ACF Regionals 2016: Ben There, Didn't Do That
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TOSSUPS:

1. The spin states unusually do not follow a Boltzmann distribution when NMR spec is used to study reactions involving these molecules. Two of them are combined in a colligation reaction, which can be studied with CIDNP ["kid-nip"]. The intermediate in the Barton reaction is an alkoxyl, which is one of these compounds. EPR spec can probe these substances, stable examples of which include TEMPO. Reactions involving them have initiation, propagation, and termination steps, and are depicted with fish hook arrows. They are denoted by a single dot following their chemical formula. Enzymes like superoxide dismutase prevent the formation of these substances by acting as antioxidants. For 10 points, name these highly reactive substances that have unpaired valence electrons.
ANSWER: free **radical**s

2. A war in this modern-day country erupted after British officials took the advice of William Hay Macnaghten over a longtime diplomat who was murdered by its inhabitants for his prolific sexual misadventures. A ruler of this country tried to calm tensions after the Panjdeh incident and was known as the "Iron Emir," partly for his affinity for this country's long-standing tradition of executing people by blowing them out of cannons. The Khalq-Parcham rivalry derailed a democratic state in this country that emerged after the Saur Revolution. Operation Cyclone supplied the *mujahideen* in this country after it was invaded by the USSR. For 10 points, name this major theater of the Great Game, a Central Asian country where the Taliban once ruled from Kabul.
ANSWER: **Afghanistan**

3. A scientist created by this author grafts newt tails to distended animals' shoulder blades. This author wrote, "TNT plus mercury fulminate equals, well, what? An enormous hole in the ground." in another novel. One of his novels ends with a woman who had remained a virgin until thirty-five playing in a bathtub with the editor of *The Literary World*. One of this author's protagonists hangs himself in a deserted lighthouse after Darwin Bonaparte photographs him. The fascist Everard Webley is murdered by Maurice Spandrell in a novel in which this author fictionalized himself as Philip Quarles. This author of *Point Counter Point* wrote a novel set in the year 632 After Ford, in which Bernard Marx works at the London hatchery. For 10 points, name this British author of *Brave New World*.
ANSWER: Aldous (Leonard) **Huxley**

4. This philosopher names a principle that states that F and G have an equal number of elements only if there is a bijection between F and G; that principle was derived by Frege. This philosopher claimed that reason is never the sole motive for an "action of the will." He claimed that all simple ideas are derived from simple impressions. This philosopher suggested that because the "uniformity principle" of nature cannot be proven, cause-and-effect relationships are only "matters of fact," as part of his repudiation of induction. This inventor of the Copy Principle caused Immanuel Kant to wake from his "dogmatic slumber." For 10 points, name this Scottish empiricist philosopher who wrote *A Treatise of Human Nature* and *An Enquiry Concerning Human Understanding*.
ANSWER: David **Hume**

5. A portrait by this artist has been stolen four times in the past 50 years, and was once found in a luggage rack in a train station and under a bench in a graveyard. His portraits of his son include one of the boy gazing out distracted from the papers at his desk while holding a pen-case in his left hand, and one in a monk's habit. A youth with a shorn head and worn-through shoes kneels before his red-clad father, who places his hands on his son's shoulders, in what may be this artist's final painting, *The Return of the Prodigal Son*. In a painting by him, a woman in orange inadvertently pours the contents of a pitcher on the floor, as Hebrew letters form in columns, while a turbaned king watches on. *Belshazzar's Feast* is by, for 10 points, what Dutch Golden Age painter of *The Night Watch*?
ANSWER: **Rembrandt** (Harmenszoon) **van Rijn** [accept either underlined name]

6. Simon LeVay showed that this trait is linked to a smaller third interstitial nucleus of the anterior hypothalamus. A bogus 2004 study by Klar used the rigorous method of sitting on a beach creepily leering at the backs of people's heads to claim that this trait was correlated with a counterclockwise hair whorl. The intensity of this trait increases with higher values on a scale examining its past, present, and future contexts; that scale is the Klein Grid. Freud's *Letter to an American Mother* is centrally concerned with this attribute, which was the subject of an early textbook by Havelock Ellis. This trait is classified as a 6 on the Kinsey Scale, and was removed as a disorder by the APA in 1973. For 10 points, identify this trait that denotes sexual attraction to members of the same sex.
ANSWER: **homosexuality** [or being **gay** or equivalents; accept **same-sex attraction** until mention]

7. A stela named for this figure shows Horus protecting Egypt from crocodiles and snakes, and was given to him a decade before he derailed a plan to make Jerusalem a free Christian city proposed by Francois Guizot. Unrest during this man's rule included a spontaneous charge by dissidents against a city's horse guard and a major rally disguised as the Hambach Festival. He claimed that Italy was only a "geographical expression" while communicating with Lord Palmerston. This man began a campaign of mass censorship after Karl Sand murdered August von Kotzebue. This leader issued the Carlsbad Decrees after meeting with Castlereagh and Talleyrand to reorganize post-Napoleonic Europe. For 10 points, name this chancellor of Austria who organized the Congress of Vienna.
ANSWER: Klemens Wenzel von **Metternich**

8. A character in this play is insultingly told that he is a vegetable, and a slightly near-sighted one at that. Another character in this play says that he was "queer, queer, queer" during an early affair with a Greek park superintendent's son. Fifty years after this play's premiere, its author wrote a prequel called *Homelife*. Near this play's conclusion, the protagonist shouts that God is an African-American drag queen in a kimono, after delivering a long monologue about his attempts to befriend, then poison his landlady's dog. In this play, a tickle fight escalates into an actual fight over a bench, culminating with one man impaling himself on a knife. For 10 points, Peter and Jerry are the characters in what one-act play by Edward Albee set near the title place in Central Park?
ANSWER: The ***Zoo Story***

9. One particularly aggressive form of this disease can be distinguished using anti-cyclin D1 antibodies. A family of proteins named for this condition include BAD and Bok. This disease often arises from Castleman disease, which similarly involves expansion of the mantle zone. Cells with a distinctive "owl's eye" nucleus are characteristic of one form of this condition. The Ann Arbor system is used to classify what stage this disease is in. The presence of Reed-Sternberg cells distinguishes one kind of this disease, and Epstein-Barr virus can cause another type of this condition in B cells named for Burkitt. Cancerous cells in this disease are *not* primarily located in the marrow or bloodstream, unlike the related leukemia. For 10 points, name this type of cancer which have Hodgkin and non-Hodgkin varieties.
ANSWER: **lymphoma**s [accept more specific answers like Burkitt's **lymphoma** or (non-)Hodgkin **lymphoma**, do not accept or prompt on leukemia at any point]

10. A musical depiction of these things opens with rippling triplet 32nds from F to B-flat swelling to a black-key glissando, and ends with echoes of La Marseillaise clashing with low tremolos. Stravinsky alluded to Dukas in his scherzo "gift" for Nadia Rimsky-Korsakov depicting these phenomena, which earned him the commission for *The Firebird*. A piece meant to be paired with a display of these things features a "Largo alla siciliana" called "La Paix." The last piece in the second book of Debussy's *Preludes* depicts these things, during Bastille Day. For one of these events in London, a suite for wind band with 24 oboes debuted; that Handel work accompanied "Royal" ones of these to celebrate the end of the War of the Austrian Succession. For 10 points, name these explosive spectacles.
ANSWER: **firework**s displays [prompt on "fire" or "rockets"; accept *Feux d'artifice*, *Feyerverk*, or *Music for the Royal **Fireworks***]

11. This poet described one of his collections as being "born of fury like a live coal." One of his speakers describes badgers that "scratch the river's feet" in a section that begins with the line "It was the twilight of the iguana." The speaker of one of his poems celebrates "goblets of the breast," "eyes of absence," and "the roses of the pubis." This author of "Some Beasts" and "I End Here" wrote a poem that ends with the line "speak through my words and my blood" and repeats the line: "Rise and be born with me, brother." Another poem by this author of "The Heights of Machu Picchu" concludes: "Pilot's dread, fury of a blind diver, / turbulent drunkenness of love, in you everything sank." For 10 points, *Twenty Love Poems and a Song of Despair* and the *Canto General* are by what Chilean poet?
ANSWER: Pablo **Neruda** [or Ricardo Eliécer Neftalí **Reyes** Basolato]

12. Tino Sehgal performed *This Progress* inside this building in 2010. A 1992 addition to this building by the firm of Gwathmey Siegel incorporated an annex designed for this building in 1968 by the original main architect's son-in-law, William Wesley Peters. This museum has the largest collection of Kandinsky in the United States, due to the influence of its first director, Hilda von Rebay. The Thannhauser Collection is maintained by this museum, which also hosts the Works & Process performing arts series. This building was designed as an "inverted ziggurat" in which visitors could walk to the top, where there is a domed skylight, on its iconic spiral ramp. For 10 points, name this art museum in New York City, which was designed by Frank Lloyd Wright.
ANSWER: Solomon R. **Guggenheim** Museum in New York

13. The Hadith of Jabir notes that the first things created with light by Allah were the pen, the tablet, water, and this kind of object. The Zoroastrian Nowruz holiday celebrates a notable event involving a jewel-encrusted example of this object belonging to Jamshid. The prophet Zechariah has a vision of the sinful priest Joshua standing next to one of these objects. Muhammad recommended nightly recitations of a prayer named for this kind of object, which in *Revelation* is flanked by a man, an ox, an eagle, and a lion – all of whom are winged and covered in eyes. A passage named for this kind of object concludes that Allah is the highest and most glorious, and is the 255th aya in the Cow Surah. For 10 points, name this celestial object upon which God rests in both Christianity and Islam.
ANSWER: heavenly **throne** [accept equivalents, e.g. the **Throne of God**; accept al-**Arsh]**

14. Evaluating the Tutte polynomial at (1,1) ["one comma one"] gives the number of these things. Kirchoff's theorem uses the Laplacian matrix's eigenvalues to find the number of them. Boruvka's algorithm for finding a specific type of these things runs in big-O of E log V time. The reverse-delete algorithm finds a type of these things by deleting the edge with the largest weight whose removal would not disconnect the graph. For a complete graph, there are n to the power of n minus two of them, according to Cayley's formula. They cannot exist in unconnected graphs, and they are acyclic subgraphs containing every vertex. For 10 points -- Prim's and Kruskal's algorithms find "minimal" cost examples of what subgraphs?
ANSWER: minimum **spanning tree**s [prompt on partial answer, accept **spanning forest**s before "unconnected"]

15. An unsettling *Times* interview on the eve of this event quoted a 10 year-old child promising to "strangle" interlopers "with their [own] chains." The course of this event was largely predicted a year earlier in the oral history *Division Street: America*, whose author Studs Terkel claimed that it could "only have happened" in a certain city. The aftermath of this event led to the adoption of the McGovern-Fraser Commission and the "Rights in Conflict" study by Daniel Walker. Abraham Ribicoff was called a "Jew sonofabitch" during this event for decrying the "Gestapo tactics" of a man who declared that "the policeman is there to *preserve* disorder," Mayor Richard J. Daley. For 10 points, name this 1968 event that saw riots engulf a major party's nominating convention in the Midwest.
ANSWER: **1968 Democratic Convention** [or any equivalent mentioning the Democratic **Convention** and either **1968** or **Chicago**; note that 1968 is no longer needed after being mentioned in the question]
[Editor's note: The first clue is about a small child threatening to strangle hippies with their peace pendants]

16. In one story by this author, a girl slashes the paw of a black cat, only to find the next morning that her stepmother has a wound on the same hand. This author wrote a story that begins by claiming that "There is nothing more irritable than departments." This author wrote a story in which a philosophy student is made to chant prayers for three nights over the coffin of a witch that he killed. This author's collection *Evenings on a Farm near Dikinka* includes the story "May Night." He wrote a story in which a ghost haunts the "Person of Consequence" whose bullying gave him a fatal fever. In that story by this author of "Viy," the one-eyed tailor Petrovich makes the title item of clothing for Akaky Akakievich. For 10 points, name this Ukrainian author of "The Overcoat."
ANSWER: Nikolai (Vasilievich) **Gogol**

17. A group of reeds warn this woman not to ford a river until the sun begins to set. At a banquet, this woman refuses a comfortable seat, and instead only eats bread. This woman's sisters simultaneously jump off a cliff and die with the wrongheaded expectation that Zephyr would catch them for a second time. A voice from inside a tower dissuades this person from committing suicide, and instead instructs her how to reach the palace of Proserpina. This woman is rewarded with a burnt piece of bread after a group of ants help her sort several types of grains into different piles. According to *The Golden Ass*, this woman's curiosity leads her to accidentally spill lamp oil on her future husband while he is asleep, forcing her to submit to Venus for several trials. For 10 points, name this woman who marries Cupid.
ANSWER: **Psyche**

18. Part of this plant is fried in *pisang goreng*. The leaves of this plant are used in the *pepes* cooking method in Indonesian cuisine. *M. fijiensis* causes black sigatoka disease in these plants. Unripened, this food is called *guineos* in Latin America. The *cubense* form of *F. oxysporum* devastated the "Big Mike," or Gros Michel cultivar of this fruit in the 1950s. That fungus recently evolved into "tropical race 4" and causes Panama disease in this fruit of genus *Musa*, whose main Cavendish cultivar is in particular danger. A variety of this plant is twice-fried to make *tostones*. Considered a good source of vitamin B6 and potassium, it was primarily cultivated by United Fruit before that company was renamed Chiquita, a competitor of Dole. For 10 points, name this curved yellow fruit.
ANSWER: **banana**s [also accept **plantain**s, even though not all clues apply to plantains]

19. A protection conjecture about this quantity means that curves named for it could not be drawn on a Tipler cylinder unless it had negative energy. To prove a certain theorem, one can note that applying an operator partly named for this quantity will yield a distinct eigenstate of the same energy if the system has half-integer spin. When the symmetry of this quantity is conserved, Kramers' theorem applies. Mandelshtam and Tamm proposed an alternative to Heisenberg's principle relating the uncertainties in energy and this quantity. Events which violate the symmetry of this quantity also violate CP-symmetry. Observers in a moving reference frame measure gamma times less of this quantity than had they been still. For 10 points, identify this quantity whose namesake dilation occurs at near-light speeds.
ANSWER: **time** [accept answers containing the word time, like **time** reversal or **time** dilation, prompt on **T**]

20. Major scholars of this group of peoples include Rudolf Thurneysen and Kuno Meyer. Archaeological sites for this group of peoples include Wetwang and the Danes Graves, part of the Arras Culture, which practiced chariot burial. These people employed a bronze wind instrument with an animal head known as a *carnyx,* and are often described by scholars as having a cult-like enthusiasm for the act of carrying human heads. This is the most general grouping of the peoples who supplanted the Western Hallstatt Culture. This group of peoples practiced a ritual in which a priest would cut down mistletoe and sacrifice two bulls after climbing an oak tree. Druids were the holy men of, for 10 points, what Iron Age culture of Europe whose subgroups whose language group is still spoken in Ireland?
ANSWER: **Celt**s [or **Celtic** culture; anti-prompt on specific groups like **Gaul**s or **Briton**s]

BONUSES:

1. Sulfur cross-links the polymer chains of this substance in a process developed by Charles Goodyear. For 10 points each:
[10] Identify this elastic substance which is strengthened by vulcanization.
ANSWER: natural **rubber**
[10] Natural rubber contains polymers with repeating units of this five carbon compound. Terpenes are also derived from it.
ANSWER: **isoprene** [or **2-methyl-1,3-butadiene**]
[10] This scientist discovered neoprene while trying to create synthetic rubber. While at DuPont, he also invented nylon.
ANSWER: Wallace **Carothers**

2. Remo Giazotto forged a piece in this tempo, which he credited to Tommaso Albinoni. For 10 points each:
[10] Name this slow tempo marking, that is standardly understood to be in between *larghetto* and *andante* in speed.
ANSWER: **adagio**
[10] This 20th-century American composer adapted the second movement of his String Quartet, Opus 11 for string orchestra, and called it *Adagio for Strings*.
ANSWER: Samuel (Osmond) **Barber** II
[10] One of Barber's rare forays into a more neoclassical style was this concerto grosso for flute, oboe, trumpet, and string orchestra.
ANSWER: *__Capricorn__ Concerto, Op. 21*

3. This poem's narrator visits a writer who advises to "consider / Carefully the reviewer" and to "give up verse, my boy, / There's nothing in it." For 10 points each:
[10] Name this poem about a character who was born "In a half savage country, out of date", whose "Penelope was Flaubert", and who "strove to resuscitate the dead art / Of poetry".
ANSWER: "**Hugh Selwyn Mauberley**"
[10] This Modernist author of "Hugh Selwyn Mauberley" compares "faces in the crowd" to "petals on a wet black bough" in the couplet "In a Station of the Metro." He also wrote the unfinished *Cantos*.
ANSWER: Ezra **Pound** [or Ezra Weston Loomis **Pound**]
[10] The "Yeux Glacques" section of "Hugh Selwyn Mauberley" mentions the topaz eyes of this wife of Dante Gabriel Rossetti. Rossetti buried many of his poems in her coffin, only to later change his mind, and dig her up.
ANSWER: Elizabeth **Siddal**

4. This leader advocated *uskoreniye*, or acceleration for reform. For 10 points each:
[10] Name this final Soviet leader whose more famous campaigns included *glasnost* and *perestroika*.
ANSWER: Mikhail **Gorbachev**
[10] Gorbachev's Law on Cooperatives introduced private ownership to Russia for the first time since this brainchild of Vladimir Lenin was abolished in the late 20s. This plan allowed for limited state-sponsored capitalism.
ANSWER: **New Economic Policy** [or **NEP**; or **Novaya Ekonomicheskaya Politika**]
[10] George H.W. Bush met with Gorbachev during a summit in this European country in 1989, an event often seen as the official end of the Cold War.
ANSWER: Republic of **Malta**

5. This creature swerves out of the way to avoid hitting the angel of the Lord and gets struck as a result. For 10 points each:
[10] Name this animal who warns his owner, a prophet, not to aid the Moabite king Balak. Other than the serpent in Genesis, this animal is the only other one in the Bible who speaks.
ANSWER: **Balaam**'s **donkey** [or **Balaam**'s **ass**; prompt on partial answer]
[10] Balaam's story is told in this fourth book of the Bible, which comes between Leviticus and Deuteronomy.
ANSWER: Book of **Numbers** [or **Bamidbar**]
[10] When Balaam prophesies for a third time as God's mouthpiece, he utters this prayer, which begins "How good are your tents, Jacob; your dwelling places, Israel!" Accordingly, it is now recited upon entering a synagogue.
ANSWER: *Ma Tovu* [prompt on English translations that sound like the line in the question]

6. This work is set in a bar called Mexico City. For 10 points each:
[10] Name this novella by Albert Camus, in which Jean-Baptiste Clamence describes his refusal to save a woman who jumped off a bridge to her death.
ANSWER: The *Fall* [or La *chute*]
[10] Although written in French, *The Fall* is set in this European capital, whose canals the narrator compares to the circles of hell. Anne Frank was hiding in this city when she wrote *The Diary of a Young Girl*.
ANSWER: **Amsterdam**
[10] This modern Dutch author wrote about the reprisal murder of the Steenwijk family by Nazis in *The Assault*. Max Delius tries to use astronomy to perform the title action in his novel *The Discovery of Heaven*.
ANSWER: Harry **Mulisch**

7. This phenomenon's namesake constant, denoted alpha, is approximately equal to 1 over 137. For 10 points each:
[10] Identify this very slight splitting of spectral lines due primarily to relativistic effects and spin-orbit coupling.
ANSWER: **fine structure** (constant)
[10] This other term of the fine structure correction affects the S energy levels. It incorrectly predicts the 2s and 2p have the same energy levels, which is corrected by the Lamb shift.
ANSWER: **Darwin** term
[10] When calculating the effect of spin-orbit coupling, one must account for this relativistic effect, a movement of the rotation axis of a spinning particle.
ANSWER: **Thomas precession** [prompt on partial answer]

8. Lorrin Thurston and John L. Stephens led the overthrow this monarch, establishing a government under Sanford Dole. For 10 points each:
[10] Name this monarch who resisted the influence of the Missionary Party in the wake of the Bayonet Constitution being forced on her brother David.
ANSWER: Queen **Liliʻuokalani**
[10] Liliʻuokalani and the rest of the Kamehameha Dynasty ruled from the Iolani palace in this city, the capital of Hawaii.
ANSWER: **Honolulu**
[10] This officer, known as the Iron Duke of Hawaiʻi, led a series of failed revolts against both the Hawaiian monarchy and Dole's administration.
ANSWER: Robert William **Wilcox**

9. He painted two humanoid forms in the early work *Stenographic Figure*, but he is better known for how he flung, dripped, and threw paint onto canvases. For 10 points each:
[10] Name this Abstract Expressionist painter whose painting *Number 1* is also called *Lavender Mist*.
ANSWER: Jackson **Pollock**
[10] This art critic thought the term abstract expressionism was "inaccurate" and preferred the term "American-type" painters. He described his support for Pollock and his contemporaries in the essay "Avant-Garde and Kitsch."
ANSWER: Clement **Greenberg**
[10] This contemporary of Greenberg often disagreed with Greenberg and claimed in his essay "The American Action Painters" that the process of painting for abstract expressionists was more important than the final product.
ANSWER: Harold **Rosenberg**

10. This deity beat his brother Skanda in a race around the world by merely running around his parents, Lord Shiva and Parvati. For 10 points each:
[10] Name this elephant-headed Hindu deity, known as the "remover of obstacles," who rides a mouse.
ANSWER: **Ganesh**a [also accept **Ganapati**]
[10] This god once laughed at Ganesh when he fell from his mouse. Ganesh responded by snapping off one of his tusks and hurling it at this Hindu god of the moon.
ANSWER: **Chandra** [accept **Soma**]
[10] This other elephant of Hindu mythology was created during the "churning of the ocean," and served as the mount of the thunder god Indra.
ANSWER: **Airavata**

11. Every Sunday, this character buys a slice of honey cake that sometimes contains an almond. For 10 points each:
[10] Name this woman who watches people at a park, then gets extremely upset when she overhears a boy and girl make fun of her fur, in a story titled for her.
ANSWER: Miss **Brill**
[10] In this other short story by Katherine Mansfield, Laura is distressed to see a dead man while delivering the leftovers from a flamboyant gala to her impoverished neighbors.
ANSWER: "The **Garden Party**"
[10] The author of "Miss Brill" and "The Garden Party," Katherine Mansfield, is from this country. Another novel from this country, *The Bone People*, draws its title from the culture of the Māori people.
ANSWER: **New Zealand**

12. These two men died of starvation at the Dig Tree after finding that their camp at Cooper Creek had left on their return from the Gulf of Carpentaria. For 10 points each:
[10] Name these leaders of a failed 1860–61 expedition to explore the inland areas of eastern Australia.
ANSWER: Robert O'Hara **Burke** and William John **Wills**
[10] The Burke and Wills Expedition started in this city on the Yarra River. Today, this capital of Victoria is the second largest city in Australia.
ANSWER: **Melbourne**
[10] A theory about early Portuguese exploration of Australia is supported by a series of maps named for the cartography school of this French city. A failed 1942 Allied raid on this port city presaged the Normandy invasion.
ANSWER: **Dieppe**

13. The mass of these stars is bounded above by the Tolman-Oppenheimer-Volkoff limit. For 10 points each:
[10] Name these stars, whose surface gravity is super high because they are composed primarily of densely-packed, uncharged particles.
ANSWER: **neutron** stars
[10] In the Urca process, neutron stars dissipate energy by ejecting these particles. The PMNS matrix is composed of parameters for a process involving these particles that explains why so few are detected from a nearby star.
ANSWER: **neutrino**s
[10] When binary neutron stars accrete matter from their partner, their high temperatures allow for this type of nucleosynthesis. This process relies on proton capture, unlike the neutron capture of more common processes.
ANSWER: **rp** process [or **rapid proton** capture process, prompt on **p**roton capture process, but do NOT accept or prompt on "r process"]

14. This man's 80-20 principle doesn't apply to ACF Regionals 2016, because 20 percent of the editors ended up writing way more than 80 percent of the science. For 10 points each:
[10] Identify this Italian economist. His namesake "efficiency" is when no one could be made better off without someone else winding up worse.
ANSWER: Vilfredo Federico Damaso **Pareto**
[10] Any competitive equilibrium will lead to a Pareto efficient outcome, according to the first of these two theorems. The second implies that all Pareto efficient outcomes are competitive equilibria resulting from some initial wealth distribution.
ANSWER: first/second theorems of **welfare** economics
[10] This man's namesake law says that if all but one market clears, then the last must clear, giving a general equilibrium. This old French dude developed general equilibrium theory in his *Elements of Pure Economics*.
ANSWER: (Marie-Esprit) Léon **Walras**

15. This opera's prologue sets the frame story of the title character telling about his three great loves: Olympia, Antonia, and Giulietta. For 10 points each:
[10] Name this opera in French which includes a famous barcarolle titled "Belle nuit, o nuit d'amour" in its third act, which is set in Venice.
ANSWER: *The **Tales of Hoffmann*** [or *Les **contes d'Hoffmann***]
[10] This composer adapted three tales by a German author into *The Tales of Hoffmann*. He drew from Greek myth to compose *Orpheus in the Underworld*, which popularized the can-can.
ANSWER: Jacques **Offenbach**
[10] Olympia sings this coloratura soprano aria from *The Tales of Hoffmann*, during which she repeatedly runs down and needs to be re-wound. Its French title roughly translates to "The birds in the arbor."
ANSWER: "Les **oiseaux dans la charmille**" [or "The **Doll** Song"; or the "**Doll** Aria"]

16. These proteins recognize motifs like GFOGER and RGD. For 10 points each:
[10] Name these cell adhesion molecules which bind to ECM proteins like fibronectin.
ANSWER: **integrin**s
[10] GFOGER recognizes this protein, which is very common in the extracellular matrix. This helical protein is found in connective tissue and is the most abundant in the body.
ANSWER: **collagen**
[10] The "D" in the RGD domain refers to this four-carbon amino acid. This compound is transaminated to make oxaloacetate, then antiported against malate, in a "shuttle" vital for electron transport during cellular respiration.
ANSWER: L-**aspartate** [or L-**aspartic** acid]

17. British Ambassador Timothy Torlot was nearly killed in a 2010 bombing in this country. For 10 points each:
[10] Identify this Middle Eastern country where Ali Abdullah Saleh was replaced in 2012 by Abd Rabbuh Mansur Hadi, who is currently embroiled in a civil war.
ANSWER: **Yemen**
[10] The major non-governmental parties in the Yemeni Civil War are al-Qaeda in the Arabian Peninsula and this northern group, named for a Zaidi cleric, that took over the government for 4 months in 2014.
ANSWER: The **Houthi**s [or **Ansar Allah**]
[10] This Saudi national is AQAP's chief bombmaker. He was behind the foiled 2009 Underwear Bomber, and packed his own brother's anus with plastic explosives in a failed assassination attempt in Jeddah.
ANSWER: Ibrahim al-**Asiri**

18. Answer the following about castration in literature, for 10 points each.
[10] Benjy gets castrated after an incident involving an unlocked gate and an assault on a girl in *The Sound and the Fury*, a novel by this American author of *As I Lay Dying*.
ANSWER: William (Cuthbert) **Faulkner**
[10] Gumercindo Tello threatens to castrate himself in order to prove that he did not rape Sarita Huanca in this novel that also tells about Mario working at the radio station Panamericana.
ANSWER: ***Aunt Julia and the Scriptwriter***
[10] Major Marvy gets castrated after being mistaken for the protagonist of this novel which includes subplots about a schism within the Schwarzkommando and a hashish robbery during the Potsdam Conference.
ANSWER: ***Gravity's Rainbow***

19. Forces under this state fled from the Battle of Ulan Butung after forming a "camel wall" by tying 10,000 of the ungulates together and firing from between them. For 10 points each:
[10] Name this Oirat state that ruled much of present Xinjiang at its high point under Galdan.
ANSWER: **Dzungar** Khanate [accept **Dzungaria**]
[10] The Dzungar Khanate declined after a war with this Chinese emperor, who signed the 1689 treaty of Nerchinsk with Peter III and commissioned a namesake dictionary.
ANSWER: **Kangxi**
[10] Kangxi was a ruler of this final Chinese dynasty, which supplanted the Ming.
ANSWER: **Qing** Dynasty [or **Manchu** Dynasty]

20. Heidegger attacked the notion of these things with the example of a silver chalice in *The Question Concerning Technology*. For 10 points each:
[10] Name these four concepts, which are traditionally labelled as material, formal, efficient, and final. The last one is sometimes known as a *telos*.
ANSWER: Four **Causes** [or the ***aitia***]
[10] This Greek philosopher and student of Plato introduced the Four Causes in his *Physics* and *Metaphysics*.
ANSWER: **Aristotle**
[10] Book Nine of Aristotle's *Metaphysics* is concerned with the distinction between these two concepts, an object's capacity to change state versus its actual attainment of that change. An example is an acorn's capacity to grow, and the tree of as the fulfillment of that process of growth.
ANSWER: **potentiality** and **actuality** [or ***dunamis*** and ***energeia**;* accept ***potentia*** instead of "dunamis"; prompt on partial answer]