## Chicago Open 2014: A Redoubtable Coupling of Editors

Packet by All I do is Nguyen Nguyen Nguyen No Matter What (Will Alston, Doug Graebner, Ian Lenhoff, Benji Nguyen)
Edited by Austin Brownlow, Andrew Hart, Ike Jose, Gautam \& Gaurav Kandlikar, and Jacob Reed

## Tossups

1. In this structure, phakinin and filensin form "beaded filaments." At cold temperatures, its cytosol can separate into an aqueous two-phase system because of attraction between its low-molecular weight gamma proteins. A unique chaperonin designated "alpha" combats the deamidation of asparagine and oxidation of methionine that lead to the aggregation of unstructured protein clumps in this structure, which is surgically removed by phaco-emulsification. Diabetes can cause this structure to accumulate sorbitol and readily detectable Amadori products. The hyaloid artery forms a dense network of capillaries surrounding this structure during development. Zonules connect the ciliary body to this structure, whose epithelial cells lose their mitochondria and nuclei during differentiation. A process called accommodation adjusts its curvature. For 10 points, name this structure in the vertebrate eye that loses its transparency in cataracts.
ANSWER: crystalline lens [prompt on "eye" or equivalents; antiprompt on "epithelial (cells)" or equivalents]
2. Members of this organization mutinied after reading a blackboard on which "before independence equals after independence" was written by a leader called the "Little Maniac." During World War II, soldiers from this organization serving under Auguste-Édouard Gilliaert cut off the retreat of Pietro Gazzera at Saio. Members of this organization triggered a landslide to cover up a chalk cave in which they massacred a group of Sangha. A leader of this organization who maintained a gallows in front of his station kept a flower bed full of human heads. Two mutinies at Luluabourg were staged by this organization, whose members carried a chicotte bull whip for much of its existence. Leon Rom and Émile Janssens were leaders of this organization, whose members were required to provide the severed hands of people who failed to meet rubber quotas. For 10 points, name this group of askaris, a gendarmerie utilized by Belgium to repress rebellions in the Congo.
ANSWER: Force Publique [accept FP or Public Force; prompt on "Belgian colonial army" or "Belgian Congolese army" or equivalents; do not accept or prompt on "Belgian army" or equivalents; do not accept or prompt on "ANC" or "Congolese national army" or equivalents]
3. This character's final appearance causes voices to weave across the sea, and shortly afterward he is united with the Blessed Virgin of the Tower. When this character sets his foot in a golden stirrup, his misfortune is portended by birds in the oak forest. In the poem in which this character appears, his father has a frightful dream in which demon ravens caw as he lies down next to a bottle of poisoned blue wine while his enemies caress him with pearls. After fleeing from captivity, this character has a conversation with a river that he blames for swallowing a prince. This character appears in an epic that declares that it will focus on his "present time" and not the ancient tales of a bard. The winds blow the arrows of this character's foes against him, causing his banners to falter during the third day of a climactic battle along the river Kayala. For 10 points, name this 12th-century prince who leads a campaign against the Polovstians, the subject of an anonymous Slavic poem that inspired an opera by Alexander Borodin. ANSWER: Prince Igor Svyatoslavich [the Brave]
4. This thinker used the equality of the three sides of a triangle as an example of a situation in which there is no connection between conceptions and judgments, but merely between sides and angles. He included two diagrams of the human eye in the fourth chapter of a book arguing that coexistence is only possible through the union of time and space. He discussed the "subject in volition" as the immediate object of inner sense in a book, inspired by Aristotle’s explanatory doctrines, that posits "willing," "being," "knowing," and "becoming" as necessary connections with the different classes of objects it identifies. He appended a critique of the transcendental analytic in Kantian philosophy to a later book in which he connected the Kantian ding-an-sich with the human will. For 10 points, name this thinker who built on his dissertation, On the Fourfold Root of the Principle of Sufficient Reason, to write The World as Will and Representation.
ANSWER: Arthur Schopenhauer
5. Description acceptable. This initiative was promoted by a Portland-to-DC tour of 16 buses that was jeered with the banner "Beware the Phony Express." Daniel Patrick Moynihan said that "anyone who thinks [this initiative] can work in the real world as presently written isn’t living in it." In an ad attacking this initiative, a couple pores over papers at a kitchen table and says "they choose, we lose." William Kristol organized opposition to this initiative through a series of memos rejecting even a "least bad" compromise. The "Harry and Louise" ads targeted this initiative, which was essentially defeated in the legislature when Democrat George Mitchell introduced a compromise plan that would have delayed the implementation of an employer mandate. This initiative was countered by a proposal including an individual mandate championed by Newt Gingrich. For 10 points, name this never-enacted health care reform initiative championed by a former Arkansas governor and his wife.
ANSWER: Clinton health care plan of 1993; accept answers involving Clintons and health care or insurance; accept "Hillarycare"; accept Health Security Act]
6. This play's stage directions contrast a glass-doored bookcase with a smaller one containing books the characters "really have read." After reading a letter from a girl, one character in this play dismisses suicide as cowardly even though he earlier asserted that he would have killed himself beautifully "if there'd been one of Hedda Gabler's pistols around." Another character in this play causes his uncle, a reporter for the Waterbury Standard, to burst out laughing by solemnly claiming that Oscar Wilde was jailed for bigamy. Thomas Carlyle's French Revolution is praised by a character in this play who thinks that he is poisoned by a "peculiar oil" in bluefish. In this play, Yale student Wint Selby takes his friend's brother to smoke and drink at a hotel bar with the prostitute Belle. It ends with Nat wistfully quoting the Rubaiyat to his wife Essie in bed after blessing the relationship between Muriel and the socialistic Swinburne fan Richard. For 10 points, name this play about the Miller family's Fourth of July, the only comedy by Eugene O’Neill.
ANSWER: Ah, Wilderness!
7. A scholar from this European country wrote a book examining "decorative" motifs in the art of Neolithic Europeans to argue that they had a goddess-centered pattern of worship. That author from this country wrote Language of the Triple Goddess and was the first formulator of the "kurgan hypothesis." Jacques Derrida criticized a philosopher born in this country for his concept of the "rupture of phenomenology" in the essay "Violence and Metaphysics." This country's official language is the most conservative extant Indo-European language. This country is home to the Romuva religious movement, which seeks to revive the worship of deities like Saule and Perkunas. A philosopher born in this country, who argued that ethics is defined by "face-to-face" relation with "the Other," wrote Existence and Existents and Totality and Infinity. For 10 points, name this home country of Marija Gimbutas and Emmanuel Levinas.
ANSWER: [Republic of] Lithuania [or Lietuva; or Lietuvos Respublika]
8. Phyto-remediation of this element from hyper-accumulators like Astragalus usually involves volatilization to a dimethyl compound. Derivatization with this element has largely replaced using bromine to introduce anomalous scattering properties to nucleic acids for MAD phasing. The 3-prime UTRs of many proteins that associate with this element contain a K-turn motif with many conserved guanine-adenine base pairs. This element's dioxide oxidizes the alpha position of carbonyls to produce 1,2-diketones and regioselectively oxidizes alkenes to allylic alcohols. Cadmium bonds to this element in the most common quantum dots. Electron exchange in the active sites of glutathione peroxidase and thioredoxin reductase is accomplished by this element, which can be ingested in toxic amounts through excessive consumption of Brazil nuts. For 10 points, name this trace element found in a non-standard amino acid that is actually derived from serine rather than cysteine.
ANSWER: selenium [or $\underline{\text { Se] }}$
9. The translator's preface to Swami Vivekananda's version of this book claims that it echoes the theme of the Bhagavad Gita. In one chapter, this book references Job's assertion that "the life of man upon earth is a warfare" in warning against temptation, which it argues "steels the just" like fire tempers iron. This book contains an aphorism that is often translated as "man proposes, God disposes." This book’s fourth section begins with an invitation to consume bread and wine, and its third section takes the form of a dialogue between the reader and the title figure. This book takes its title from its first section, which advocates despising all vanities on earth and contains the quote "how quickly passes the glory of the world." Four sections, including "Directives for the Interior Life" and "Helpful Counsels of the Spiritual Life," make up this book, which was written by a member of the Devotio Moderna movement in the 1400s. For 10 points, name this Catholic devotional by Thomas à Kempis.
ANSWER: The Imitation of Christ [or De Imitatione Christi]
10. In one novel in this language, a man who suffers from "white-ache" falls back in love with his wife at a lake where all animals are frozen in time. People who speak this language are characterized as "the nice middle class" in a short piece about the name of the author of One Day I Will Write About This Place. In a novel in this language, the non-Pentecostal Voice of Truth radio broadcast runs propaganda and the protagonist relishes the deaths of Settler Williams and John Boy. In another novel written in this language, the protagonist fails an interview at the queue-plagued Eldares Construction Company, and an inflating leader whose advisors have artificially enlarged body parts attempts to obtain Global Bank funding for his Babel-like project Marching to Heaven. This language's use for oral storytelling is contrasted with the institutionalization brought by English in Decolonizing the Mind. For 10 points, name this language used to write Wizard of the Crow by Ngugi wa Thiong’o.
ANSWER: Gikuyu language [or Kikuyu language; do not accept or prompt on "Kenyan"]
11. This ethnic group was the primary target of the inflammatory pamphlet "The Fear of Losing One's Race." In a speech praising the "courageous process" of reform, Barack Obama warned against abusing this group, the subject of House Resolution 418. An envoy from this ethnic group’s native country called them "ugly as ogres." This ethnic group's origins are largely traced to colonial powers encouraging the migration of laborers into the Arakan valley. A plan to send these people to another country has been strongly supported by Ashin Wirathu. In 2014, the government of this group's native country officially began registering them as Bengalis. Attacks by the " 969 " movement and riots in Rakhine state have been marked by violence committed by Buddhists against this ethnic group, whose plight has been ignored by Aung Sang Suu Kyi. For 10 points, name this persecuted, predominantly Muslim ethnic group of Burma.
ANSWER: Rohingya people [or Ruaingga; or rui han gya; prompt on "Burmese Muslims" or equivalents]
12. "Negative one times pressure times the derivative of the cube of this quantity" equals the derivative of the product of energy density and the cube of this quantity, according to one form of the first law of thermodynamics. In the lambda-CDM model, density parameter components appear as coefficients of powers of this quantity on one side of the Friedmann equation. The square of this quantity equals "six times intrinsic curvature divided by the spatial Ricci scalar" and acts as a multiplicative prefactor in the definition of the Robertson-Walker metric. Subtracting one from this quantity's inverse gives the cosmological redshift, and dividing this quantity's derivative by this quantity gives the Hubble parameter. Its value ranges from zero at the Big Bang to one at the present age of the universe. For 10 points, name this dimensionless quantity, defined as the ratio of the proper distance between two objects at some time to that distance at a reference time, which measures the universe's rate of expansion.
ANSWER: scale factor [prompt on "a of t "]
13. The poem Sone von Nausay reveals that this man is actually the Fisher King who conquered Nordic barbarians while marrying the princess of Norway to become Norway's king. In another legend, he is killed by a giant pagan named Dilantes. With his similarly named son, this man is able to save the Saracen king Evalach from King Tholomes’s army by converting Evalach to Christianity. His sister Havingues is a maternal ancestor of King Pelles. This grandfather of Yvain is the subject of an epic poem by Robert de Boron, in which he is imprisoned for 42 years until Emperor Vespasian releases him. In some stories, this man visited Glastonbury and thrust his staff into a hill to create a thorn tree; other legends state that he was given the bleeding lance by Longinus before he came to Britain. For 10 points, name this Biblical character who supposedly brought the grail to England, and who was the man who donated his tomb to Jesus.
ANSWER: Joseph of Arimathea [prompt on "Joseph"; do not accept or prompt on "Josephus" or "Josephes"]
14. One holder of this position proclaimed an empire following the demands of the Independence Association and sent secret delegates to the Hague Convention of 1907. An assassination plot prompted one holder of this position to kill six officials who became known as the "six martyred ministers." Several holders of this position ordered "literati purges." A holder of this position created an institution of scholars called the Hall of Worthies, which was responsible for developing a new writing system. Another holder of this position supported the Sarim faction and was aided by "righteous armies" in his struggle against an invasion. The promulgation of the Gabo Reform occurred during the reign of one holder of this position after the Donghak Peasant Revolution affected his country, which was annexed in 1910 by Japan. For 10 points, name this title held by Kojong, Sejo, Sejong, and several other rulers from the Joseon dynasty.
ANSWER: king of Korea [accept monarch or emperor or ruler or equivalents in place of "king"; accept Daehan or Hanguk in place of "Korea"; accept Choson (dynasty) or Joseon (dynasty) in place of "Korea" before "Joseon"]
15. One artist with this surname photographed a cross-like limb atop a stump in a series commemorating the Lewis and Clark bicentennial by depicting the clear-cutting of northwestern forests. That photographer of Turning Back, who has this surname, took 13 portraits of a Gandharan Bodhisattva sculpture and created the show Sea Stories for the Yale Art Gallery, which organized his current retrospective The Place We Live. A sculptor with this surname collaborated with Cass Gilbert to design Detroit’s James Scott Memorial Fountain. A plume of black smoke billows up from a flat plain in a photograph by a member of the New Topographics with this surname, who gained fame for depicting Colorado Springs in his series The New West. Another artist with this surname recreated Timothy O’Sullivan's 1871 image of Canyon de Chelly and photographed portraits of Manzanar internees for his book Born Free and Equal. For 10 points, give this surname of sculptor Hebert and photographers Robert and Ansel. ANSWER: Adams [accept Robert Adams or (Samuel) Herbert Adams or Ansel (Easton) Adams]
16. This author's only published story is narrated by a kitten and is titled "The Pussycat who Fell in Love with a Suitcase." In one of his books, a doctor drinks a vial of rice water from a patient to prove that cholera is caused by the infection of air. In another of his books, Brendan Archer arrives at the Majestic Hotel and observes the politics and relationships of the family of Angela Spencer, his fiancée. That first novel by this author features Mr. Hopkins as a collector for the title city, where chapattis are piled high in the British Residency run by Dr. Dunstaple. He won the Lost Man Booker Prize in 2010 for his novel set during the Irish War of Independence, Troubles. That novel is the first part of his so-called "Empire Trilogy," which includes The Singapore Grip and a complex novel inspired by the Sepoy Mutiny and set in the title Indian town. For 10 points, name this British travel writer who wrote The Siege of Krishnapur.
ANSWER: James Gordon [J.G.] Farrell
17. One theorem co-named for this mathematician is proven by using Schwarz's lemma to map a half-plane to a disk, and that technique is ultimately used to show when an analytic function is bounded by the real part. This man's namesake hierarchy orders the sets of finite and infinite rank that are generated from intersecting Polish spaces. Those sets, which are also named for him, define the associated sigma algebra of a topological space. This co-namesake of a theorem with Constantin Caratheodory also names a theorem stating that, if the sum of a series of events is finite in a probability space, then the probability that an infinite sequence of said events occurs is zero; that theorem is co-named for this man and Francesco Cantelli. This man is the second namesake of a theorem that states that, for a subspace of a Euclidean space, every open cover has a finite subcover. For 10 points, name this mathematician who names that theorem with Eduard Heine.
ANSWER: [Félix Édouard Justin] Émile Borel [accept Constantin Caratheodory until "hierarchy"]
18. This artist painted a man against a red background whose open shirt reveals his very hairy chest in Adelard the Drowned, Master of The Phantom. He depicted a wide tan road reaching down the height of the canvas past granite boulders covered in flaming red plants as part of his Dogtown series. Five figures, two of whom have stars above their heads, sit below a painting of a ship at a table inscribed "Mene, Mene" in this artist's Fisherman's Last Supper. Another work by this artist contains a red, black, and white imperial flag below a wavy black-and-white flag covered by a triangle that bears an iron cross. A photograph of Marcel Duchamp’s Fountain by Alfred Stieglitz uses this painter’s The Warriors as a background. Several depictions of Mount Katahdin were painted by this artist, who used a helmet inscribed with the numbers eight and nine to represent his lover Karl von Freyburg. For 10 points, name this "painter of Maine" who painted Portrait of a German Officer.
ANSWER: Marsden Hartley
19. This woman had one of her political opponents tied to a ladder, castrated, and burned a few days before feeding his father to dogs. She accused three of her sisters-in-law of adultery in the Tour de Nesle affair. In the Tower of London, this woman gave birth to her youngest daughter, Joan, who later married David II. Another of this woman's children fixed prices and forced all people under 60 to work in the Ordinance of Laborers; that son of hers gained the throne in a coup he led with William Montagu. Following a successful siege of Bristol, this woman ordered the execution of Hugh le Despenser, after which she ruled alongside her lover, a Marcher lord, for four years. Although this woman's husband was probably having an affair with Piers Gaveston, he fathered four of her children before she and her lover, Roger Mortimer, deposed him in 1326. For 10 points, name this femme fatale of the House of Capet, the "She-Wolf of France" married to Edward II.
ANSWER: Isabella of France [or Isabel of France; accept the "She-Wolf of France" before "SheWolf"]
20. This composer has the cellos play half pizzicato, half arco over a sustained "D-A-C-sharp" drone in the first movement of one piece. The second movement of that piece by this composer begins with a high cello solo and includes a celesta ostinato. He included a "Präludium" marked "Rasch" in his sort-of-neobaroque Piano Suite. Another piece by this composer includes a "Valse de Chopin" and uses an "E-G-Eflat" motive in a movement subtitled "Passacaglia." He originally used titles like "The Obbligato Recitative" and "Chord Colours" for his Five Orchestral Pieces, in which he made the first major use of Klangfarbenmelodie. Another piece by this composer uses a different combination of piano, flute, clarinet, violin, and cello in each movement and is a setting "three times seven poems" by Albert Giraud using sprechstimme. For 10 points, name this Second Viennese School composer who innovated atonality with pieces like his Three Piano Pieces, Opus 11, and Pierrot Lunaire.
ANSWER: Arnold Schoenberg

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## Bonuses

1. This group was a pioneer in the use of vocoders in music, and they used an Orchestron to produce choir-like sounds for their 1975 album Radioactive. For 10 points each:
[10] Name this winner of a 2014 Lifetime Achievement Grammy, a German electronic music band that was founded in the early 1970s. Their "Robot Pop" tunes include the 22-minute long "Autobahn."

## ANSWER: Kraftwerk

[10] This London museum's ticketing system went down in 2013 soon after they started selling tickets to a Kraftwerk show. This art gallery is located in what used to be the Bankside power station.
ANSWER: Tate Modern
[10] This large gallery of the Tate Modern annually houses notable exhibitions like Ai Weiwei's Sunflower Seeds and Rachel Whiteread's EMBANKMENT. This hall was inaugurated with Louise Bourgeois's I Do, I Undo, I Redo series and has also housed Anish Kapoor's massive Marsyas.
ANSWER: Turbine Hall [prompt on "turbine"]
2. The BN-600 reactor in Russia is unique in that its design does not include one of these materials. For 10 points each:
[10] Name these materials used in nuclear reactors to convert fast neutrons into thermal neutrons through scattering.
ANSWER: neutron moderators
[10] Graphite moderators are subject to this effect in which high-energy neutrons collide with lattice atoms to create Frenkel defects. The release of this effect's namesake energy indirectly caused the 1957 Windscale fire in the UK.
ANSWER: Wigner effect [or Wigner energy; prompt on "discomposition"]
[10] A decrease in neutron speed corresponds to an increase in this quantity. It represents the probability that a nuclear reaction will occur in terms of an effective area.
ANSWER: nuclear cross section
3. In medieval retellings of the Trojan War, this figure was held to be the father of Cressida. For 10 points each:
[10] Name this prophet who suggested that Agamemnon would have to sacrifice his daughter Iphigenia at Aulis for favorable winds on the way to Troy.
ANSWER: Calchas
[10] Servius states that Calchas died in this fashion after a rival soothsayer came by and told him that he would never drink any wine from the vines he had just planted.
ANSWER: died of laughter [accept obvious equivalents]
[10] This now-lost epic poem states that Calchas died after losing a prophecy battle with rival seer Mopsus. This poem describes voyages home and is named for the Greek word for "returns."
ANSWER: Nostoi
4. The library collected by this king included a defense of Palestrina that he wrote himself. For 10 points each:
[10] Name this king, who was raised to the throne in a revolution against Philip III. His vast empire lost Muscat and Malacca during his reign, and his daughter Catherine married Charles II of England.
ANSWER: John IV [or João IV; prompt on "John" or "João"]
[10] John and his daughter Catherine came from this Portuguese royal house, which ruled Portugal until 1910 and was also the only royal house of Brazil.
ANSWER: [Most Serene House of] Braganza [or Sereníssima Casa de Bragança]
[10] Kings of Portugal were styled monarchs of Portugal and this Portuguese coastal region south of Alentejo, whose name is derived from the Arabic for "west." It is essentially Portugal's answer to the French Riviera.

## ANSWER: $\underline{\text { Algarve [or The Algarves] }}$

5. Answer the following about the exciting intersection of science and world literature, for 10 points each. [10] In this mind-blowing Amitav Ghosh novel, the Ronald Ross expert Murugan posits the existence of a "counter-science" working to cause mutation-like leaps of understanding about malaria that allow Mangala to reincarnate herself.
ANSWER: The Calcutta Chromosome
[10] Ruth Ozeki, a novelist from this country, uses quantum mechanics to explain her connection to the suicidal Naoko's diary in A Tale for the Time Being. Another author from this country wrote about Janet's visit to a planetarium in "The Moons of Jupiter."
ANSWER: Canada [Alice Munro wrote "The Moons of Jupiter."]
[10] An enslaved Italian scholar named Hoja designs weapons for an Ottoman Sultan in this author's The White Castle. He also wrote about Ka's investigation of "head-scarf" suicides in Snow.
ANSWER: Orhan Pamuk
6. The ruler was the first to actually use the title of sultan. For 10 points each:
[10] Name this second and greatest ruler of the Ghaznavid empire, widely reviled in India for despoiling thousands of temples during his incredibly destructive invasions.
ANSWER: Mahmud of Ghazni [or Yamin al-Dawla Abul-Qaṣim Mahmud ibn Sebüktegin]
[10] "The Hindus became scattered like atoms of dust" according to this scholar’s account of Mahmud's invasion of India. This scholar is often known as al-Ustadh, or "the Master," for his foundational work on Indology.
ANSWER: [Abu al-Rayhan Muhammad ibn Ahmad] al-Biruni [or Alberonius]
[10] A legend says that Mahmud initially offered a gold piece to this poet for every couplet of his
Shahnameh, but a courtier who disliked this poet replaced all of the gold pieces with silver.
ANSWER: [Hakim Abu '1-Qasim] Ferdowsi [Tusi] [accept variant pronunciations]
7. Josquin used this technique his motet "Alma redemptoris mater/Ave regina caelorum." For 10 points each: [10] Name this characteristic of much vocal music from the 13th through 15th centuries, often involving more than one language. Machaut used an extreme version of this technique in pieces like "Sans cuer/Amis/Dame" and "Quant Theseus/Ne quier," which have almost completely unintelligible lyrics. ANSWER: polytextuality [accept any equivalents of more than one text; prompt on "macaronic"] [10] This composer wrote many polytextual motets, such as the six-part "Vos qui admiramini/Gratissima virginis species." Many of his pieces are found in the Roman de Fauvel, and he probably wrote the treatise Ars nova notandi.
ANSWER: Philippe De Vitry [prompt on "Philippe"]
[10] One of the innovations of the Ars Nova was imperfect mensuration, the sign for which looks like a "C." That sign, which is often misunderstood to stand for "common time," is now used to denote a measure with this number of beats.
ANSWER: $\underline{\text { four }}$ [accept "four/four"]
8. The speaker of this poem recalls his fear of "the chronic angers of that house" while describing a figure whom "no one ever thanked." For 10 points each:
[10] Name this poem about a figure who "got up early / and put his clothes on in the blueblack cold." This poem concludes with the speaker reflecting, "What did I know, what did I know / of love's austere and lonely offices?"
ANSWER: "Those Winter Sundays"
[10] "Those Winter Sundays" is about Robert Hayden's relationship with this kind of person, also exemplified by a man who can't come up with a story in a Li-Young Lee poem. One is called "a man in black with a Meinkampf look" in a Sylvia Plath poem.
ANSWER: the poet's father [or daddy or other equivalents]
[10] The speaker describes a father who can "drown a bug in one spit of tobacco juice" in "Old Florist," one of this author's many "greenhouse poems." He describe a person who "played it light and loose" and "cast a shadow white as stone," the "sickle" to the speaker's "rake" in "I Knew a Woman."
ANSWER: Theodore [Huebner] Roethke
9. Name the following terms used to describe the scientific process, for 10 points each.
[10] This two-word term refers to Paul Feyerabend's observation in Against Method that fixed, universal methodological rules governing the progress of science are counterproductive.
ANSWER: epistemological anarchy [accept word forms]
[10] This term is used to refer to the process of "puzzle-solving" that scientists engage in for the majority of their careers in Thomas Kuhn's The Structure of Scientific Revolutions. It is contrasted with revolutionary science.
ANSWER: normal science
[10] This term refers to a distinct concept or thought pattern in epistemology that "shifts" in a scientific revolution. Imre Lakatos suggested the idea of "research programmes" as an alternative to this concept. ANSWER: paradigms [accept paradigm shifts]
10. The simplest model of these objects is the "Polish doughnut" model. For 10 points each:
[10] Name these accumulations of diffuse material around massive objects such as black holes. ANSWER: accretion disc
[10] J. Pringle and this other astrophysicist worked together on a paper that models accretion discs using thin discs. With Martin Rees, this astronomer proposed that a black hole was at the center of the Milky Way.
ANSWER: Donald Lynden-Bell [prompt on partial last name]
[10] The Blanford-Znajek mechanism, a proposed method of powering quasars, is also a proposed mechanism for these astronomical phenomena, in which a gush of material is emitted from a compact object.
ANSWER: astronomical jets
11. In Balzac and the Little Chinese Seamstress, two boys escape the drudgery of Communist re-education in a rural village by reading French literature. Name some of the works that captivate them, for 10 points each. [10] As the title suggests, the narrator and his friend Luo read Eugénie Grandet and some of the other 90plus works that make up this Balzac magnum opus.
ANSWER: The Human Comedy [or La Comédie humaine]
[10] The head of the village makes Luo drill his teeth after he recites from this novel, which Italo Calvino retold in the final story of $t$ zero. The title character of this novel captures Luigi Vampa and later employs him to capture Albert de Morcerf.
ANSWER: The Count of Monte Cristo [or Le Comte de Monte-Cristo]
[10] The narrator is especially fond of this literary character who duels with the critic Goujart after discovering that his mistress Sainte-Ygraine is a terrible singer. Novels in which he appears include Dawn, Revolt, and The New Dawn.
ANSWER: Jean-Christophe [accept Jean-Christophe à Paris or Jean-Christophe in Paris by Romain Rolland]
12. In a classic experiment, GFP was fused to a viral gene VSVG expressing this type of mutation in order to track the movement of proteins through the Golgi. For 10 points each:
[10] Name these conditional mutants, which appear as wild-type under permissive conditions but express a mutant phenotype under restrictive conditions. Their use was pioneered by Horowitz and Leupold in tests of the "one gene, one enzyme" hypothesis.
ANSWER: temperature-sensitive mutants [accept TS mutants; accept cold-sensitive or heat-sensitive mutants]
[10] Biologists often use temperature-sensitive mutants of this model organism, whose transcriptional activator GAL4 is the basis for a namesake two-hybrid screen. This ascomycete is related to the "fission" species S. pombe.
ANSWER: budding yeast [or Saccharomyces; or $\underline{\text { S. cerevisiae }}$ or other species]
[10] A large part of the protein transport pathway through the ER, Golgi, and vesicles was first studied in these yeast mutants. These mutants are the namesake of the proteins that form the translocon and COPII coat.
ANSWER: $\underline{\text { sec }}$ mutants/proteins [accept secretion or secretory mutants/proteins]
13. This man was made a saint and posthumously declared the king of the Czechs after his death. For 10 points each:
[10] Name this knize and saint who was supposedly murdered by his brother, Boleslav the Cruel, in 935 CE. ANSWER: Wenceslas I [or Wenceslaus I; or Saint Wenceslas; or Good King Wenceslas; prompt on "Wenceslas"]
[10] This Muslim merchant served in the court of Wenceslas I. Some Communist historians consider him to be an early anti-colonialist and anti-slavery advocate for leading a peasant revolt against the murderous Boleslav.
ANSWER: Had' Carém [or Hajji Karim]
[10] This German king waged a campaign against Wenceslas in order to force Bohemia to pay tribute. This father of Otto the Great got his epithet from the fact that he was fixing bird nets when he was informed that he was to become king.
ANSWER: Henry the Fowler [ $\mathrm{or} \underline{\text { Heinrich der Finkler; }}$ or Heinrich der Vogler; or Heinricius Auceps]
14. "Chipmunk" and "moose" are English loanwords from languages of this subfamily. For 10 points each: [10] Name this subfamily of Algic that includes Cree and Potawatomi. Many languages in this family employ a person hierarchy that ranks second person highest and third person obviate last for pronominal affixes.
ANSWER: Algonquian [or Algonkian]
[10] Many Algonquian languages use the plural markers $-a$ and -ak to mark this category. In an example of case syncretism, Russian marks this category with accusative forms that are identical to either genitive or nominative forms.
ANSWER: inanimacy [accept animacy or word forms of either; accept equivalents such as if it's alive] [10] The Algonquian language Ojibwe served as this type of common language for trade on the Great Lakes. This term refers to languages that unite many otherwise unlinked groups in a region, such as Greek in the Byzantine empire.
ANSWER: lingua franca [accept bridge language or vehicular language]
15. The archetype of this religious figure is often thought to be the Ugaritic hero Kothar. For 10 points each: [10] Name this Islamic religious figure, whose name is translated as "The Green One" because of a false etymology. This righteous servant of God accompanies Dhul-Qarnayn on a quest and finds the water of life.
ANSWER: al-Khidr [accept Khizr or Khyzer or Qeezr or Qhizyer or Xizir or Hizir]
[10] Al-Khidr is sometimes syncretized with Saint Sarkis the Warrior, an Armenian hero who held this position in the Roman army. Biblical holders of this position include the master of a servant Jesus heals at Capernaum, and Cornelius, the first gentile convert.
ANSWER: centurion [accept hekatontarch or kentarch]
[10] The miracle of the healing of the centurion's servant is found in both Matthew and this third and longest gospel, which, like Acts of the Apostles, is addressed to Theophilus.
ANSWER: Gospel According to Luke [or Loukan]
16. This man argued that slavery was institutionalized in the constitutions of neither the federal nor the slave states in The Unconstitutionality of Slavery. For 10 points each:
[10] Name this American abolitionist and anarchist, who argued in No Treason that the Constitution could logically apply only to those individuals who signed it and nobody else.
ANSWER: Lysander Spooner
[10] Spooner had a run-in with the federal government when he opened a company to do this activity in 1844; threatened with legal action under the Private Express Statutes, Spooner closed up shop in 1851. ANSWER: delivering the mail [accept any equivalent such as letter delivery, courier, etc.] [10] In contrast to Lysander Spooner's argument that the Constitution was an anti-slavery document, this writer argued that the Constitution was "a Covenant with Death, an Agreement with Hell" in the first issue of his abolitionist newspaper The Liberator.
ANSWER: William Lloyd Garrison
17. In one painting, this man sits on the ground by the pillars of some ruins wearing a bright orange robe as an eagle sits behind him. For 10 points each:
[10] Name this lonely title man of a "landscape" in which he is writing on a tablet while contemplating his exile by Domitian.
ANSWER: St. John of Patmos [accept Landscape with St. John on Patmos]
[10] Landscape with St. John on Patmos is by this artist, who showed four figures making merry as a winged man plays the lyre in his A Dance to the Music of Time.
ANSWER: Nicolas Poussin
[10] The Duc de Richelieu commissioned Poussin's series on this subject, which contains Old Testament scenes including "The Earthly Paradise," "The Spies with the Grapes," and "Ruth and Boaz."
ANSWER: The Four Seasons [or Les Quatre Saisons]
18. Much like carboxylic acids, these compounds react with alcohols to form esters. For 10 points each: [10] Name these functional groups that can be hydrogenated to produce aldehydes using poisoned palladium on barium sulfate. These groups can be thought of as carboxylic acids in which the hydroxyl group is replaced by atoms from a group of elements that are highly electronegative.
ANSWER: acyl halides [or acid halides; accept specific types like acyl chlorides or acid chlorides; prompt on partial answer]
[10] Acyl chlorides react with quinolines and cyanide to produce these compounds, which are named after the German chemist who names a reaction to produce indoles from o-nitro-toluene and diethyl oxalate using an ethoxide base. These compounds are very useful in the synthesis of the opium-derived natural product papaverine.
ANSWER: Reissert compounds [or Reissert derivatives]
[10] Reissert derivatives are a useful way to prepare aldehydes containing this atom, which has the secondlowest priority in CIP rules. NMR often uses chloroform containing this atom, which is found in heavy water.

19. This play's dramatis personae include an un-jolly fellow who purchases Lives of the Great Poisoners so that he can kill his unenviable wife Mrs. Pugh. For 10 points each:
[10] Name this drama whose characters include the frightening cobbler Jack Black, and the music loving Organ Morgan. Captain Cat begins this play by dreaming of his lost men.
ANSWER: Under Milk Wood
[10] Under Milk Wood is set in this dreamy Welsh town, through which Coronation Street runs.
ANSWER: Llaregub
[10] Under Milk Wood was written by this Welsh poet, who wrote "rage, rage, against the dying of the light" in "Do Not Go Gentle into that Good Night."
ANSWER: Dylan [Marlais] Thomas
20. This building received its current nickname because local Bedouins supposedly hoped to earn riches by shooting its urns. For 10 points each:
[10] Give the common name of this building carved into sandstone, which is depicted towards the end of Indiana Jones and the Last Crusade as an ancient temple. Solomon's Temple in Assassin's Creed may be modeled after this building.
ANSWER: The Treasury [or al-Khazneh]
[10] The Treasury is found in this Jordanian ruined city carved out of stone, which can be accessed through the siq to see the Monastery, the Temple of the Winged Lions and other marvels.
ANSWER: Petra [or Rekem]
[10] This ancient North Arabian people constructed Petra as the capital of their kingdom, which encompassed Hegra and Damascus at its height. This people's name is thought to mean "the men who dig for water."
ANSWER: Nabataeans [or Nabatae; or Nabatu; or al-Anbat]
