2021 ACF Nationals
Packet 8 by the Editors
Edited by Matt Bollinger, Jordan Brownstein, Andrew Hart, Ike Jose, Jack Mehr, Eric Mukherjee, Derek So, Jerry
Vinokurov, Ryan Westbrook, and Jennie Yang

Tossups

1. A figure named Aibell ("EE-val") appeared to warn this man of his death and tell him which child of his should
rule after him. He uses a bridle made of three tail-hairs to subdue a creature, and makes it promise not to harm
Christians unless they are drunk or hurting others, in a story in which he becomes the only man to ride a Puca fairy.
He imprisoned his wife Gormflaith when she threw his tunic into the fire, after he had subjugated her son Sitric
Silkenbeard. After he died, his son Donnchad gifted his most famous possession to Pope Urban II, and it stayed at
the Vatican until Leo X used it to proclaim Henry VIII to be Defender of the Faith; that harp is now called the
Trinity College Harp. Too old to take the field, he was hacked to death in his tent, trying to prevent the rebellion of
Leinster at the Battle of Clontarf. For 10 points, name this great High King of Ireland whose rule began in 1002 CE.
ANSWER: **Brian Boru** [or O'**Brien**]

2. Actors perform a version of this play with on-stage TVs playing Japanese horror films in the Wooster Group
production *Brace Up*. A woman in this play tearfully hums the opening lines to *Ruslan and Lyudmila* in moments of
distress. After a man in this play opines that life will be the same in a million years, a woman replies that it is
"empty" to live without knowing "why the cranes are flying." In this play, a Lermontov wannabe compulsively
perfumes his hands and kills his friend Baron Tusenbach in the final act when their duel goes awry. News of a fire
that nearly destroys the Vershinins' house opens Act III of this play, which, like Act II, ends with a character futilely
longing to move to Moscow. This play begins at a name day celebration for Irina a year after the death of her father.
For 10 points, name this tragicomic Anton Chekhov play about the siblings Irina, Olga, and Masha.
ANSWER: *Three Sisters* [or *Tri Sestry*]

3. When analyzing this kind of data, using an inappropriate scale can lead to the MAUP ("M-A-U-P") error. A form
of interpolation commonly used on data of this type uses a random function that is stationary in its first and second
moments. CSR is a null hypothesis for point pattern analysis performed on data of this type. Moran's *I* and
variograms are used to study autocorrelation in this kind of data, which is often interpolated using kriging
("KRIGG-ing"). The GDAL library is used to manipulate data of this type, which can be combined with attribute
data in overlay analysis. An SRID number identifies reference systems for this type of data, which includes WGS84.
Shapefiles are used to store this type of data, which can be summarized using choropleths ("COR-uh-pleths"). For
10 points, name this kind of data handled by the ESRI software package ArcGIS ("arc-G-I-S"), which represents
geographic features.
ANSWER: geo**spatial** data [accept **map**s, **location**, or **areal** data; accept **GIS** until "ArcGIS" is read; accept
geographic data until "geographic" is read]

4. A member of this family named Allan was depicted wearing a red tie in the portrait *Boy with a Butterfly Net*. Upon seeing a portrait in the Grand Palais, another member of this family called it the "nastiest smear of painting" he had ever seen. This family included Christian Scientists Michael and Sarah, who commissioned Le Corbusier to design a Parisian villa named for them. Members of this family purchased the portraits *Woman with a Hat* and *The Green Stripe*. Another member of this family is depicted with a smooth, long nose in a portrait inspired by the artist's trip to Osuna to see primitive Iberian sculpture. This family included the collector Leo, as well as his sister, whose face was depicted in an "angular" painting from the artist's "Rose Period." For 10 points, Henri Matisse and Pablo Picasso were patronized by what family that included the salon host Gertrude?
ANSWER: **Stein** family [accept Gertrude **Stein** or Leo **Stein**]

5. Philip Brett produced two editions of a pair of pieces by this composer for SSATB and ATTBB choir. A piece by this composer for six-part choir has alternating solo sections for nine soloists; that antiphon is *Gaude gloriose Dei Mater*. This composer wrote 17 pieces for a collection, including two *Salvator Mundi* and a seven-voice *Miserere Nostri*. An *a cappella* ensemble called this composer's "Scholars" was founded by Peter Phillips. This composer began each verse with a Hebrew letter in five-voice settings of the first two lessons of the Tenebrae; those are the two *Lamentations of Jeremiah*. This composer collaborated with a student on the motet collection *Cantiones sacrae*. One of this composer's contributions to Archbishop Parker's Psalter is the Phrygian ("FRIDGE-ee-in") melody "Why fum'th ("FYOOM-ith") in fight." For 10 points, name this English Renaissance composer of *Spem in alium* who inspired a *Fantasia* by Ralph Vaughan Williams.
ANSWER: Thomas **Tallis**

6. A volume edited by Yujin Nagasawa and Daniel Stoljar compares this place to Richard La Croix's Paradox of Eden. Howard Robinson used the term "Jericho method" to deride a thinker who imagined a "standard Mark 19 robot" in this place and used an example in which this place's operators attempt to play a trick with a weird banana. The example of "tasting Vegemite" is used throughout a David Lewis paper that offers the "ability hypothesis" response to an argument about this place. In a 1992 "postscript," a thinker rejected the anti-physicalist conclusions about this place that he had earlier offered in the 1982 paper "Epiphenomenal Qualia." Upon leaving this place, a person learns something new about a phenomenon that she had already possessed all physical information about. For 10 points, what black-and-white location is inhabited by a color scientist in a thought experiment by Frank Jackson?
ANSWER: **Mary**'s **room** [accept any answers indicating the **room** inhabited by **Mary**, the super-scientist; or the **room** from the **knowledge** argument; prompt on the room] (The Robinson paper responds to Daniel Dennett's take on Mary's room.)

7. Neil McKeown et al. developed a class of materials for producing these structures called PIMs that contain spirocyclic linking groups. An inorganic particle phase is embedded in an organic polymeric phase in the "mixed-matrix" variety of these structures. The tradeoff between selectivity and efficacy in these structures creates their Robeson limit. By maintaining a pressure gradient, a mixture of gases will diffuse at different rates through one of these structures in a common method of gas separation. PDMS is used to create one of these structures found in ECMO machines. Regenerated cellulose is used to make one of these things whose pore size gives a molecular weight cutoff; that example of these things is used for dialysis. For 10 points, solutes are removed by forcing water through a semipermeable example of what structures in reverse osmosis?
ANSWER: **membrane**s [or gas separation **membrane**s; or semipermeable **membrane**s; or selectively permeable **membrane**s; do not accept or prompt on "proton exchange membranes" or "PEMs"]

8. A carpenter's son with this last name gained political favor by having his daughter Albine marry the son of Marshal Michel Ney. That founder of the Caisse Générale ("kess jay-nay-RALL") led the "Party of Movement," which was opposed by the "Party of Order" of his rival Casimir Perier. Another man with this last name, once considered to be the brother of Dominique Youx, allegedly operated out of a "Blacksmith Shop" owned by his comrade Renato Beluche; that building later became the oldest gay bar in the United States. A banker with this last name had a ministry that ousted Charles X during France's July Revolution. A man with this last name founded the outpost of Campeche on Galveston Island after being forced to leave Barataria Bay where he ran a smuggling operation with his brother Pierre. For 10 points, the pro-American sea raids during the Battle of New Orleans were led by a pirate with the first name Jean and what last name?
ANSWER: **Lafitte** [accept Jacques **Lafitte** or Pierre **Lafitte** or Jean **Lafitte**]

9. Carl Gutierrez is credited with saving the lives of several people after an incident involving this company. In a CFIT ("see-fit") incident involving this company, failure of the glide slope and a lack of CRM training led its employees to miss terrain changes around Nimitz Hill. An incident involving this company killed the second president of the John Birch Society, Larry McDonald. The crash of this airline's Flight 801 led Malcolm Gladwell to develop his controversial "cultural theory of plane crashes" in *Outliers*. A former vice president of this company forced a crew chief to kneel while she smacked him with a tablet in the "nut rage" incident. A nuclear false alarm incident in 1983 occurred 3 weeks after this airline's Flight 007 was shot down by Soviet forces over Kamchatka. This airline is the majority holding of the Hanjin group, a large *chaebol* ("cheh-ball"). For 10 points, name this national airline based in Seoul.
ANSWER: **Korean Air** Lines [or **KAL**; prompt on **Korean**; prompt on **Hanjin** until read; do not accept or prompt on "Air Korea" or "Air Koryo"]

10. An early governor of this colony employed Jacob Jacobsen to use this colony's wood to build a namesake boat with a mast and rigging system now named for Marconi. A village named in honor of this colony gave its name to a military campaign that began at Port Walthall Junction and included fights at Ware Bottom Church and Proctor's Creek. A merchant from this colony, Colonel Henry Tucker, arguably saved the American Revolution by concocting a secret plan with Ben Franklin to steal all of the gunpowder in a raid on this place. In 1946, an "Air Services Agreement" between the British and US named for this island was the first bilateral air transport treaty. Benjamin Butler was defeated by P. G. T. Beauregard at the village in Virginia named for this island and its "hundred." For 10 points, name this colony, where Flight 19 mysteriously disappeared in 1945 over its so-called "Triangle."
ANSWER: **Bermuda**

11. In an essay, this author juxtaposes the images of a 70-year-old man visiting his mother before he can die in peace and a young boy bursting into tears while reading "On Receipt Of My Mother's Picture." While examining marriage in that essay, this author quotes Manzoni's dedication in the *Adelchi* and a poem about a Thomas Crawford statue. This author led a series of lectures in Boston called "Conversations" and wrote about interacting with the Ottawa and Chippewa tribes while traveling the Midwest in *Summer on the Lakes*. This author praised her father's strict study regimen in a work representing herself as Miranda titled "The Great Lawsuit." Upon this author's death by shipwreck, Ralph Waldo Emerson wrote "I have lost in her my audience." For 10 points, name this author of *Woman in the Nineteenth Century*, an early feminist who was the first editor of the Transcendentalist journal *The Dial*.
ANSWER: Margaret **Fuller** [or Sarah Margaret Fuller **Ossoli**]

12. An activating mutation in a protein that promotes this process, VG5Q, may cause Klippel–Trenaunay syndrome. Inhibitors of this process, which was studied by Judah Folkman, are screened for with Kubota's tube formation assay. One mediator of this process binds to Tie2, which is inhibited by regorafenib. A regulator of this process upregulates delta-like 4 ligand on tip cells. It's not metastasis ("muh-TASS-tuh-siss"), but one assay for this process involves injecting a matrigel ("MAY-trih-jell") plug into a mouse. A fragment of collagen 18 called endostatin inhibits this process. Another assay for it implants a test compound into a corneal pocket. Inhibitors of this process are injected intravitreally to treat wet macular degeneration. This process's namesake "switch" is induced by upregulation of HIF-1 in hypoxia, leading to increased VEGF ("vej-F") in tumors. For 10 points, name this process that forms new blood vessels from old ones.
ANSWER: **angiogenesis** [prompt on answers like "<u>making new blood vessels</u>"; do not accept or prompt on "vasculogenesis"]

13. Eve Kosofsky Sedgwick compared this character to the subjects of a Victorian case history about "Onanism" in an essay on her creator "and the Masturbating Girl." This character puts down a suitor for his listless recitation of William Cowper ("cooper") and tells her mother she could never marry a man whose "taste did not coincide with [her] own." In London, this character receives a letter from her crush returning a lock of hair she gave him and informing her of his engagement to Sophia Grey. While staying with the Palmers at Cleveland, this character develops an alarming fever from taking restless evening walks in the rain. This character ultimately gets engaged to the older Colonel Brandon after being cruelly dumped by the immoral John Willoughby. For 10 points, name this high-spirited sister of Elinor Dashwood in Jane Austen's *Sense and Sensibility*.
ANSWER: **Marianne** Dashwood [or **M**arianne **Dashwood**]

14. A musical style from this country is characterized by a tied bassline that introduces the harmony of the following bar, called its "anticipated bass." George Balanchine's "Theme and Variations," set to Tchaikovsky's *Suite No. 3 for Orchestra*, was originally choreographed for Ivan Youskevitch and a prima ballerina from this country. Tenor Billy Murray popularized a version of an Irving Berlin song inspired by Prohibition, titled "I'll See You In" this country. This country's national ballet school, the world's largest, is named for a blind dancer renowned for her interpretation of *Giselle*, Alicia Alonso. In a scene set in this country, Sky Masterson gets a woman drunk on "dulce de leche" cocktails in *Guys and Dolls*. For 10 points, name this country whose conga music was popularized after a series of Desi Arnaz ("DEZ-ee ar-NEZ") concerts in Miami.
ANSWER: **Cuba**

15. A scholar from this country coined the pejorative term "Protestant Buddhism" for its local religious customs. A sutra set in this country integrated "buddha-nature" into Yogacara ("yo-ga-CHA-ruh") doctrine by equating it with "storehouse-consciousness." A Buddhist revival in this country was led by the American Civil War colonel Henry Steel Olcott. During the Esala Perahera festival, elephants parade in honor of an item that Princess Hemamali smuggled to this country in her hair. A footprint-like mark that Buddhists attribute to the Buddha and that Muslims attribute to Adam can be found near the top of "Adam's Peak" in this country. Ashoka's son Mahinda converted this oldest continuously Buddhist country, which reveres the Tooth of the Buddha. For 10 points, name this country whose 26-year civil war erupted from tensions between Hindu Tamils and its Buddhist Sinhalese majority.
ANSWER: **Sri Lanka** [or the Democratic Socialist Republic of **Sri Lanka**; or **Ceylon**]

16. This man abandoned his last post after three of his children, Charlotte, Leopold, and Marsden, died there in the span of a year. Contacts of this man include the botanist Thomas Horsfield, who established a museum perpetuating his legacy, as well as his engineer Philip Jackson, who helped him draw up "five-foot ways" for one of his urban designs. Though he was nearly bankrupt at the time, late in life he worked with Sir Humphry Davy to found the London Zoo. This man abolished the practice of slavery in the residency of Bencoolen, and wrote a widely-acclaimed *History of Java*; that work inspired a naturalist to name a genus of enormous parasitic flowers after this man. He chose the remains of the ancient city of Temasek as the location of a new trading post in the Straits Settlements. For 10 points, name this British governor of the Dutch East Indies who founded Singapore.
ANSWER: Stamford **Raffles** [or Thomas **Raffles**] (The genus is *Rafflesia*.)

17. In a story by this author, the narrator's neighbor tells her only "modern young girls have to say it" when she reveals she never told her husband that she loved him. The arms smuggler Alfred Judah lusts after Clovis Ransome's wife in the title story of a collection by this author. This author wrote the book *The Sorrow and the Terror* with Clark Blaise, the basis of a story where a woman wades into a bay in Ireland and speaks to a couple on behalf of the social worker Judith Templeton. In a novel by this author, a girl kills the ship captain Half-Face before settling down in Iowa with the wheelchair-bound banker Bud Ripplemayer. That novel by this author is based on a story about a young maid from her collection *The Middleman and Other Stories*. For 10 points, name this Canadian author of Bengali origin who wrote the oft-anthologized story "The Management of Grief" and the novel *Jasmine*.
ANSWER: Bharati **Mukherjee**

18. This ruler is the subject of a clay tablet found at Gherla in northern Transylvania, where he may have built a small palace. On one campaign, he gave a strap of leather tied into sixty knots to a group of tyrants, instructing them to untie one knot each day and then sail home, and he received a herald who ominously brought four gifts: a bird, mouse, frog, and five arrows. He employed Mandrocles of Samos to build a pontoon bridge system with a road anchored over a bunch of ships on his campaign against the Scythians. After his retreat, he rewarded the tyrant Histiaeus, who later initiated a rebellion against this ruler that was crushed at the Battle of Lade. This ruler ordered his admiral Datis and his general Megabyzus to attack the Greeks. For 10 points, name this king who left the Behistun Inscription on his reign, but died before he could launch a second Greek invasion, giving way to his son Xerxes the Great.
ANSWER: **Darius** the Great [or **Darius I**]

19. Observing this effect in a very large number of objects is used to screen out "shape noise," which is the largest source of uncertainty when using this effect. This effect gives rise to a featureless angular power spectrum. It is derivable by using the Born approximation in the limit of small deflection angles. The most common technique for correcting the point spread function used in analyzing data from this effect was developed by Kaiser, Squires, and Broadhurst. This effect is formalizable via the inverse amplification Jacobian matrix minus the identity, also called the distortion tensor, which is parametrized in terms of the convergence and the shear. Measuring the ellipticity induced by this effect makes it possible to statistically back out the galactic mass distribution. For 10 points, identify this effect in which the path of a light ray is slightly bent due to the gravitational effects of large-scale structure, as opposed to a single galaxy.
ANSWER: **weak** gravitational **lensing** [prompt on gravitational lensing or lensing; do not accept or prompt on "microlensing" or "strong lensing"]

20. According to a canonical 1992 book on this phenomenon, attempts to respond to it lead to temporal, modal, and spatial shifts in a so-called "triple convergence." In 1982, Richard Steinberg and Willard Zangwill proved the mathematical foundations of a "paradox" originally posited in the study of this phenomenon by Dietrich Braess. The modeling of this phenomenon relies on "social" and "selfish" equilibria named for John Glen Wardrop. The relationship between spatial distribution and the intensity of this phenomenon is reflected in the empirical "Marchetti's constant," whose value is about one hour. After contributing to voting theory, U.S. economist Anthony Downs proposed an "iron law" relating the intensity of this phenomenon to maximum capacity. For 10 points, in the textbook example of "induced demand," what phenomenon paradoxically [emphasize] *increases* when new roads are built?

ANSWER: road **traffic** [or road **congestion**; or traffic **jam**s; or traffic **snarl-up**s; or **gridlock**; or automobile or highway **traffic** or **congestion**; prompt on road use or driving]

Bonuses

1. In a section of these artworks called the throne, or *kursi*, the sultan's name was written along with an epithet meaning "always victorious." For 10 points each:
[10] Name these elaborate calligraphic seals, containing the name of the Ottoman sultan and his father, that were placed at the top of all official Ottoman documents.
ANSWER: **tughra**
[10] A *tughra* design includes two loops representing two seas controlled by the sultan, which are referred to as these objects. A flower sprouts from one of these objects in Dalí's *Metamorphosis of Narcissus*.
ANSWER: an **egg**
[10] Seyyid Kasim Gubari created many of the calligraphic decorations for this mosque in Istanbul, which is next to the Hagia Sophia and is commonly named for the color of the tiles on its walls.
ANSWER: the **Blue** Mosque [or the **Sultan Ahmed** Mosque; or **Sultan Ahmet** Camii]

2. Answer the following about some disparate historical figures with something in common, for 10 points each.
[10] This architect and sometime mayor of Belgrade designed many of Yugoslavia's World War II memorials. His most notable monuments include the Partisan Necropolis in Mostar and the *Stone Flower* in Jasenovac ("yah-seh-NO-vots").
ANSWER: Bogdan **Bogdanović**
[10] Along with Carl Scherzer, the German explorer Moritz Wagner published a Spanish translation of this K'iche' ("KEE-chay") Mayan text, which describes the trials borne by the Hero Twins in the underworld of Xibalba.
ANSWER: the ***Popol Vuh***
[10] The computer scientist Michael Jordan, who has been called "the Michael Jordan of Computer Science," pioneered the use of these directed acyclic models. Judea Pearl developed a belief propagation algorithm to perform inferences on these models.
ANSWER: **Bayesian network**s [or **Bayes nets**; or **Bayes network**s]

3. This man's commentary on Acts insisted that Christ did not descend into hell, but rather that he was in Hades, an intermediate state after death and "receptacle of separate spirits." For 10 points each:
[10] Name this English theologian who asserted that English translators had created a false equivalence between Hell and Hades. Scripture, tradition, reason, and experience form this theologian's namesake "quadrilateral."
ANSWER: John **Wesley** [prompt on **Wesleyan** quadrilateral]
[10] Revelation 21:27, which says that nothing unclean can enter Heaven, forms part of the basis for Catholic belief in this intermediary place between Earth and Heaven. Souls that are imperfectly purified go here after death.
ANSWER: **purgatory**
[10] In *The Life of St. Basil the Younger*, the soul of Basil's servant Theodora visited him to tell him of 20 of these "aerial" places. Demons in these places accused souls of various sins before letting them pass.
ANSWER: **toll house**s [do not accept or prompt on "toll booth"]

4. A Bohemian miner leads the protagonist of this novel into some caves where they discover the hermit Friedrich von Hohenzollern, who shows them a Provençal book with pictures of the protagonist with people in his future. For 10 points each:
[10] Name this fragmentary romance published after its author's 1801 death. The title *minnesänger* ("MIN-uh-zang-ur") of this novel is inspired by a dream of a beautiful blue flower with a woman's face among its petals.
ANSWER: ***Heinrich von Ofterdingen*** [or ***Henry of Ofterdingen***]
[10] Theodore Ziolkowski argues that, like *Heinrich von Ofterdingen*, this author's story "The Mines of Falun" uses the mine as "an image of the soul." This German Romantic writer is best known for fantasy stories like "The Sandman."
ANSWER: E. T. A. **Hoffmann** [or Ernst Theodore Amadeus **Hoffmann**]
[10] Ziolkowski also cites the poems on mines written by this German Romantic, who embedded many of his poems in an 1826 novella about a miller's son whose *wanderlust* takes him to Italy, titled *Memoirs of a Good-for-Nothing*.
ANSWER: Joseph Freiherr von **Eichendorff**

5. This term literally translates as "breathless," which some claim refers to the fact that these people did not obey the ritual of breathing three times after saying prayers. For 10 points each:
[10] Name this Hawaiian word that refers to foreigners not native to the Hawaiian Islands, often used to refer to white people in a derogatory context.
ANSWER: **haole** ("how-lay") [or **houle**]
[10] Two British haoles, John Young and Isaac Davis, became advisors to this great Hawaiian king. He lifted the Naha Stone and united the islands in 1810, taking a name meaning "Lonely One."
ANSWER: **Kamehameha** I [or **Kamehameha** the Great; or **Pai'ea**]
[10] Isaac Davis arrived in Hawaii after his ship, the *Fair American*, was captured by the Spanish in the 1789 "Crisis" named for this island adjacent to Vancouver Island. That incident of this name saw José Martínez capture British fur traders trying to set up a post at the namesake sound.
ANSWER: **Nootka** Island [or the **Nootka** Crisis; or the **Nootka** Incident; or **Nootka** Sound]

6. This simulation technique is combined with more accurate but computationally expensive methods in hybrid QM/MM methods, while pseudo-atoms are used in coarse-grained models for this technique. For 10 points each:
[10] Name this simulation method. In this method, force fields such as AMBER and CHARMM are used to model the movement of atoms.
ANSWER: **molecular dynamics** [or **MD**]
[10] The most computationally intensive component of molecular dynamics simulation is often these forces, which can be modeled by the Lennard-Jones potential. These interactions include London dispersion forces.
ANSWER: **van der Waals** forces
[10] If your MD simulation uses a thermostat that incorrectly partitions energy during velocity rescaling, you might run into this artifact, in which energy from molecular motions is dumped into the translational modes.
ANSWER: **flying ice cube** effect

7. This stone or wooden structure was erected at a shrine near the fortress of Eresburg on the Lippe River, and housed a cache of gold and silver obtained in war. For 10 points each:
[10] Name this giant pillar that may have represented the World Tree to Saxon pagans. It was cut down by Charlemagne as part of his Christianizing Saxon Wars.
ANSWER: the **Irminsul**
[10] In a book titled for this object "and the Tree," Paul Bauschatz argues that the Irminsul and this object represent past and present tenses in early Germanic culture. One of these vessels "of Urd" is located under Yggdrasil, and is where the Norns live.
ANSWER: **well** (The book is *The Well and the Tree*.)
[10] The Saxon pagans also worshipped Donar's Oak, which was cut down by this saint, called the "Apostle to the Germans," to build his church. He was massacred in 754 CE with 53 companions as he attempted to convert the Frisians.
ANSWER: Saint **Boniface** [or **Bonifatius**; or **Winfrid**; or **Winifred**]

8. With his satirical 1959 collection *Jungle Book*, this cartoonist became the first author to publish a paperback of original comics. For 10 points each:
[10] Name this cartoonist whose works appeared five times on *The Comics Journal*'s list of the 100 greatest comics, more than any other author. He is perhaps best known as the founding editor of *Mad Magazine* under publisher William Gaines.
ANSWER: Harvey **Kurtzman**
[10] As a comics editor, Kurtzman helped to start this movement of the 1960s and '70s, which included Gilbert Shelton's *The Fabulous Furry Freak Brothers*, R. Crumb's *Zap Comix*, and Art Spiegelman's *Arcade*.
ANSWER: **underground** comix [accept "**comix with an X**," or otherwise indicates the distinctive spelling; prompt on comix]
[10] As editor of *Help! Magazine*, Kurtzman launched the career of this cartoonist and animator who went on to write and direct the film *Brazil*.
ANSWER: Terry **Gilliam**

9. A sliding clamp protein increases the processivity of these enzymes, which are responsible for synthesizing Okazaki fragments on the lagging strand. For 10 points each:
[10] Name these enzymes that are responsible for synthesizing a new DNA strand in a 5-prime to 3-prime direction.
ANSWER: **DNA pol**ymerase
[10] In this DNA repair pathway, a MutS dimer recognizes a bulge in the double helix, and subsequently recruits MutL and MutH, which creates a nick in the backbone.
ANSWER: **mismatch** repair [or **MMR**]
[10] One way to test for MMR defects is to measure this phenomenon in which short, repetitive sequences of DNA undergo sequence changes more easily during replication. This phenomenon is characteristic of Lynch syndrome.
ANSWER: **microsatellite instability** [or **MSI**]

10. This king escaped his country by crawling down a drainpipe, fleeing to Cairo, and then eventually to London where he wed Princess Alexandra of Greece. For 10 points each:
[10] Name this monarch who became the last king of Yugoslavia when he was forced out of the country in 1945, after which he became a minor celebrity living in Chicago for many years.
ANSWER: **Peter II** of Yugoslavia [prompt on Peter]
[10] Peter's monarchy was destroyed by this leader of the Partisans and Cominform in Yugoslavia, who served as its dictator all the way through to 1980.
ANSWER: **Tito** [or Josip **Broz**]
[10] In 1971, Tito suppressed an uprising sometimes known as the *Masovni pokret* or "Mass Movement," but more often named for this future country, after a group of poets and linguists published grammar textbooks in their native language, resulting in the purging of its League of Communists.
ANSWER: **Croatia** [accept the **Croatian Spring**]

11. In a translation prepared by Talcott Parsons, the history of this German word is recounted in three page-spanning footnotes concluding that the notion it conveys was, until much later, absent in Catholic countries speaking Romance languages. For 10 points each:
[10] Give this German-language noun that, in the works of Max Weber, is usually translated into English as "profession," "calling," or "vocation."
ANSWER: ***Beruf*** ("buh-ROOF")
[10] In a section of "The Protestant Ethic" titled for this man's "conception of the calling," Weber traces the modern capitalist notion of "vocation" through this church reformer's German Bible translation.
ANSWER: Martin **Luther** [accept "**Luther's Conception of the Calling**"]
[10] "The Protestant Ethic" links "vocation" to the rise of this field. Weber's *Economy and Society* argues that this field's "rational" authority characterized modern European governments and defines it as being based on the "external guarantee" of "physical or psychological coercion."
ANSWER: **law** [or **legal** field; accept rule of **law** or rational-**legal** authority]

12. Hugo von Hofmannsthal's version of this play is performed annually at the Salzburg Festival. For 10 points each:
[10] Name this 15th-century morality play in which Death visits the title universal stand-in for humanity, who is accompanied only by Good Deeds when he goes to face God's judgment.
ANSWER: ***Everyman*** [or The ***Somonyng of Everyman***; or The ***Summoning of Everyman***; or ***Jedermann***]
[10] In this similar morality play, the devil Titivillus and the "worldlings" New Guise, Nowadays, and Nought compete with Mercy for the allegiance of the title character.
ANSWER: ***Mankind***
[10] In the morality play *The Castle of Perseverance*, Mankind meets these characters at the scaffold of the World. In *Doctor Faustus*, Lucifer has these characters perform a show for the title character.
ANSWER: the **Seven** Deadly **Sins** [or the Seven **Deadly Sins**]

13. While hearing a piano duet version of this piece, Eduard Hanslick supposedly exclaimed "For this whole movement I had the feeling that I was being given a beating by two incredibly intelligent people!" For 10 points each:
[10] Name this E minor symphony. This symphony's second movement in 6/8 time opens with two solo horns emphatically playing an E Phrygian melody that repeats the rhythm eighth, eighth, dotted-sixteenth, thirty-second.
ANSWER: Symphony No. **4** in E minor, Op. 98, by Johannes **Brahms** [both parts required]
[10] The first movement of Brahms's Fourth Symphony begins with a fragmented melody based on falling minor and major intervals of this type. The symphony opens with the falling notes B–G, an example of this interval.
ANSWER: **third** [accept major **third** or minor **third**]
[10] The finale of Brahms's Fourth Symphony is in this musical form. Johann Halvorsen arranged the last movement of Handel's Harpsichord Suite in G minor, which has this musical form, as a virtuosic duet for violin and viola.
ANSWER: **passacaglia**

14. After he left office, this politician tried to keep his name in the news by financing an expedition to the South Seas to find a species of tree-climbing fish, but he jumped off the ship in New Orleans. For 10 points each:
[10] Name this politician who ran a speakeasy called the Fish Fans Club, and whose administration was supported during the "Pineapple Primary" named for hand grenades that were thrown into polling places.
ANSWER: William Hale **Thompson** [or "Big Bill" **Thompson**; or Kaiser Bill **Thompson**]
[10] Big Bill Thompson was the last Republican mayor of this city. It was run by Richard J. Daley for 21 years and his son for 22 more years.
ANSWER: **Chicago**
[10] Big Bill was succeeded by the Democrat Anton Cermak, who was shot in the lung in 1933 by this Italian who was either a mob hitman for Frank Nitti, or just failed in trying to assassinate Franklin Roosevelt.
ANSWER: Giuseppe "Joe" **Zangara**

15. The introduction to George Kubler's *The Shape of Time* bemoans this thinker's definition of art "as a symbolic language" for dominating the study of art in the 20th century. For 10 points each:
[10] Name this Neo-Kantian thinker of the Marburg school who defined man as a "symbolic animal" in *The Philosophy of Symbolic Forms* and faced off with Heidegger in a debate at Davos ("da-VOSE").
ANSWER: Ernst **Cassirer** ("kah-SEER-ur") [or Ernest Alfred **Cassirer**]
[10] The Marburg school of philosophy drew on many of the ideas presented in this difficult 1781 book, in which Kant deduces the categories of the understanding in a defense of transcendental idealism.
ANSWER: *Critique of Pure Reason* [or *Kritik der reinen Vernunft*]
[10] The last chapter of Cassirer's *The Philosophy of the Enlightenment* covers this 18th-century German philosopher, who is best known for coining the term "aesthetics" for the study of beauty in his treatise *Aesthetica*.
ANSWER: Alexander Gottlieb **Baumgarten**

16. This author provides a guide for winning debates by remaining silent, thus demonstrating restraint and allowing your opponent to ramble on and contradict himself. For 10 points each:
[10] Name this Egyptian vizier ("vih-ZEER") from the 24th century BC who supposedly provided guidance to his son with a text in the "sebayt" genre called his namesake *Maxims*. He's sometimes described as the first philosopher.
ANSWER: **Ptahhotep**
[10] Sebayt texts like the *Maxims of Ptahhotep* and the *Instructions of Amenemope* are Egyptian examples of this genre that also includes Akkadian theodicies like the *Dialogue of Pessimism* and *Poem of the Righteous Sufferer*.
ANSWER: **wisdom** literature
[10] The sebayt *Instructions of Amenemope* influenced the writing of this book, which includes useful aphorisms like "pride goeth before destruction" and follows Psalms.
ANSWER: Book of **Proverbs** [or **Mishlei** Shlomo]

17. The change in energy due to this phenomenon is proportional to the fifth power of the fine structure constant and is inversely proportional to the cube of the principal quantum number. For 10 points each:
[10] Name this effect in which the interaction between the electron and vacuum fluctuations results in the two-S-one-half level of the hydrogen atom having slightly higher energy than the two-P-one-half level.
ANSWER: **Lamb** shift [or **Lamb** effect]
[10] The Lamb shift is one of the most accurate tests of QED, although more accurate are tests from systems with no strong interactions, such as the hyperfine splitting of this hydrogen-like "atom" composed entirely of leptons.
ANSWER: **muonium** [or the **electron–antimuon** system]
[10] A spin-filter based on the Lamb shift is at the heart of a device for measuring this quantity for molecular beams. For light, this property is entirely described by the Stokes vectors and represents the orientation of the electromagnetic field relative to the direction of motion.
ANSWER: **polarization**

18. Sometime during the 7th century AD, this kingdom annexed its northern neighbor, Nobatia. For 10 points each:
[10] Name this Christian kingdom whose capital was Dongola. It signed a long-lasting treaty known as the *Baqt* with its Islamic neighbors and kept good relations with its southern Christian neighbor, Alodia.
ANSWER: **Makuria**
[10] Makuria was one of three major Christian kingdoms based out of this region. In antiquity, the kingdom of Kush ruled this region, whose "Lower" portion was between the first and second cataracts of the Nile.
ANSWER: **Nubia**
[10] In the 8th century, the kingdom of Makuria denied refuge to Ubaydillah and Abdullah, the children of the ruler Marwan II, who lost this battle. This battle, named for a river, brought an end to the main branch of the Umayyad caliphate.
ANSWER: Battle of the Great **Zab** [or Battle of the **Zab** River]

19. This technique is often used as an alternative to formulas derived from scaling relations. For 10 points each:
[10] Name this technique that uses the root-mean-square velocity of the broad-line region of black holes and the measured time delay to provide an estimate of a black hole's mass.
ANSWER: **reverberation mapping**
[10] Reverberation mapping is used to estimate the masses of black holes within active galactic nuclei. A classic example of AGNs are these very distant, very luminous radio sources, such as 3C 273 in the constellation Virgo.
ANSWER: **quasar**s [or **quasi-stellar object**s; or **QSO**]
[10] Reverberation mapping of Seyfert II and Seyfert I galaxies are often used to derive this kind of model. In general, this kind of model treats all AGNs as the same kind of fundamental structure, such as treating blazars and quasars as AGNs that only differ in which direction they're pointing.
ANSWER: **unified** model of AGNs [or word forms like **unification**]

20. While visiting his parents in Asia, this novel's protagonist and his girlfriend use their phones to make an ironic documentary about the "First McDonalds" in the title city. For 10 points each:

[10] Name this book that ends with Paul dropping his phone on his face. This rambling semi-autobiographical novel is by Tao Lin.

ANSWER: *Taipei*

[10] Lin is associated with this literary movement, which imploded in 2014 due to allegations of sexual misconduct against Lin and editor Stephen Dierks. It tended to involve self-publication and heavy use of social media.

ANSWER: **alt-lit** [or **alternative lit**erature]

[10] Lin's first book after the collapse of alt-lit was a memoir about this other generally illegal activity, which was also advocated in *How to Change Your Mind* by Michael Pollan and a "Manual Based on the Tibetan Book of the Dead" by Timothy Leary.

ANSWER: doing **psychedelic** **drugs** [accept either underlined part; or equivalents]