"). In this poem, a Burgundian princess marks a vulnerable spot on the central hero's body, letting him be slain by Hagen. For 10 points, what medieval German epic was the main source text for Wagner's Ring Cycle?
ANSWER: Der *Nibelungenlied* [or The *Song of the Nibelungs* or Der *Nibelungen Liet*]
<Poetry, Will Alston>

17. **Before being engaged in combat, this figure "bare[s] his teeth like a lion" and states "I have taken away every single rite / And I am in charge of all the gods' orders!" In response to being shot at with arrows by a man "wrapped in devastation's dust," this figure turns the arrows back into reeds and the bowstring back into ram intestines. This figure is depicted as the Master of Animals in his role as the symbol of Lagash. Along with a snake that could not be charmed and a "dark maid," this figure's presence in the Huluppu tree causes (*)** Inanna to weep until Gilgamesh drives all three away. After caring for this figure's offspring, Lugalbanda is given superhuman strength and speed. This creature, which can breathe both fire and water, is slain after raiding the temple of Enlil by a hero wielding the talking mace Sharrur. For 10 points, name this griffin-like monster from Mesopotamian myth, who is killed by Ninurta after stealing the Tablet of Destinies.
ANSWER: **Anzu** bird [or **Anzud** or **Zu** or **Imdugud**]
<Legends, Brad McLain>

18. **The man responsible for this series said that he regretted trying "to be political once" while making it, since the politics depicted is actually just the lives of its subjects. This series was criticized as being partly folk psychology by Mitchell Duneier, such as its depiction of a Yorkshire boy saying he wants to understand the Moon, which is juxtaposed with a depiction of him later studying nuclear physics at Oxford. In the first installment of this series, we meet three characters who are singing "Waltzing Matilda" in Latin. Based on his ability to handle female subjects, Barbara Broccoli chose the (*)** director of this series to helm the James Bond film *The World Is Not Enough.* Characters in these films include the once-homeless Neil, and Peter Davies, who stopped participating in this series after criticizing Margaret Thatcher. The recently-deceased Michael Apted directed most of, for 10 points, what decades-long documentary series comprised of interviews of its subjects every seven years?
ANSWER: *Up!* [accept *7 Up*]
<Other Academic, Ike Jose>

19. **This concept titles Shawn Michelle Smith's history of an exhibit of photos at the 1900 Paris Exhibition, curated by a man who wrote that he transcended this concept to be "arm in arm with Balzac and Dumas" because "I sit with Shakespeare and he winces not." Writing about the Azusa Street Revival, Frank Bartleman declared that this concept had been "washed away in the blood of Jesus." A remark that "few evils are less accessible to the force of reason" than the "moral disorder" of this title concept begins the 1881 article by Frederick Douglass which (*)** introduced the term for it. This two-word term commonly denotes a set of policies whose institution is often traced to Cap Anson's complaint about facing Moses Fleetwood Walker at an exhibition game. In *The Souls of Black Folk*, W. E. B. DuBois writes that the "problem of the twentieth century is the problem of," for 10 points, what term for racial divisions such as one "broken" by Jackie Robinson?
ANSWER: the **color line** [or the **color barrier**; prompt on race barrier or racial barrier; prompt on racism or prejudice or racial divisions by stating "we are looking for a specific term"]
<American History, Will Alston>

20. **This operation is done directly on two's complement inputs without complementation stages using Pezaris or Baugh–Wooley designs. An algorithm for this operation reduces the number of required computations by replacing strings of ones with a positive one and a negative one. That algorithm for this operation examines the last two bits of an accumulator to determine what action to take, for example, it does nothing if the bits are both zero or both one. Wallace trees are faster than naive hardware schemes for this operation. Booth's algorithm computes this operation. In MIPS ("mips"), the (*)** hi register is used to store the potential overflow bits from this operation. This operation can be performed by wiring together many carry-save blocks. In C++ ("C-plus-plus"), pointer declaration and dereferencing is done with the same symbol as the symbol for this operation. For 10 points, name this operation implemented with "shift and add" circuits.
ANSWER: binary **multiplication** [accept integer **multiplication**; accept signed integer **multiplication**; reject "matrix multiplication" or "floating point multiplication"] (The second and third clues refer to Booth's algorithm)
<Other Science: Computer Science, Jonathen Settle>

1. An article about this politician opens by noting that, though American politics has never truly been an arena for "class conflict," it still hosts "uncommonly angry minds." For 10 points each:
[10m] Name this politician who defended his views in the book *Where I Stand* and justified them in his memoir *With No Apologies*. He once said "I think every good Christian ought to kick Jerry Falwell in the ass."
ANSWER: Barry **Goldwater**
[10e] This Columbia University historian analyzed the currents driving the Goldwater campaign in "The Paranoid Style in American Politics." His later book *The Progressive Historians* signalled his own shift to conservatism.
ANSWER: Richard **Hofstadter**
[10h] Hofstadter called this conspiracy book, which sold over 7 million copies after being published during the 1964 election cycle, a "masterpiece of folkish propaganda." This John Stormer book uses evidence from executive branch proceedings to make wild allegations about Communist influence.
ANSWER: ***None Dare Call It Treason***
<American History, Will Alston>

2. For 10 points each, answer the following about group contribution methods in chemistry:
[10e] The Lydersen method uses contributions from functional groups to estimate a molecule's properties at this point. A substance's heat of vaporization goes to zero as it approaches this point.
ANSWER: **critical** point [accept **critical** temperature or **critical** pressure]
[10h] This group contribution method estimates a greater set of properties, including normal melting and boiling points. It's less complex than the Marrero-Gani method because it only uses first-order groups.
ANSWER **Joback** method
[10m] Name either the activity coefficient model developed by Abrams and Prausnitz that uses group contributions in volume and surface area terms as well as empirical, mixture-specific residual energy terms, or its similarly-named offshoot that is wholly predictive.
ANSWER: **UNIQUAC** or **UNIFAC** [accept **universal quasichemical** or **UNIQUAC Functional-group Activity Coefficents**]
<Chemistry, Cheyne et al.>

3. Pieces composed for this specific instrument include Carlos Chavez's orchestral arrangement of an E minor *Chaconne* and Charles-Marie Widor's Symphony No. 3. For 10 points each:
[10h] Name this specific instrument. Leopold Stokowski, who played this instrument during the "Symphony of Fifteen Thousand" concert, arranged a version of J. S. Bach's Passacaglia in C Minor to play on it.
ANSWER: The **Wanamaker** Organ [prompt on organ by saying "we're looking for one organ in particular"; prompt on any answer referring to an organ inside Philadelphia's Macy's Center or the world's largest organ]
[10e] Stokowski played this eerie-sounding J. S. Bach piece, whose title combines the name of two genres, on the Wanamaker Organ for the soundtrack of *Fantasia*.
ANSWER: **Toccata and Fugue** in D minor
[10m] The 2019 restoration concert for the Wanamaker Organ climaxed with a performance of this piece, which has been performed by multiple flash mobs in the surrounding mall since 2010. The melody of this piece from a larger work begins with the notes [read slowly] "long high D, followed by short notes G, A, G."
ANSWER: "**Hallelujah** Chorus" [prompt on *Messiah*]
<Classical/Opera, Will Alston>

4. William Carlos Williams's *ekphrasis* on a painting by this artist describes a scene where "the whole pageantry / of the year was / awake tingling," including a sea that is "sweating in the sun." For 10 points each:
[10m] Name this artist. The speaker of another poem suggests that one of his paintings captures the reality that whenever there is a "miraculous birth," there must be "Children who did not specially want it to happen."
ANSWER: Pieter **Breughel** the Elder (Both are about "Landscape with the Fall of Icarus.")
[10e] This author wrote "About suffering they were never wrong, the Old Masters" to begin his poem about Breughel's *Landscape with the Fall of Icarus*, titled "Musée des Beaux Arts."
ANSWER: W. H. **Auden** [or Wystan Hugh **Auden**]
[10h] In "Some Reflections on the Arts," Auden writes that art provides our best method for performing this action "with the dead." Seamus Heaney's eulogy "Audenesque" ends by bidding its subject, Joseph Brodsky, to "Do again what Auden said" and perform this action.
ANSWER: **breaking bread** [or **break bread**; prompt on eat or eat bread]
<Poetry, Will Alston>

5. In a collection of essays about this philosopher, Peter Adamson contrasted his Proof of the Truthful with the "clever trick" of Anselm's ontological argument, noting that this philosopher's argument appeals to an underlying rationale. For 10 points each:
[10e] Name this philosopher, who also put forward an argument for the existence of the soul known in English as the "flying" or "floating" man. This philosopher also wrote a philosophical encyclopedia titled the *Book of Healing*.
ANSWER: **Avicenna** [or **Ibn Sina**; or **Abu Ali Sina**; or **Pur Sina**]
[10h] Avicenna's Proof of the Truthful posits that this sort of definitionally real being is actually real, is the cause of all contingent things, and is equivalent to the God of Islam.
ANSWER: **necessary existent** [or **wājib al-wujūd**; prompt on non-contingent being or necessary being; reject "prime mover" or "unmoved mover"]
[10m] Similar to Avicenna's Proof of the Truthful, this modern argument begins by arguing that all existing things must have a non-dependent cause. This argument was popularized by a 1979 book by William Lane Craig.
ANSWER: **Kalam** cosmological argument [or **KCA**; or 'Ilm al-**Kalam**; prompt on cosmological argument]
<Philosophy, Brad McLain>

6. In humans, these molecules are frequently capped with sialic ("sigh-AL-ick") acid residues. For 10 points each:
[10m] Name these molecules that are assembled on dolichol ("DOLL-uh-call") phosphate in the E·R, then transferred to an asparagine two residues away from either a threonine or serine.
ANSWER: N-linked **glycan**s [accept **oligosaccharide**s or **polysaccharide**s; reject glycoproteins or proteoglycans]
[10e] Before being processed in the endoplasmic reticulum and Golgi body, N-linked glycans are primarily made of mannose. A phosphorylated version of mannose tags proteins for transport to this organelle that contains hydrolases
ANSWER: **lysosome**
[10h] This sugar is often attached to N-acetyl-glucosamine at the base of mature glycans. It inhibits antibody-dependent cellular cytotoxicity in monoclonal antibodies, so protein engineering often tries to remove it.
ANSWER: **fucose**
<Biology, Cheyne et al.>

7. In a story titled for a "joke" of this region, the farmer Patu leaves his wife on his wedding night to chase suspected poachers, after which he is tied up with three dead rabbits around his neck until dawn. For 10 points each:
[10h] Name this region which is the setting of such stories as "Bombard" and "Old Boniface's Crime." In another story, patriotic villagers here support a priest for refusing to ring his church's bell during a foreign occupation.
ANSWER: **Normandy** [or **Normaundie**; accept "A **Normandy** Joke"]
[10e] Guy de Maupassant set many stories in his homeland of Normandy, including this one, whose title prostitute sleeps with a Prussian officer to help her company avoid delays on their journey to Le Havre.
ANSWER: "**Ball of Fat**" [or "**Boule de Suif**" or "**Butterball**" or "**Ball of Lard**" or "**Dumpling**"]
[10m] This other Maupassant story begins with a journal entry from May 8th, in which the narrator writes "I love this land. My roots are here" about the Norman countryside and describes his delight at seeing a Brazilian ship.
ANSWER: "The **Horla**" [or "Le **Horla**"]
<Short Fiction, Will Alston>

8. Louisa May Alcott's sister vouched for the talent of this sculptor's creator, who was an unknown 23-year-old college dropout at the time. For 10 points each:
[10m] Name this sculpture whose pose is very similar to the Apollo Belvedere. It was created out of ten melted cannons donated by Congress and depicts a man standing with a plow by his side.
ANSWER: The ***Minute Man**
[10e] This sculptor, who created the massive statue of Abraham Lincoln at the Lincoln Memorial, got his start by receiving the commission to create *The Minute Man*.
ANSWER: Daniel Chester **French**
[10h] French worked with this woman as a model on numerous sculptures, including the statue on top of the Wisconsin State Capitol Dome. She has been called "America's First Supermodel" for being the model of choice for Alexander Calder and many other artists.
ANSWER: Audrey (Marie) **Munson**
<Painting/Sculpture, Cheyne et al.>

9. In her 2013 book titled for this museum, Alice Conklin explores how its curators attempted to reconcile progressive thought and colonialism. For 10 points each:
[10h] Name this museum whose holdings include a 26,000 year old ivory statue called the Venus of Lespugue ("les-poo-GOO"). It was opened in 1937 by Paul Rivet as a successor to the Trocadero Museum of Ethnography.
ANSWER: Musée **de l'Homme** [or Museum **of Man** or Museum **of Humanity**; accept *In the **Museum of Man**]
[10m] Among the photos at the Museum of Man are those of Gaetan de Clerambeault ("clare-um-BOW") showing people in this country suffering mental breakdowns, which Clerambeault theorized were collective memories of the Disaster of Annual. Throughout the 1910s, France fought the Zaian War in this country.
ANSWER: Kingdom of **Morocco** [or Spanish **Morocco** or **Marruecos** de Espana]
[10e] In 2020, Algeria secured the repatriation of a number of these objects in the Museum of Man which were taken as war trophies from FLN fighters. These objects are drilled with holes during trepanation.
ANSWER: **skull**s [or **cranium**s or **crania**; prompt on heads]
<Historiography, Cheyne et al.>

10. While training among the "grits" at this institution, Damaya discovers a mysterious hexagonal room at its center, where a giant six-sided pit lined with spikes sinks deep into the ground. For 10 points each:
[10h] Name this compound where children learn to "sess" motions of the earth. A successful graduate of it earns a black uniform and the first of up to ten rings, marking their rank as an orogene of the Sanzed Empire.
ANSWER: The **Fulcrum** [prompt on Yumenes]
[10m] Prejudice against orogenes and their earth-moving powers are a core topic of this novel by N. K. Jemisin, the first in her triply Hugo-winning *Broken Earth* trilogy.
ANSWER: *The **Fifth Season***
[10e] In *The Fifth Season,* the chapters following Essun use this unusual narrative technique. Italo Calvino's *If on a winter's night a traveler* uses this technique to follow a person who meets Ludmilla in a bookstore.
ANSWER: **second-person** narration [accept any answer indicating that the narration describes the protagonist as **you**, the reader or addressee of the story]
<Misc. Lit, Matt Jackson>

11. One common explanation for the bird-like appearance of the Krekavac and Poroniec of Slavic folklore is that they were based on the appearance of these beings. For 10 points each:
[10h] Identify these beings, who are a favorite food of the Manananggal of Philippines mythology, which use their proboscis-like snouts to eat their hearts.
ANSWER: **fetus** [or **embryo**; accept **unborn** children or baby; prompt on just babies]
[10e] Traditionally, Krekavacs are believed to come from children who died before undergoing this sacrament. In Slovak legends, the Mamuna is a female water demon who replaces children who have not undergone this sacrament with changelings.
ANSWER: **baptism**
[10m] Similar to a changeling, the Ogbanje spirits from the mythology of these people were held to be the cause of congenital deformities and early childhood deaths. The traditional religion of these people features the worship of spirits called Alusi and the creator god Chukwu.
ANSWER: **Igbo** [or **Ibo**]
<Legends, Cheyne et al./Brad McLain>

12. Local craftsmen at the Dash Museum still use the kilns in the ruins of this city, which was abandoned in the 16th century after the Amu Darya shifted course. For 10 points each:
[10m] Name this former imperial capital which contains the tomb of Ala ad-Din Tekesh. Somehow, it came back as a cultural center decades after a brutal Mongol sack which supposedly killed as many as 1.2 million people.
ANSWER: Old **Urgench** [or Konye-**Urgench**; accept **Gurganj** or **Jurjanj** or **Jorjania**]
[10m] Urgench was the capital of this large Turko-Persian empire, which was targeted by that invasion after one of its governors made the incredibly poor decision to kill Mongol ambassadors.
ANSWER: **Khwarezm**ian Empire [or **Khwarazm** Shahs, or **Chorasmia**; prompt on Khorasan]
[10e] The landmarks of Old Urgench include a freestanding example of these objects named for Kutlug Timur. Tunisia's Great Mosque of Kairouan contains the oldest of these towers where the call to prayer is issued.
ANSWER: **minaret**s [prompt on mosques]
<World History, Cheyne et al./Will Alston>

13. For YBCO, the method described by this phrase requires repeatedly firing and grinding a 1 to 2 to 3 mixture of yttrium oxide, barium carbonate, and cupric oxide. For 10 points each:
[10h] Give this three word phrase used for simple methods of making high temperature superconductors.
ANSWER: **shake and bake** [accept **shake 'n' bake**]
[10e] The initial calcination step of the shake and bake procedure will cause the sample to shrink as this gas is emitted. This gas sublimates at -78.5 °C, forming a common coolant.
ANSWER: **carbon dioxide** [or **CO2**; prompt on dry ice]
[10m] An experimental setup with this many terminals is used to ascertain the resistivity of the sample. In Landau theory, the order parameter is raised to this power in the ("emphasize") *second* term in the expansion of free energy, assuming the constant term is the zeroth.
ANSWER: **four** (The experiment is four-point probe/four-terminal sensing)
<Physics, Jonathen Settle>

14. In this novel, Cayetano betrays his assignment by falling in love with his charge and sneaking through the sewers to reach her cell. For 10 points each:
[10m] Name this Gabriel García Márquez novel in which the Marquis de Casualdero ("kahs-wahl-DAY-roh") and his drug-addicted wife Bernarda abandon their daughter Sierva after she contracts rabies from a dog's bite.
ANSWER: *Of **Love and Other Demons*** [or *Del **amor y otros demonios***]
[10e] In *Of Love and Other Demons*, Cayetano is given his assignment by a character with this job. In a novel by Willa Cather, a man with this job named Jean Marie Latour leads a mission to New Mexico.
ANSWER: **bishop** [or **archbishop**; accept *Death Comes for the **Archbishop***; prompt on priest or clergy]
[10h] In the novel, Sierva dies after an exorcism, after which her corpse miraculously undergoes this process. The novel begins with the discovery of Sierva's corpse still undergoing this process. A description is fine.
ANSWER: her corpse is growing **hair** from her shaved head [accept anything involving growing **hair**, or the fact that her **follicles** are still somehow productive, or whatnot]
<Long Fiction, Will Alston>

15. In a set of Theological Orations, this figure is described as coming forth from God the Father by procession, and not by generation. For 10 points each:
[10e] Name this figure from Trinitarian Christianity. This figure is described by Jesus as a "helper" and the arrival of this figure in the form of flaming tongues is celebrated on Pentecost.
ANSWER: Holy **Spirit** [or **Holy Ghost**; prompt on God]
[10h] This theologian proposed the aforementioned procession relationship between the Holy Spirit and the other persons of the Trinity. With Basil the Great and John Chrysostom, this theologian is revered as one of the Three Holy Hierarchs.
ANSWER: St. **Gregory** of **Nazianzus** the Younger [or **Gregory the Theologian**; or **Gregory of Nazianzen**; prompt on Gregory; reject "Gregory of Nyssa"]
[10m] This contemporary of St. Gregory Nazianzus also outlined a theology of the Holy Spirit's origins and relationship to the rest of the Godhead in his *De Trinitate*. This theologian also originated the idea of limbo for unbaptized infants and described the tasks of preachers in his book *De doctrina Christiana*.
ANSWER: St. **Augustine** of Hippo [or St. **Austin**]
<Theology / Practice, Brad McLain>

16. The exclusion of domestic labor from calculations of this variable is criticized in Marilyn Waring's book *If Women Counted*, which convinced the U.N to revise its calculation method. For 10 points each:
[10e] Name this variable, which Waring proposes replacing with a "progress indicator." It is mostly simply defined as the sum of total private consumption, government expenditure, investment, and net exports.
ANSWER: **GDP** [or **gross domestic product**; prompt on GNP or gross national product]
[10m] An earlier alternative to GDP, called Measured Economic Welfare was developed by this economist and James Tobin. This economist won a Nobel in 2018 for working on incorporating climate change into macroeconomic analysis.
ANSWER: William **Nordhaus**
[10h] Another alternative to GDP is this group's "Better Life Index," developed by a commission consisting of Amartya Sen, Joseph Stiglitz, and Jean-Paul Fitoussi. This group maintains the "Economic Outlook" database.
ANSWER: **OECD** [or **Organization for Economic and Cooperative Development**]
<Social Science: Economics, Cheyne et al.>

17. While searching for an arrow that he fired north, one of these brothers found himself face-to-face with a white eagle, which he took as a good omen for settlement and later became the symbol of his people. For 10 points each:
[10h] Name these three legendary brothers. According to that version of the tale, the second of these brothers made his home on Říp Mountain, while the third journeyed far into the east.
ANSWER: **Lech** [or **Pol**] AND **Czech** AND **Rus**
[10m] The historian Jordanes also divides the Slavs into three groups: the Antes, the Sclaveni, and these people, corresponding to inhabitants of the Vistula basin. In the mid-12th century C.E. the German rulers Henry the Lion and Albert the Bear took part in a large-scale campaign directed against these people.
ANSWER: **Wend**s [or **Veneti**, or **Venedi**, or **Wenden**; accept **Polabian** Slavs; accept **Wendish** Crusade or **Wenden**kreuzzug; prompt on Obodrites]
[10e] In a probably-unrelated tale, this city is recorded as having been founded by three brothers: Shchek, Khoryv, its namesake brother, and their sister Lybid. This city was the seat of power for Vladimir the Great.
ANSWER: **Kiev** [or **Kyiv**; accept **Kievan** Rus']
<Euro History, Will Alston>

18. For 10 points each, answer the following about honeycombs in Middle Eastern architecture:
[10e] This architect's firm designed the white honeycomb exterior of Riyadh's huge King Abdullah Petroleum Research Center. This Iraqi-British architect designed the London Aquatics Center for the 2012 Olympics.
ANSWER: Zaha **Hadid** [or Dame Zaha Mohammed **Hadid**]
[10m] The interiors of these elaborately ornamented domed vaults, ubiquitous in Islamic architecture, are frequently compared to honeycombs or stalactites.
ANSWER: *muqarnas*
[10h] The entrance to this pavilion is surrounded by a large *iwan*, or open vault, whose façade is decorated with a golden-inlaid honeycomb design. This Iranian pleasure-palace is found at the end of a long pool surrounded by a *char bagh* garden.
ANSWER: **Chehel Sotoun** ("shuh-HEL soo-TOON") [prompt on Forty Columns] (The palace is in Isfahan.)
<OArts: Architecture, Will Alston>

19. The existence of these objects is proven by constructing one of them from bump functions. For 10 points each:
[10h] Name these collections of smooth, non-negative functions on a smooth manifold with two properties: the family of supports is locally finite, and the sum of the functions evaluated at p is one for any p in the manifold.
ANSWER: **partition**(s) **of unity**
[10m] The family of supports of a partition of unity is guaranteed to be one of these collections of sets for the underlying manifold. A topological space is compact if every one of these collections has a finite subset whose union is the whole space.
ANSWER: **open cover**s [prompt on covers]
[10e] This operation for a form on a manifold can be straightforwardly defined with partitions of unity. This operation is approximated with Simpson's rule and the trapezoid rule.
ANSWER: **integration** [or **integral**; or word forms of **integrate**; accept Riemann **integral**]
<Other Science: Math, Jonathen Settle>

20. Ten islands in Northwestern Hawaii, as well as the surrounding atolls and waters, are part of a "marine" example of these locations designated by George W. Bush in 2006. For 10 points each:
[10m] Name these locations which the U.S. federal government was given authority to establish under the Antiquities Act of 1906.
ANSWER: **national monument**s [prompt on monuments; reject "National Parks"]
[10e] The first national monument designated by Theodore Roosevelt is this iconic butte ("byoot") in Wyoming, which rises above the sandstone cliffs of the Belle Fourche ("bell fursh") river.
ANSWER: **Devils Tower** [or **Bear Lodge** Butte]
[10h] In 1996, Bill Clinton designated this national monument, making it the first such monument established on land managed by the Bureau of Land Management. Its size was reduced in half by an action of Donald Trump in 2017 to encourage commercial development, a cause pushed for by Senator Mike Lee.
ANSWER: **Grand Staircase**-Escalante National Monument [or **GSENM**; prompt on Grand Staircase]
<Modern World, Will Alston>