

Penn Bowl 2021: Flenn Bowl

Packet 6

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Tossups

1. **The first direct evidence for these particles was made possible by an algorithm created by Sau Lan Wu and Georg Zobernig as members of a team led by Bjørn Wiik (“byern week”). If Feynman diagrams of decay processes can be separated by removing lines corresponding to these particles, then those processes are suppressed by the OZI (“O-Z-I”) rule. The allowed states of these particles correspond to the Gell-Mann matrices. The TASSO collaboration found the first direct evidence for these particles by using the (*) PETRA collider to generate three-jet events. Possible states of these massless, spin-1 particles include “ r g -bar,” [pause] “ g b -bar,” and “ b r -bar.” These particles exist in a color octet, as the possible ninth state is singlet and would be unconfined, giving the strong force infinite range. For 10 points, name these particles that bind quarks together.**

ANSWER: gluons

<Jonathen Settle, Physics>

2. **In a novel by this author, a 13-year-old character who claims to be deaf in one ear after being struck by lightning twice proves himself to his companions by shooting a hole through a wallet tossed in the air. A character created by this author stabs a *cuchillero* to death during a knife and cafeteria tray fight in prison after discussing the difference between two countries with Perez. In that novel by this author, the protagonist has an affair with Alejandra after running away to (*) Mexico from his dead grandfather’s ranch along with his friend Rawlins. This author created a tall, hairless character who furiously plays the fiddle and proclaims that he will never die after murdering a man in the jakes. For 10 points, name this author who created John Grady Cole in *All the Pretty Horses*, and who wrote about The Kid and Judge Holden in *Blood Meridian*.**

ANSWER: Cormac McCarthy

<Sarah Potts, American Literature>

3. **In a tetrahedral diagram named after this rock, a critical plane of undersaturation separates varieties that have and lack nepheline. On an AFM diagram, this fine-grained rock is produced at the far right ends of the calc-alkaline and tholeiitic (“toh-lye-IT-ic”) series. Picritic varieties of this rock often have zoned phenocrysts of olivine. A kind of geological feature named after this rock forms when a plume head undergoes decompression melting at the base of the (*) lithosphere. The Columbia River Group and the Deccan Traps exemplify that kind of feature created by extensive floods of this rock’s parent magma, which is enriched in magnesium and iron and has less than 52% silica. This extrusive equivalent of gabbro is often formed at mid-ocean ridges. For 10 points, name this dense, mafic rock that makes up most oceanic crust.**

ANSWER: basalt [accept answers containing “basalt” like basalt tetrahedron or flood basalts]

<Shan Kothari, Other Science>

4. A non-Mesopotamian Neolithic “Death Pit” in this country holds 34 bodies from the Linear Pottery Culture. A lion-headed ivory man thought to be the oldest zoomorphic sculpture was found in this country, as was a tiny corpulent Aurignacian figurine with many horizontal striations, often considered the earliest depiction of humans. In 1907, a sand miner here discovered a mandible type specimen that forms the “muddle in the middle” of the Pleistocene, along with a species found in (*) Rhodesia. Eight wooden throwing spears found in this country provided evidence for hunting in Paleolithic Europe, and were used by a subspecies long considered part of *Homo erectus*. The Mauer I jawbone, the Venus of Hohle Fels (“HO-luh FELSE”), and the Schöningen spears were all discovered in this country. For 10 points, name this country, the discovery site of *Homo heidelbergensis*.

ANSWER: Germany [or Deutschland]

<Tracy Mirkin, Other History>

5. A player of this instrument wrote the popular standard “Struttin’ with Some Barbecue.” In 2006, a player of this instrument, Geri Allen, re-recorded a 12-movement work by another player of it depicting that player’s friends grouped by the months of their births. Lil Hardin played this instrument in King Oliver’s band before leaving it to join her husband’s Hot Five. The composer of the *Zodiac Suite*, Mary Lou Williams, played this instrument. A musician played this instrument and a less (*) common one on her album titled for the guru Swami Satchidananda. Early female players of this instrument in Harlem often participated in “cutting contests.” Harpist Alice Coltrane also played this instrument. For 10 points, the singer Nina Simone often accompanied herself on what keyboard instrument?

ANSWER: piano

<Michael Yue, Other Arts>

6. These people’s homes are organized in “homologous oppositions” like “man to woman” according to a structuralist account titled “[this people’s] House, or the World Reversed.” To argue for segmentary lineage theory, Ernest Gellner discussed the authority of this people’s hereditary marabout (“MARE-uh-boo”) saints. The Javanese saint Kalijaga is compared to a saint of this ethnicity named Al-Yusi to analyze “the antipodes (“an-tip-o-deez”) of the Muslim world” in (*) Clifford Geertz’s *Islam Observed*. Pierre Bourdieu worked with the Kabyle subgroup of these people. In 2011, this people’s language, which is written with the Tifinagh script, was elevated to official status by Mohammed VI of Morocco. For 10 points, name this indigenous ethnic group of North Africa.

ANSWER: Berbers [or Amazigh; or Imazighen; accept Kabyle until read; prompt on Moroccans; prompt on Algerians] (The first line is about “Kabyle House, or the World Reversed” by Pierre Bourdieu. The Ernest Gellner work is *Saints of the Atlas*.)

<Nitini Rao, Social Science>

7. One character on this show is given nicknames including “Ovaltine Jenkins” and “Lavender Gooms.” Episodes of this show include a sendup of *Twin Peaks* titled “Dual Spires” and one in which the main characters jump out of an exploding motel into a pool while trying to remember what they did last night. This show’s theme song was performed *a capella* by Boyz II Men for two episodes, and was translated to Spanish for one episode in which a murder on a telenovela set is investigated. NBC’s Peacock streaming service includes a new movie based on this series subtitled (*) “Lassie Come Home.” A pineapple appears in nearly every episode of this show. At this show’s conclusion, the main character follows detective Juliet O’Hara to San Francisco and proposes. Burton “Gus” Guster helps hyper-observant Shawn Spencer investigate often-zany crimes in, for 10 points, what TV show in which Spencer pretends to have a supernatural “gift” as he works with the Santa Barbara police?

ANSWER: Psych

<Sam Botterbusch, Miscellaneous>

8. A character in this work wields a weapon whose “color changed thirty times a day” and is said to contain the spearhead that pierced Jesus Christ within its pommel. That character in this work survives despite having part of his head cut off during a duel with the emir of Babylon, and later kidnaps a woman who changes her name to Juliana after converting to Christianity. This work ends with divine intervention allowing (*) Thierry to defeat Pinabel in a trial by combat, which results in a traitor being torn apart by horses. After initially refusing, the title character of this work blows his oliphant horn to call for aid in the Battle of Roncevaux Pass. For 10 points, name this medieval epic about the death of the title paladin and nephew of Charlemagne.

ANSWER: The *Song of Roland* [or La *Chanson de Roland*]

<Sarah Potts, European Literature>

9. In the first movement of a C-major work by this composer, one cello holds a G while another chromatically descends to transition to the E-flat-major second theme. That chamber work by this composer ends with the whole ensemble playing an unusual D-flat grace note that resolves down to C. This composer added a second violin to the instrumentation of Beethoven’s Opus 20 septet for the instrumentation of his F-major octet. This composer of a C-major string (*) quintet wrote a D-minor string quartet that ends with a *Presto* tarantella and is preceded by this composer’s “Rosamunde” Quartet. The fourth movement of a piano quintet by this composer is a set of variations on one of this composer’s *lieder*. For 10 points, name this composer of the “Death and the Maiden” String Quartet and the “Trout” Quintet.

ANSWER: Franz Schubert

<Michael Yue, Music>

10. The claim that “there is nothing in the world that can do all we ask [this concept] to do for us” appears in a 1985 paper on the “Uncompleted Argument.” In the 1990s, Emmanuel Eze (“easy”) revived interest in Kant’s theories of this concept, which were also studied by a philosopher who described the “epistemology of ignorance” in his book about this type of “contract,” Charles Mills. A paper about “decisions to change [this concept]” by Rebecca Tuvel launched the journal (*) *Hypatia* into a 2017 controversy. Kwame Appiah advocates eliminativism about this concept, which “matters” according to a book by Cornel West. Kimberlé Crenshaw co-founded a field of critical theory concerning, for 10 points, what concept that is based on physical traits like skin color?

ANSWER: race [accept the racial contract or critical race theory]

<Jordan Brownstein, Philosophy>

11. This state is the subject of a revisionist memoir by Fannie Leigh titled for *Ten Years* in this state, a counter to an anti-slavery journal written by her mother, the actress Fannie Kemple. This state hosted America’s largest slave auction, called the Weeping Time. While he worked at her plantation in this state, Catherine Littlefield Greene helped Eli Whitney invent the cotton gin. Soldiers were ordered to discriminate between the (*) rich and poor before a campaign in this state. Henry Wirz was executed for war crimes for running this state’s Civil War-era Andersonville Prison. An order issued after a military event in this state allotted forty acres and a mule for freed families. For 10 points, name this state ravaged by Sherman’s March to the Sea.

ANSWER: Georgia

<Emmett Laurie, American History>

12. Herodotus relates that a diminutive statue of a figure he identified with this deity was copied by the Phoenicians, causing Cambyses II to mock them. This deity was attended by a sem priest who adorned a panther hide while slaughtering a bull; that priest often served as a High Priest and was typically buried at Saqqara. This deity was referred to as he “who listens to prayers” in Deir al-Medina and was later syncretized with a deity of a Primordial Mount, Tatenen. Cows with white (*) triangles on their heads were worshipped as aspects of this deity who was the earliest heralded by the Apis bull. This green-skinned deity was worshipped along with Nefertem and Sekhmet as part of a triad. For 10 points, identify this Egyptian craftsman deity originating from Memphis.

ANSWER: Ptah (“tah”) [accept Hephaestus until “sem” is read]
<NourEddine Hijazi, Belief>

13. This character may reference an innuendo from the song “Fair Phyllis” by singing “up and down, up and down / I will lead them up and down.” After being asked to retrieve an object before “the leviathan can swim a league,” this character promises “I’ll put a girdle round the earth / in forty minutes.” In a monologue, this character asks the audience to “think but this, and all is (*) mended / that you have but slumber’d here / while these visions did appear.” This character uses the love-in-idleness plant to create drama between four young Athenians and to cause Titania to fall in love with a “rude mechanical.” For 10 points, name this speaker of the line “Lord, what fools these mortals be,” a fairy who helps Oberon cause trouble in *A Midsummer Night’s Dream*.

ANSWER: Puck [or Robin Goodfellow]
<Margaret Tebbe, British Literature>

14. A 2016 paper was able to identify these entities under a microscope during an out-of-equilibrium transport of DNA between nanogrooves. In the software *Gaussian*, QST2 or QST3 methods can be used to find these entities for two or three molecule specifications, respectively, both of which are modifications of the STQN method. The transmission constant kappa is one when these entities do not revert to a previous state; that constant appears in the (*) Eyring equation, which is central to the theory of these entities. These entities occur at saddle points of potential energy diagrams, and they most closely resemble the higher-energy stable species that they occur between according to Hammond’s postulate. For 10 points, name these chemical species indicated by a double dagger symbol, which are the highest-energy species that arise in a reaction.

ANSWER: transition states
<Sam Botterbusch, Chemistry>

15. Julian Cobbing argued that this event acted as an alibi for white writers like Robert Moffat to justify white expansion, helping historians like W. C. Holden and G. M. Theal argue for the Empty Land Theory. A debated theory links this event to control of the slave-trading port at Delagoa Bay. The Fengu people became a recognizable group during this event. One group fled Butha-Buthe Mountain for Thaba Bosiu during this event under the leadership of (*) Moshoeshoe I (“mu-SHWAY-shway the first”). This period, whose start is dated to the Battle of Gqokli Hill, was perpetrated by a leader who modernized his empire’s *impi* regiments with the use of the *iklwa* and buffalo horns formation. For 10 points, Lesotho was founded during what period of warfare perpetrated by Shaka’s Zulu Empire?

ANSWER: Mfecane [or Difaqane or Lifaqane or Crushing; prompt on Zulu expansion]
<Emmett Laurie, World History>

16. In the Dionysiaca, this Greek god taught Phoenicians how to build ships and sail to floating islands where they sacrificed an eagle and founded Tyre. Herodotus claims that this deity and his ram-headed father were actually Egyptian in origin. The Egyptian port city Thonis was renamed after this deity, who landed there while visiting a king who nearly sacrificed him. The founder of Pallantium, Evander, worshipped the Roman equivalent of this deity for killing (*) Cacus and introduced his cult to Aeneas. This deity who killed King Busiris was syncretized with the Phoenician god Melqart. To atone for the murder of Iphitus, he served the Lydian queen Omphale for a year as a slave. Alcmena was the mother of, for 10 points, what deity who traveled the ancient world during his 12 Labors?

ANSWER: Heracles [do not accept or prompt on “Hercules”; accept syncretized deities like Heracles-Melqart; accept “Starclad” as he’s referred to in the Dionysiaca]

<NourEddine Hijazi, Belief>

17. Helmuth Bossert discovered the Azatiwada bilingual inscription in this region, which in antiquity was divided into a *Trachea*, or “rugged” west, and a *Pedias*, or “flat” east. The traitor Quintus Labienus was executed by Publius Ventidius Bassus following a 39 BC battle named for a pass connecting this region to a northern plateau. European Crusaders strongly supported a kingdom founded in this region by the offshoot Rubenid dynasty following the Seljuk invasion of Armenia. While travelling to Rhodes to study under Apollonius Molon in 75 BC, a statesman was (*) imprisoned by a group based in this region, before requesting a greater ransom and promising to eventually crucify his captors. The passing of the *Lex Gabinia* would later allow Pompey to suppress that Mediterranean group in just three months. For 10 points, name this region of southeastern Anatolia whose namesake pirates kidnapped Julius Caesar.

ANSWER: Cilicia [accept Cilician pirates; accept Battle of the Cilician Gates or Armenian Kingdom of Cilicia; prompt on Anatolia or Asia Minor or Turkey; prompt on the Mediterranean coast; prompt on Karatepe; prompt on Mersin, Adana, Osmaniye, or Hatay provinces; do not accept or prompt on “Sicily” or “Sicilian”]

<Tracy Mirkin, European History>

18. This medium was used for an artwork depicting a huge Padmapani (“pud-MUH-pun-ee”) with a lotus that looks down at the viewer at a site studied by Walter Spink. The contrast between brown-skinned men and pale women in a culture’s art is shown in a fragment in this medium called *La Parisienne*. Akhenaten removed the name “Amun” from an artwork in this medium that is part of a series that includes the “fowling scene” fragment. The first landscapes without humans were created in this medium by a culture that also used it for a largely-blue depiction of the (*) bull-leaping ritual. The Ajanta caves, Tomb of Nebamun, and many Minoan artworks were painted using this technique, which has *buon* and *secco* types. For 10 points, name this technique also used by Renaissance artists in which paint is applied to wet plaster.

ANSWER: frescoes [prompt on cave paintings, wall paintings, or murals by asking “what technique was used to create them?”]

<Aseem Keyal, Painting>

19. Marine animals with this trait have a greater burst speed, which may explain why they show an inverse latitudinal diversity gradient. It’s not related to dehydration, but in fossils, nasal turbinates are a reliable indicator of this trait. Shark and tuna species with this trait can migrate over larger ranges, and they achieve this trait using slow-twitch red muscle and (*) countercurrent exchangers. Robert Bakker used the dense vasculature of dinosaurs’ bones as evidence that they had this trait. Animals with this trait have nearly constant metabolic rates throughout the thermoneutral zone and consume several times more oxygen than those without it. Birds and mammals are the largest extant clades with this metabolic trait. For 10 points, name this trait in which animals generate heat to regulate their temperature.

ANSWER: endothermy [accept homeothermy; accept warm-bloodedness; accept mesothermy]

<Shan Kothari, Biology>

20. A popular protest poem in this language begins “We will see / It is inevitable that we too will see.” An astronaut aboard Soyuz T-11 recited a couplet in this language from the collection *The Call of the Marching Bell* in 1984. Coke Studio often broadcasts songs written by the “father” of this language, the 14th-century poet Amir Khusrow who also developed the (*) qawwali genre. Faiz Ahmed Faiz wrote primarily in this language. The patriotic poem “Saare Jahan Se Achha” (“saw-ray ja-hahn say utch-chaw”) was written in this language by Muhammad Iqbal. It’s not Persian, but Mirza Ghalib competed in *mushairas* held in this language at the Mughal court. For 10 points, name this language that is mutually intelligible with Hindi, the official language of Pakistan.

ANSWER: Urdu [accept Hindi until read; or Hindustani; or Hindi-Urdu] (The poem in the first line is Faiz Ahmad Faiz’s “Hum Dekhenge” (“We Will See”).)

<Nitin Rao, World Literature>

Bonuses

1. Answer the following about depictions of the Japanese custom of teeth blackening in literature, for 10 points each.

[10e] Taira no Atsumori's youth is emphasized by his blackened teeth in a popular story from the *Tale of Heike* that was adapted into many plays in this classic Japanese form, in which actors wear stylized masks.

ANSWER: **noh**

[10h] The title eccentric neglects to blacken her teeth in a Heian-era story titled for the "Lady who Loved [these things]." In Kobo Abe's *The Woman in the Dunes*, the protagonist is collecting these things when he becomes trapped with the title character.

ANSWER: **insects** [accept **bugs** or **beetles**]

[10m] Misako thinks of O-Hisa's archaic habit of teeth-blackening as "filthy and barbarous" in this Japanese author's novel *Some Prefer Nettles*.

ANSWER: Junichiro **Tanizaki**

<Jordan Brownstein, World Literature>

2. *Description acceptable*. Multiple passages in 1 Kings and 2 Chronicles implicitly support this requirement following instances of "Israel having been defeated by an enemy because they have sinned against" the Lord. For 10 points each:

[10h] Identify this requirement that Jews fulfill with respect to the mizrah ("meez-RAHKH").

ANSWER: **facing Jerusalem** while praying [accept **Holy Land** or **Holy of Holies** in place of "Jerusalem"; prompt on **facing Israel**; prompt on **facing east**]

[10m] The Talmud gives different locations to pray towards given a Jew's current location. For those on the Temple Mount, they should face this inner sanctuary of the Tabernacle partitioned by a large veil.

ANSWER: **Holy of Holies** [or **Kodesh Hakkodashim**]

[10e] In synagogues, these objects that hold Torah scrolls are placed so that those who face them are facing Jerusalem. These objects gained their function from one "of the Covenant" which held the tablets of the Ten Commandments.

ANSWER: **arks** [or **aron**; or **aronot**]

<NourEddine Hijazi, Belief>

3. Myrcene and humulene are simple examples of these compounds. For 10 points each:

[10h] Name these unsaturated hydrocarbons derived from isoprene. Other examples of these compounds include limonene and pinene.

ANSWER: **terpenes**

[10m] This 30-carbon triterpene is an important precursor to steroid hormones and cholesterol. It is synthesized biologically from two FPP molecules.

ANSWER: **squalene**

[10e] Isoprene contains two of these functional groups. This functional group consists of a carbon-carbon double bond.

ANSWER: **alkene**

<Sam Botterbusch, Chemistry>

4. This region gives its name to a breed of cattle with the longest hair of any cow. For 10 points each:

[10m] Name this geographic region that begins at a namesake “boundary fault” stretching from Arran to Stonehaven.

ANSWER: Scottish **Highlands** [accept **Highland** Boundary Fault; accept **Highland** cattle; prompt on **Scotland**; do not accept or prompt on “Britain” or “United Kingdom”]

[10h] The Cuilinn (“KOO-lin”) range dominates this island off the Highland coast which is famous for the Quiraing (“kwih-RAHNG”) landslip and the Old Man of Storr at Trotternish.

ANSWER: Isle of **Skye**

[10e] This loch known for its monster lies in the Great Glen of the Scottish Highlands.

ANSWER: Loch **Ness**

<Nitin Rao, Miscellaneous>

5. After the Affair of the Diamond Necklace, a cabinet was included alongside an empty crib in a portrait of *Marie Antoinette and Her Children* as a possible reference to this historical figure. For 10 points each:

[10h] Name this historical figure. A different female artist and co-founder of the Royal Academy depicted this figure looking down at a seated visitor who holds up a necklace.

ANSWER: **Cornelia** (The jewel cabinet was supposed to show Marie Antoinette’s concern for family over wealth.)

[10m] *Marie Antoinette and Her Children* was painted by this portraitist, who depicted herself in *Self-Portrait in a Straw Hat*. The queen’s patronage of this artist led to this artist’s exile after the French Revolution.

ANSWER: Élisabeth **Vigée Le Brun** [prompt on partial answers]

[10e] The artist of *Cornelia Pointing to Her Children as Her Treasures*, Angelica Kauffman, was a member of this artistic movement. Jacques Louis-David’s paintings exemplify this 18th-century rediscovery of Greco-Roman art.

ANSWER: **Neoclassicism** [or word forms]

<Aseem Keyal, Painting>

6. The title of Attila József’s poem “No, No, Never!” served as an unofficial irredentist motto in this country, which was controlled by Count Bethlen’s Unity Party from 1922 to 1944. For 10 points each:

[10e] Name this country. Miklós Horthy (“MIK-losh HORE-tee”) led this country for most of the interwar period, after it ended its union with Austria in 1918.

ANSWER: **Hungary** [or **Magyarország**; accept Kingdom of **Hungary**; accept Austria-**Hungary**]

[10m] With Sándor Garbai, this man made Hungary into the world’s second socialist state in 1919. Tibor Szamuely’s Lenin Boys helped carry out his “Red Terror” before a nearing Romanian army led him to flee to Austria.

ANSWER: Béla **Kun** [or Béla **Kohn**]

[10h] On the fourth attempt, a man with this last name was fatally shot during the 1918 Aster Revolution after serving as Hungary’s wartime prime minister. His father Kálmán established Magyar hegemony and founded the Liberal Party while prime minister from 1875 to 1890.

ANSWER: **Tisza** [accept István **Tisza** or Stephen **Tisza**; accept Kálmán **Tisza** or Coloman **Tisza**]

<Tracy Mirkin, European History>

7. Answer the following about how light is manipulated in the design of Gothic cathedrals, for 10 points each.

[10h] The Rayonnant, or radiant, style of Gothic architecture climaxed with this cathedral on the Île de la Cité (“eel duh la see-TAY”). Thin tracery links the tall windows of this cathedral, which had its blue, star-dotted ceiling added in a later restoration.

ANSWER: **Sainte-Chapelle**

[10e] A common feature of Gothic cathedrals were elaborate, multicolored rose windows depicting Biblical narratives. The three rose windows of this cathedral also on Paris’s Île de la Cité survived a devastating fire in 2019.

ANSWER: **Notre-Dame** de Paris

[10m] An early innovation in the use of light was the design of this Gothic cathedral. For this cathedral, Abbot Suger (“soo-ZHAIR”) used lightweight rib vaulting in the ambulatory so that walls weren’t required between its radiating chapels.

ANSWER: Basilica of **Saint-Denis**

<Aseem Keyal, Other Arts>

8. Many of Joseph Wright of Derby’s paintings depicting scientific discovery, including *An Experiment on a Bird in the Air Pump*, were based on the meetings of this society. For 10 points each:

[10h] Name this intellectual society that was at the center of the Midlands Enlightenment. Its prominent members included Erasmus Darwin and Matthew Boulton.

ANSWER: **Lunar Society** of Birmingham

[10e] Boulton founded a firm to make steam engines with this member of the Lunar Society, who improved Thomas Newcomen’s atmospheric engine by adding a condensing cylinder. This engineer names the SI unit for power.

ANSWER: James **Watt**

[10m] The Lunar Society began to fall apart after a set of 1791 riots that targeted religious Dissenters, particularly this Unitarian theologian. This proponent of phlogiston theory first isolated what he called “dephlogisticated air.”

ANSWER: Joseph **Priestley** [accept **Priestley** riots]

<Shan Kothari, Other Science>

9. A biographer of this man admitted to making up the detail that his legs were too short for his body, but claimed that they “ought to have been.” For 10 points each:

[10h] Name this classics-obsessed schoolmaster who is pilloried in one of a set of four biographies published in 1918. His son argued that exposure to the “best which has been thought and said” helps create “sweetness and light.”

ANSWER: Thomas **Arnold** (the father of Matthew Arnold)

[10m] Lytton Strachey, who profiled Thomas Arnold in *Eminent Victorians*, was a member of this collective of intellectuals in early 20th-century London that “lived in squares, painted in circles, and loved in triangles.”

ANSWER: **Bloomsbury** Group

[10e] The Bloomsbury Group also included this author of “A Room of One’s Own” and *Mrs. Dalloway*.

ANSWER: Virginia **Woolf**

<Margaret Tebbe, British Literature>

10. A man competing for his wife at a swayamvara must strike the eye of one of these animals attached to a spinning wheel with an arrow. For 10 points each:

[10m] Name these animals, one of which named Matsya warns Manu of an impending flood.

ANSWER: **fish**

[10h] That instance of swayamvara involved Draupadi marrying the Pandavas. Krishna protected her with an infinitely long sari when this second eldest Kaurava tried to pull it off.

ANSWER: **Dushasana**

[10e] The rivalry between Draupadi's husbands, the Pandavas, and their enemies, the Kauravas, is detailed in this Indian epic penned by Vyasa.

ANSWER: **Mahabharata**

<NourEddine Hijazi, Belief>

11. The poetic term *Yuefu* ("y'weh-foo") derives from the Music Bureau established by this Emperor, which was run by his lover and former dog-breeder Li Yannian. For 10 points each:

[10m] Name this long-serving Emperor who embraced Confucianism. Sima Qian ("suh-mah chee-EN") wrote the *Records of the Grand Historian* under this Emperor.

ANSWER: **Wu** of Han [or Han **Wudi**]

[10e] The oldest recorded Chinese song is the *Jieshi Diao Youlan* ("j'yeh-shurr d'yao yo-lahn"), which was recorded during this dynasty. An anthology of 300 poems from this dynasty include those written by Du Fu.

ANSWER: **Tang** Dynasty

[10h] The Music Bureau's activity is detailed in the work of a historian from this family, who collaborated with his sister on the *Book of Han*. His sister from this family, the first female Chinese historian, wrote *Lessons for Women*.

ANSWER: **Ban** [accept **Ban** Gu or **Ban** Zhou]

<Emmett Laurie, World History>

12. As a composer, this musician is mainly known today for the 121 sonatas and four concertos he wrote for his instrument, which are occasionally recorded with Franz Benda's four concertos written for him. For 10 points each:

[10h] Name this early virtuoso who premiered many of his teacher Johann Joachim Quantz's works. C. P. E. Bach accompanied this musician on harpsichord in his first solo performance.

ANSWER: **Frederick the Great** [or **Frederick II**; or **Friedrich II** or **Friedrich der Grosse**; prompt on **Frederick** or **Friedrich**]

[10m] Frederick the Great provided the highly chromatic theme that J. S. Bach used as the basis for this large keyboard work, which includes a "Ricercar a 6."

ANSWER: *The **Musical Offering*** [or ***Musikalisches Opfer***; or *Das **Musikalische Opfer***; or **BWV 1079**]

[10e] In one of its movements, *The Musical Offering* uses Frederick the Great's theme to create a famous example of the "crab" variety of this type of work. Johann Pachelbel attached a gigue ("jeeg") to his one of these works in D.

ANSWER: **canon** [accept crab **canon**]

<Michael Yue, Music>

13. A collection of essays in this language reflects on the author's experience in New York watching media coverage of ethnic cleansing in her homeland. For 10 points each:

[10m] Name this language of *American Fictionary*. The author of *The Bridge on the Drina* is the only writer in this language to win the Nobel Prize in Literature.

ANSWER: **Serbo-Croatian** [or **Serbo-Croat**-Bosnian; or **Serbian**; or **Croatian**; or **Bosnian**] (Dubravka Ugrešić wrote *American Fictionary*. Ivo Andrić wrote *The Bridge on the Drina*.)

[10h] The title story of this collection written in Serbo-Croatian relates a scholar's experience reading about her father's life in a book with the biographies of every ordinary person who has lived since 1789.

ANSWER: ***Encyclopedia of the Dead*** [or ***Enciklopedija mrtvih***]

[10e] Another reference book-inspired work of Balkan fiction, Milorad Pavić's *The Dictionary of the Khazars*, begins with a book titled for this color. Stendhal's novel about Julien Sorel is titled for this color and black.

ANSWER: **red** [or ***le rouge***]

<Nitin Rao, European Literature>

14. Edward Bernays's "Torches of Freedom" advertising campaign attempted to encourage women to flaunt taboos and use these items in public. For 10 points each:

[10e] Name these items whose brands include Camel and Marlboro.

ANSWER: **cigarettes** [or **cigs**]

[10h] Among those involved in the campaign was Ruth Hale, the founder of an organization named for this woman that fought for legal recognition of a woman's right to keep her own last name. This woman began publishing the *Women's Journal* as leader of the AWSA.

ANSWER: Lucy **Stone**

[10m] This company, which makes Marlboro and L&M, introduced the Virginia Slims brand to market cigarettes to women. This company sued Australia and Uruguay over anti-smoking measures.

ANSWER: **Philip Morris** [or **Altria**]

<Emmett Laurie, American History>

15. Answer the following about quantum mechanical operators with a certain nice property, for 10 points each.

[10m] Name this property that an operator has if the operator's matrix equals its conjugate transpose.

ANSWER: **Hermitian** [or **self-adjoint**]

[10e] Hermitian operators are nice for two reasons: their eigenvalues are real, and their eigenfunctions have this property. Two vectors have this property if their dot product is zero.

ANSWER: **orthogonal** [or **orthogonality**; accept **perpendicular**]

[10h] Since a basis with this property is given by the eigenfunctions of a linear and Hermitian operator, any wavefunction can be written as a linear combination of those eigenfunctions.

ANSWER: **complete**

<Jonathon Settle, Physics>

16. The Machina triangle, which allows one to make arguments about risk preference over three potential lotteries, is used in the study of this concept's "expected" form. For 10 points each:

[10e] Identify this term that, in economics, refers to the enjoyment or satisfaction a consumer derives from a good or set of goods.

ANSWER: **utility**

[10h] The Machina triangle assumed that the utility functions take a form named for these two thinkers which allows one to sum over all possible lotteries. Four axioms named after these two men include completeness, transitivity, continuity and independence.

ANSWER: **von Neumann–Morgenstern** utility [accept **VNM** utility function or **VNM** axioms; accept John **von Neuman** AND Oskar **Morgenstern**]

[10m] Notable Machina-hater Maurice Allais names a paradox which gave rise to this general class of economic theories of Amos Tversky, Daniel Kahneman, and others. This theory attempts to reconcile expected utility theory with experimental and behavioral evidence.

ANSWER: **prospect** theory

<Harris Bunker, Social Science>

17. The enslaved person Onesimus introduced the technique of inoculating against this disease to Cotton Mather, who helped spread it throughout Boston. For 10 points each:

[10e] Name this disfiguring disease. The World Health Organization announced that this disease had been eradicated in 1980.

ANSWER: **smallpox** [or **variola** major; or **variola** minor]

[10h] The Supreme Court upheld the authority of states to enforce compulsory vaccination in this 1905 case brought by a Swedish pastor in Cambridge who believed his family was allergic to the smallpox vaccine.

ANSWER: **Jacobson v. Massachusetts**

[10m] This English aristocrat introduced smallpox inoculation to Britain after traveling through the Ottoman Empire. This woman's *Letters* are an important source on the harem and women in Turkish society.

ANSWER: Lady Mary Wortley **Montagu** [or Mary **Pierrepoint**]

<Nitini Rao, Other History>

18. John Earman argued that a philosopher's attempt to provide "an everlasting check to all kinds of... delusion" by disproving these events was an "abject failure." For 10 points each:

[10m] Name these events that no report could be adequate to establish the occurrence of according to an argument found in David Hume's *Enquiry Concerning Human Understanding*.

ANSWER: **miracles**

[10h] Hume's "Of Miracles" introduced the "anti-reductionist" approach to this epistemological topic. Miranda Fricker has theorized a type of injustice in which this act of reporting knowledge is undermined due to bias.

ANSWER: **testimony** [or **testimonial** injustice; or the epistemology/philosophy of **testimony**; accept **testifier** or **testifying**; do not accept or prompt on other synonyms]

[10e] Hume's other epistemological work includes his argument against the justification of belief by this type of reasoning, which reaches conclusions based on prior pieces of evidence, in contrast to deduction.

ANSWER: **induction** [or **inductive** reasoning]

<Jordan Brownstein, Philosophy>

19. Elevated levels of enzymes like aspartate and alanine aminotransferases may indicate a risk of injury to this organ according to Hy's law. For 10 points each:

[10m] Name this organ where bilirubin is conjugated with glucuronic acid.

ANSWER: **liver**

[10h] This standard panel made up of 14 blood tests differs from a similar "basic" panel by including liver enzymes and bilirubin. Informally called a chemical screen, this panel measures various proteins and electrolytes to measure kidney and liver function.

ANSWER: **comprehensive metabolic** panel [or **CMP**; prompt on **Chem 14**]

[10e] This cation ("cat-ion") is among the electrolytes measured in a CMP, and is exchanged with potassium in a well-known enzymatic pump. Excessive intake of this electrolyte is linked to high blood pressure.

ANSWER: **sodium** [accept **Na+**]

<Sam Botterbusch, Biology>

20. In this poem, a man sleeps "like a rock or a man that's dead" after the narrator observes "The stars went out and so did the moon." For 10 points each:

[10m] Name this poem that describes a musician "Droning a drowsy syncopated tune, / Rocking back and forth to a mellow croon." This poem centers on a man who makes a "poor piano moan with melody" "with his ebony hands on each ivory key."

ANSWER: "The **Weary Blues**"

[10e] "The Weary Blues" is one of the many music-inspired poems by this Harlem Renaissance author who also wrote "The Negro Speaks of Rivers."

ANSWER: Langston **Hughes** [or James Mercer Langston **Hughes**]

[10h] A female Harlem Renaissance author and Civil Rights activist with this surname used a line from Hughes for the title of her memoir *Song in A Weary Throat* and wrote the recently-republished poetry collection *Dark Testament*. An unrelated poet with this surname wrote the collection *Subhuman Redneck Poems*.

ANSWER: **Murray** [accept Pauli **Murray** or Les **Murray**]

<Taylor Harvey, American Literature>