

Chicago Open 2015

Packet by wobbly cocaine spaceship (Naveed Chowdhury, Michael Coates, Cory Haala, and Ramapriya Rangaraju)

1. In a fairy tale by Giambattista Basile, an ogre corrected identifies the skin of one of these things, which titles a Georges Feydeau play in which Raymonde Chandebiese tests the fidelity of her husband, Victor Emmanuel. In *Endgame*, Hamm says that one of these creatures must be caught because “humanity might start from there all over again.” Yevgeny Zamaytin’s most successful play was named after this kind of creature. In *The Clouds*, a disciple of Socrates tells Strepsiades of how Socrates came up with a way to measure (*) the distance traversed by one of these beings. One of these beings is fitted with horseshoes by Cross-eyed Lefty from Tula in a Nikolai Leskov short story. Another of these creatures is asked if it has “since / Purpled thy nail in blood of innocence?” in *Songs and Sonnets*. For 10 points, name this insect which sucked the blood of a woman and then the blood of John Donne.

ANSWER: fleas

2. This figure is once cursed to not be able to land on anything except for sea rocks for seven years. She agrees to commit adultery with her brother-in-law when he says that he will die otherwise, but when she goes to meet him she finds her first husband in disguise. Her two husbands gamble at chess, and her first husband loses many times before gambling for an embrace and kiss from her and winning. At a feast, she falls into a glass of mead and is swallowed, but she is (*) reborn after a millennium. When her second husband Eochaid goes to reclaim her, he is forced to choose from fifty identical women and mistakenly selects his own daughter. This figure is successively turned into a pool of water, a worm and a butterfly by Fuamnach, the first wife of Midir. For 10 points, name the most beautiful woman in all of Ireland, whose wooing is the subject of a work in the Mythological Cycle.

ANSWER: Étáin

3. A portrait named for one of these people, based on Gustavus Murray, was painted by Sir Luke Fildes on a commission from Henry Tate, and was used in the American “Keep Politics Out of this Picture” campaign. Otto Dix had an affair with the wife of one of these people who was also his subject, Hans Koch. Dix also painted a corpulent one seated in front of a large round mirror, who was surnamed Mayer-Hermann. A man with this occupation holds a book with a bookmark bearing the inscription (*) “Made in Five Days.” That man is one of six caricatures of Jews surrounding a boyish Christ in a 1506 painting by Albrecht Durer. A man with this occupation leans against the left side of an amphitheater in an 1889 painting by Albrecht Durer. A man with this occupation was portrayed by an artist who portrayed himself seated in a similar amphitheater in an 1875 painting. For 10 points, name this occupation held by Messers Agnew and Gross in paintings by Thomas Eakins.

ANSWER: doctors (or physicians)

4. One of this author’s character is a doctor whose assistant is a living teratogenous cystoma. A sprawling work by this man includes a chapter called “sun” about a man from the Baekje kingdom whose head is replaced by a wolf, and another called “Universe” about four astronauts taking place in 2577 AD. Besides *Black Jack* and *Phoenix*, this man’s other historically inspired works include *Cleopatra: Queen of Sex* and a particularly gritty portrayal of the life of Gautama Buddha. This man popularized the trope of the gender-bending princess, which was later used in *Utena* and *The Rose of Versailles*, in his work (*) *Princess Knight*. This man headed Mushi Productions. One of this man’s protagonists is sold to a cruel circus owner named Ham Egg, before Professor Ochanomizu rescues him to work for the Ministry of Science; that protagonist was created as a replacement for Doctor Tenma’s son. For 10 points, name this manga pioneer and creator of Astro Boy.

ANSWER: Osamu Tezuka

5. One ruler with this name and number created the Order of the Pigeons and ransomed Leon V from the Mamelukes. That ruler of this name and number was persuaded by a companion known as the “Holy Constable” to murder the conde de Ourem, which resulted in an attempted reprisal by the son-in-law of Queen Leonor. Another ruler with this name and number staked his claim to the throne of a neighboring region with his marriage to Beatrice, daughter of Ferdinand I, which occurred after that ruler signed the Treaty of Salvaterra (*) de Magos with another ruler of this name and number. That ruler, the illegitimate son of Pedro I, married Philippa, the daughter of John of Gaunt, and was persuaded to rebel against the other ruler with this

name and number by Nuno Alvares Perreira. These two rulers with the same name and number clashed at the Battle of Aljubarrota, which resulted in a devastating loss for the Castilians. For 10 points, identify this name and number shared by a late-14th-century king of Castile as well as his rival, who went on to rule an independent Portugal as the first monarch of the House of Aviz.

ANSWER: John I [or João I or Juan I]

6. One essay by this thinker consists of a 72-bullet point list of everything that the title concept is not, including “a state in which a person who has committed no crime sits at home waiting for the police.” Another influential essay by this philosopher concerned two figures which this thinker called “the two most general forms of intellectual culture,” one of whom is the “guardian of the absolute” while the other “doubts all that appears self-evident.” In addition to “What is Socialism?” and “The Priest and the Jester,” this philosopher collected a group of essays he called “semi-philosophical sermons” in a book titled *Modernity on Endless Trial*. (*) A book by this thinker contains a chapter on Georgy Lukacs, calling him “reason in the service of dogma.” This thinker’s most important work consists of three volumes titled “Founders,” “The Golden Age,” and “Breakdown,” the latter of which examines varying approach to its title subject, such as Marcuse’s, which this author called “the totalitarian utopia of the left.” For 10 points, identify this author of *The Main Currents of Marxism*, a prominent 20th century Polish philosopher.

ANSWER: Leszek Kolakowski

7. One piece within this work juxtaposes a fixed 3/8 meter in the castanets against alternating 5/16 and 7/16 time in the rest of the orchestra. The first pas-de-trois in this ballet is divided into a sarabande, a galliard, and a third dance simply called ‘coda.’ The pas de deux in this ballet was specifically created for the black dancer Arthur Mitchell, who shocked audiences by dancing it with the white Diana Adams. Its composer was partially inspired by seeing an engraving of two trumpeters in Francois De Lauze’s manual *Apologie de la dance*. The hexachord D-E-F-G – F sharp – B forms the basis of the “Bransle simple” in this ballet, which closes with four trios following four duos. It was the third (*) Greek-inspired ballet by its creators, following *Apollo* and *Orpheus*. Divided into four groups of three dances separated by interludes, it was its composer’s only ballet to use twelve-tone serialism. For 10 points, identify this ballet, a collaboration between Balanchine and Stravinsky whose name comes from the Greek for “contest.”

ANSWER: Agon

8. The p230 variant of this protein is associated with a more neutrophilic phenotype, and its other variants are p210 and p190, which can often be a splice variant. The cooperation of this protein with NUP98/HOXA9 in a mouse strain is a useful model of how this protein can help drive a “blast crisis”. Tasigna and Sprycel are second-generation drugs targeting this protein, though they remain somewhat blunted against P-loop mutations in it. This protein acquires resistance via a T315I mutation, though it remains susceptible to Iclusig. One part of this protein is homologous to a protein found in the (*) Abelson murine leukemia virus. This protein is expressed by a structure created by a 9 to 22 translocation, and is targeted by a small molecule originally called STI-571, and is now called imatinib mesylate. For 10 points, name this protein that drives pathogenesis of chronic myelogenous leukemia, which is the product of the Philadelphia chromosome.

ANSWER: BCR-ABL fusion protein [prompt on “Philadelphia chromosome”]

9. This organization was depicted in cartoons as the honest, hardworking Hiram Rube but opposed internally by the Independent Voters’ Association after being denounced in publications like *The Red Flame*. Members of this organization turned a derogatory remark in the *Steele County Ozone* into their nickname as “six-dollar suckers,” while “The goat that can’t be got” served as the mascot of this organization, which formed after rumors spread that Treadwell Twitchell told a crowd to “Go home and slop the hogs.” This party elected a governor who declared his state’s secession from the US in 1934 and served a jail term for fraud, “Wild Bill” Langer, along with a governor recalled in 1921 by an initiative his party passed, Lynn Frazier. Finally merging in 1956 with the Democratic Party was—for 10 points—what agrarian populist party founded in 1915 by (*) A.C. Townley in North Dakota?

ANSWER: North Dakota Non-Partisan League (or NPL)

10. In a novel set in this country, a tiny town is menaced by an anthropomorphized fence and Judge Montenegro during the local population's revolt against the sinister Pasto Corporation. That novel, *Drums for Rancas*, is part of a series known as "The Silent War" by an author from this country, Manuel Scorza. Dona Felipa leads a rebellious group of chicheras in a bildungsroman set in this country about the coming of age of Ernesto. In a 1969 novel set in this country, a character repeatedly asks "At what precise moment did [this country] fuck itself up?" It's the setting of (*) *Deep Rivers*, the masterpiece of Jose Maria Arguedas, as well as a novel named for a bar where Ambrosio and Santiago Zavala swap stories. In another novel, a disaster in this country's colonial period inspires Brother Juniper to write a book about the divine providence of God. For 10 points, *Conversation in the Cathedral* takes place in what country, whose capital city is the setting of *The Bridge of San Luis Rey*?

ANSWER: Republic of Peru [or Republica Peru]

11. A castle formerly belonging to this family served as the seat of the government of Vichy France after the conquest of France by the Allies. A member of this family named Charles married the niece of Joachim Murat, Marie Antoinette Murat, and abdicated his position during the revolutions of 1848 in favor of his son. That son served several years as Minister-President during the regency of Wilhelm I and was named Charles Anton. A member of this family won military fame for his leadership of the army at the Siege of Plevna and won independence for his country from the Ottoman Empire at the Congress of Berlin. Another member of this family, a son of Charles Anton (*) named Leopold, became the indirect cause of the Franco-Prussian War when he was offered the Spanish throne, an offer known as this house's namesake candidacy. After the death of the last member of this family's Hechingen branch, the remaining Catholic branch of this family dropped the suffix "Sigmaringen." For 10 points, identify this family with origins in Swabia whose scion Carol I became the first king of Romania.

ANSWER: House of Hohenzollern [or Hohenzollern-Sigmaringen; prompt on "Sigmaringen" until mentioned]

12. In one story in this collection, Samuel loses his job as a hotel maid on his birthday before tripping and falling face-first onto some railroad tracks. The title character of another story in this collection is put on trial for murdering two soldiers in 1858 even though he's living in the 20th century. A man remembers feeling like he could fly after jumping off the roof of his school in a story in this collection about a trip to collect the ashes of another character's father. The narrator of its title story has a dream of soldiers playing polo with a dead woman's head, frightening his (*) white girlfriend, and enters a 7/11 where he intimidates a clerk by asking for a Creamsicle. The author of this book used its stories, such as "This Is What It Means to Say Phoenix, Arizona," as the basis for his film *Smoke Signals*. Many of its stories focus on Victor Joseph and Thomas Builds-the-Fire, who are also part of its author's novel *Reservation Blues*. For 10 points, name this short story collection by Sherman Alexie, whose title refers to characters from a classic TV western.

ANSWER: The Lone Ranger and Tonto Fistfight in Heaven

13. A method of attaching this functional group to sugars using silver oxide is named for Purdie, and another procedure for adding it uses DMS and is named for Haworth. The addition of a single one of this group to a small molecule may radically alter its half-life, selectivity, and binding affinity, a phenomenon called its namesake "magic" effect. In the mass spectrometry of glycans, this group is often added to protect hydroxyls. A radical method of adding this functional group involves mixing Fenton's reagent and DMSO. Adding this group to the 3-position of morphine gives codeine, and an exhaustive addition of this functional group is the first step of the (*) Hofmann elimination. Biologically, the addition of this functional group is done via an SN2 reaction with a homocysteine derivative as a functional group; in that reaction, S-Adenosylmethionine serves as a donor. Xylene contains two of these groups attached to a benzene ring, and one of them bonded to benzene gives toluene. For 10 points, name this chemical group which formula CH₃.

ANSWER: methyl [prompt on alkyl]

14. Fernandez-Villaverde and Rubio-Ramirez argue that "structural reform" can be effective despite this concept because if forward-looking consumers expect their wealth to grow, they will consume more in the present. This concept implies a "reverse credibility problem": no one will believe a commitment to be irresponsible in the future, by exceeding the inflation target. This concept is one indication of demand-driven

secular stagnation according to Larry Summers, and Abe-nomics is supposed to be solution to this concept., which has plagued the (*) Japanese macroeconomy for decades. Fiscal policy is very effective and monetary policy totally ineffective under this concept, according to Krugman's 1998 paper. This concept can be interpreted as the effect of an excess supply of capital or demand for safe assets, and it exists because it's always possible to store wealth as cash. For 10 points, name this concept that refers to the minimum level of the nominal interest rate, which cannot be negative.

ANSWER: Zero Lower Bound (or ZLB. Accept "Zero Bound" since some papers use that phrase, but not "ZB," which no one does.)

15. This work's author claimed to have never read it consecutively until 32 years after its first publication, and its epigraph superimposes quotes from John 8:32 and Hamlet. This book claims to reconcile the difference between Jews and Christians based on the First Commandment in its chapter "Some Objections Answered." This book's final section, titled "Fruitage," consists of 84 testimonials. This book contains consecutive exegeses of (*) Genesis and Revelation, which trace the recurring use of the serpent as a symbol of evil. This book provides a "Statement of Being" which declares "There is no life, intelligence, nor truth in matter," while the final chapter of its first section, "Recapitulation," is the basis for Primary class instruction and was adapted from "The Science of Man." For 10 points—name this 1875 textbook claiming to have a "Key to the Scriptures" for a religion founded by Mary Baker Eddy.

ANSWER: Science and Health with *Key to the Scriptures*

16. A labor uprising occurring during the term of one leader with surname was put down by a force commanded by the "Hyena of San Gregorio". During his first term as president, a politician of this surname clashed with a junta that included Colonel Marmaduke Grove, and during his term that politician dissolved the COSACH corporation to create the COVENSA. A coup plot by the Nazi-inspired MNSC against one leader with this surname was stopped by the Seguro Obrero Massacre; that politician of this name was called back from his exile in Italy after the rise to power of the (*) January Junta. Another politician of this surname was the head of a Council of State that drafted a constitution approved by a 1980 plebiscite. One member of this family served as a finance minister under Gabriel Gonzalez; that member of this family stood as the candidate for the National Party the 1970 presidential election narrowly won by Salvador Allende. For 10 points, name this family that includes Arturo and Jorge, both presidents of Chile.

ANSWER: Alessandri

17. One model of this process results in a two-parameter fit for the local density of states and is typically analyzed asymptotically, depending on whether the LDOS is independent of energy or is a delta function of the energy; that is the Newns-Anderson model of this process. Lang and Williams characterized the delocalized bonds forming from this process in order to explain how it occurs in jellium. The simplest theory of this process is an empirical expression that sets a mass ratio proportional to pressure raised to the "one over n" power, (*) the Freundlich equation. A theory for how this process occurs in the presence of multiple layers was formulated by Brunauer, Emmett, and Teller. The first non-trivial theoretical model of this phenomenon gives the equilibrium constant times pressure over the quantity one plus the equilibrium constant times pressure as being equal to the occupancy fraction. That model, which like most models of this process assumes constant temperature, is named for Langmuir. For 10 points, identify this process in which a molecule attaches to an empty site on a surface.

ANSWER: adsorption [do not prompt on or accept "absorption", ask for spelling if necessary]

18. A set of six baroque sonatas for this instrument contains various character pieces interspersed or "medleyed" among larger pieces named *L'Henriette* and *La Chauvet*. Michel Blavet was an early virtuoso on this instrument, which is the only one that does *not* play at the opening of the Fifth Brandenburg concerto, instead entering after the end of the first phrase. Jacques-Martin Hotteterre wrote one of the earliest treatises on playing this instrument in its revised three-section design. To let it play E-flat, a second (*) key was added to it by Johann-Joachim Quantz. It's not a string instrument, but Georg Philip Telemann composed 12 fantasias for it as well as six *Sonatas sans basse* for two of them. During the baroque period, it was sometimes known simply as the *traverso* or *traversiere*. It was the primary instrument of the composer who provided JS Bach with the theme for *The Musical Offering*. For 10 points, name this woodwind instrument played by Frederick the Great, which is held transversely unlike its relative the recorder.

ANSWER: flute

19. In one of this author's poems, he imagines a country squire who wants to buy his books from Bernard Lintot, only to be shown trash like Henry's sermons and Stephen Duck's odes. Another of this author's poems begins "Remove me from this land of slaves / Where all are fools, and all are knaves." He agreed with Rochefoucault's maxim "In the adversity of our friends, we find something that doth not displease us" at the beginning of a poem which claims that (*) Pope "can in one couplet fix / more sense than I can do in six," and parodied Robert Boyle's *Occasional Reflections Upon Several Subjects* in his *Meditations Upon a Broomstick*. He imagined how his friends and enemies would react to his death in a poem which describes his pride in successfully opposing William Wood's coinage scheme. He published his poem "A Description of a City Shower" in *The Tatler*, which boosted its circulation by using one of his pseudonyms, Isaac Bickerstaff. For 10 points, name this Anglo-Irish author of the *Drapier's Letters*.

ANSWER: Jonathan Swift

20. A sweep-line algorithm that accomplishes this process via a divide-and-conquer strategy with a computational complexity of $O(n \log n)$ was developed by Garey. Tarjan and van Wyk reduced this complexity to $O(n \log \log n)$ by reducing the problem of performing this process to the problem of computing the horizontal visibility map. Fisk used this process, followed by a 3-coloring, to give a short proof of Chvatal's art gallery theorem. Chazelle demonstrated a linear time method for performing this operation (*) on a simple polygon, and a method for carrying out this process such that the result satisfies the empty circumcircle property was developed by Delaunay. For a simple and convex polygon, this can be trivially performed by picking a vertex and drawing a line to every other vertex not adjacent to the chosen one. For 10 points, identify this procedure of subdividing a surface into 2-simplexes whose angles sum to 180 degrees.

ANSWER: triangulation [accept descriptions like "dividing a surface into triangles" before "subdividing" is mentioned]

1. He was killed in a car accident in 2008 just two weeks after his party tripled its parliamentary representation. For 10 points each:

[10] Name this far-right politician who at the time of his death led the Alliance for the Future of Austria.

ANSWER: Jörg **Haider**

[10] Jorg Haider's politics are somewhat similar to Geert Wilders, a far-right politician from this nation. Pim Fortuyn, a politician from this country, was assassinated in 2002.

ANSWER: **Netherlands**

[10] For years, Haider was governor of this southern Austrian state, where he attracted controversy for his adversarial stance toward its native Slovene population.

ANSWER: **Carinthia** [or **Kärnten**; or **Koroška**]

2. This author argued that ancient republics required individual to completely subject themselves to the authority of the social body in order to participate in it. For 10 points each:

[10] Identify this political philosopher, who contrasted that form of "liberty" possessed by the "ancients" with the form suitable for the "moderns" in his critique of the philosophy behind French Revolution.

ANSWER: Henri-Benjamin **Constant** de Rebecque

[10] Constant argued that Rousseau attempted to transpose the ancient form of liberty onto modern times in formulating this concept, which was designed to represent the "common good" or "common interest" of society as a whole. The Declaration of the Rights of Man claimed that "the law is the expression of" this concept.

ANSWER: the **general will** [or **volonté générale**]

[10] Constant was strongly influenced by this work of anti-statist politics which argues for the possibility of human perfectability. It is the philosophical magnum opus of William Godwin.

ANSWER: **Enquiry Concerning Political Justice** and its Influence on Morals and Happiness

3. Corazon Aquino entered politics after her husband was assassinated at an airport. For 10 points each:

[10] Those events set off the People's Power Revolution in this nation, which led to the ouster of its longtime dictator Ferdinand Marcos.

ANSWER: the **Philippines**

[10] The fall of Marcos took place during the People Power Revolution, which in the Philippines is popularly known by this name that is also the name of a major road in Manila.

ANSWER: **EDSA** [or **Epifanio de los Santos Avenue**]

[10] In 2001, the EDSA Dos uprising resulted in the assumption of power by Gloria Macapagal-Arroyo after the resignation of this actor-turned-president.

ANSWER: Joseph Ejercito **Estrada**

4. This journal became famous for publishing works critical of the Soviet government. For 10 points each:

[10] Identify this literary journal. Works published in it include Vladimir Dudintsev's *Not by Bread Alone*, and in 1988 it gave *Doctor Zhivago* its first publication in the Soviet Union.

ANSWER: **Novyi Mir** [or **New World**]

[10] This Ilya Ehrenberg novel was first published by *Novyi Mir* in 1954. It centers on three characters – Zhuravlev, a factory boss and "little Stalin", Pukhov, a teacher, and Saburov, a painter – and lends its name to the period of Soviet history of which it was a part.

ANSWER: *The* **Thaw** or [**Ottepel'**]

[10] The most famous work originally published by *Novyi Mir* is likely this work by Aleksandr Solzhenitsyn, which centers on the prisoner Shukhov's experiences in the gulag, where he is a member of Gang 104.

ANSWER: ***One Day in the Life of Ivan Denisovich*** [or ***Odin den' Ivana Denisovicha***]

5. The final piece in this cycle is called "Cloudy Heights of Tatra." For 10 points each:

[10] Name this song cycle for voice and piano. In "Songs My Mother Taught Me," the singer compares the tears of her mother to her own tears as she teaches her own children to sing.

ANSWER: **Gypsy Songs** [or **7 Gypsy Melodies** or **Cinganske melodie** or **Zigeunermelodien**]

[10] The *Gypsy Songs* were written by this composer of a Cello Concerto in B minor, who emulated Native American tunes in his last symphony.

ANSWER: Antonin **Dvorak**

[10] Dvorak used this instrument to introduce the second theme of the first movement of his cello concerto. Two of them play the first melody at the *allegro molto* in the first movement of the “New World” symphony.

ANSWER: French **horn**

6. Shakespeare didn’t leave many stage directions, but when he did, he sure made them fun. For 10 points each—
[10] Perhaps the most famous is this five-word phrase which precedes Antigonus’ offstage death in *The Winter’s Tale*.

ANSWER: **Exit, pursued by a bear.**

[10] Prospero makes this thing to detain his brother and the Neapolitans in *The Tempest*. Different productions have made it using sand, stones, the bodies of spirits, lighting or pyrotechnic effects, or – possibly the original intention – chalk.

ANSWER: magic **circle**

[10] Because Shakespeare’s plays were performed in daylight, he sometimes specifies these props in the stage directions to indicate that a scene takes place at night.

ANSWER: **torches**

7. After the flight of Constantine II, he served as regent until 1973, when his government abolished the monarchy and he became president. For 10 points each:

[10] Name this Greek colonel who took power following a military coup in 1967.

ANSWER: Georgios **Papadopoulos**

[10] Papadopoulos was deposed by fellow junta member Dimitrios Ioannidis after a student uprising at this Athenian university.

ANSWER: Athens **Polytechnic** [or **National Technical University** of Athens]

[10] This Greek term refers to the period following the ouster of Ioannidis after the failed coup against Makarios III of Cypress and refers to the liberalizing period that began when Konstantinos Karamanlis held open elections. Translated into English it roughly means “regime change.”

ANSWER: **metapolitefsi**

8. As a young girl, this deity bathed in a river despite the warnings of her mother Nunbarsegunu. For 10 points each:
[10] Name this mother goddess who was impregnated at the river by Enlil. She bore him three children in total.

ANSWER: **Ninlil**

[10] After his rape of Ninlil, Enlil is summoned by a council of gods and banished from his residence in this city.

ANSWER: **Nippur**

[10] One of Ninlil's children is the underworld god Nergal, who is seduced by and reigns with this goddess of the underworld. This goddess orders Istar to remove her clothes at each of seven gates to her domain.

ANSWER: **Ereshkigal**

9. An intermediate compartment between the cytoplasm and the vacuole is called the Berkeley body, and a particularly useful tool for screens in this organism is a deletion library which targets every gene. For 10 points each:

[10] Name this eukaryotic organism, a type of yeast also used to brew beer.

ANSWER: **S. cerevisiae** [or **Saccharomyces cerevisiae**]

[10] This common screen carried out in *S. cerevisiae* to find protein-protein interactions. In this screen, the interaction between “bait” and “prey” proteins results in the activation of a reporter gene like LacZ.

ANSWER: **two-hybrid** screen

[10] A typical two-hybrid screen attaches the activation domain of this transcription factor to the prey and the DNA-binding domain to the bait. This transcription factor binds to UAS and is inhibited by Gal80.

ANSWER: **Gal4**

10. This process occurs in devices in which the phonon mean free path is longer than the critical device dimension. For 10 points each:

[10] Identify this process in which electrons move through a semiconductor at nonrelativistic speeds mostly without being scattered by the lattice.

ANSWER: **ballistic** transport or conduction

[10] This formula gives the conduction of a ballistic transport process as proportional to the sum of the eigenvalues associated with the transmission channels of the system. With Buttiker, this formula's namesake also names a general formalism for finding the conduction in ballistic transport.

ANSWER: **Landauer** formula

[10] Ballistic transport can be observed in the single-walled variety of these cylindrical structures created from an allotrope of the element with atomic number 6.

ANSWER: **carbon nanotubes**

11. Walter Dean Burham proposed that these events occur in 30- to 36-year cycles. For 10 points each—

[10] Name these phenomena which, according to some political theorists, tended to separate Party Systems with swift turnover. VO Key wrote a key work about these phenomena.

ANSWER: **realigning elections** [accept **political** or **electoral realignment**, **critical elections**, and word forms thereof]

[10] In his *Electoral Realignments: A Critique of an American Genre*, this political scientist dismissed realignment theory as a “Rip Van Winkle” view of democracy.

ANSWER: David R. **Mayhew**

[10] According to many political scientists, the US election of this year was realigning. The winner was carried to victory several more times via the actions of the New Deal Coalition.

ANSWER: **1932**

12. This author examined interracial relationships in works like *Pinktoes* and *The Primitive*. For 10 points each:

[10] Name this American author who also wrote a series of novels about the detectives Gravedigger Jones and Cotton Ed Johnson, who investigate crimes in Harlem.

ANSWER: Chester **Himes**

[10] In the 1950s, Himes moved to this country and met up with James Baldwin and Richard Wright, who also moved here to escape American racism.

ANSWER: **France**

[10] Another member of the French expatriate community was this author of the novels *Last of the Conquerors* and *South Street*. He portrayed French anti-Arab racism in his final novel, *The Stone Face*.

ANSWER: William Gardner **Smith**

13. These quantities can be derived from the metric tensor and are used to perform lots of calculations in differential geometry and general relativity. For 10 points each:

[10] Name these connection coefficients which are used to study the geometry of a metric. They come in “first-kind” and “second-kind” varieties and most of them vanish in simple spaces.

ANSWER: **Christoffel symbols**

[10] The Christoffel symbols appear in this equation, which is the Euler-Lagrange equations re-written for an energy functional. This equation describes the shortest distance from one point to another on a line; on a sphere, the solution to this equation is a great circle.

ANSWER: **geodesic** equation

[10] Geodesics on smooth manifolds with affine connections are defined to be curves in which this process preserves the curve's tangent vector. Notably, the contravariant derivative of the vector field with respect to time is equal to zero.

ANSWER: **parallel transport**

14. This man's namesake law code abolished the magisterial title of župan and served as a supplement to the one promulgated by his grandfather Milutin. For 10 points each:

[10] Name this man crowned Emperor at Skopje in 1346.

ANSWER: **Stefan Uroš IV** Dušan Silni of Serbia [or **Stefan Dušan**, or **Dušan Silni/the**

Mighty/Powerful/Strong/Great]

[10] Stefan Dušan was a ruler from this Serbian dynasty, which lasted from 1166 to 1371. Founded in the principality of Raska by its namesake, its ruler Stefan the First-Crowned was recognized as king by Pope Honorius III while his brother Rastko was the first archbishop of an independent Serbian Orthodox Church.

ANSWER: **Nemanjić** Dynasty

[10] Dusan several campaigns against John VI Kantakouzenos, who for a long time reigned as co-emperor with John V, a member of this family that ruled the Byzantine Empire from 1259 until its fall in 1453.

ANSWER: **Palaiologos**

15. For 10 points each, answer some questions about architecture in socialist countries.

[10] Boris Iofan won the contest to design this building, a massive government building in Moscow that was to be topped with a giant statue of Lenin. It was never completed, as construction on it was halted due to World War II.

ANSWER: The **Palace of the Soviets** [or **Dvorets sovetov**]

[10] During the 1980s, this national capital was subject to a policy of “systematization,” which was popularly compared to Hiroshima since it involved demolishing large parts of the city to construct buildings like the massive Palace of the Parliaments and the Centrul Civic area.

ANSWER: **Bucharest**

[10] A building constructed by this city’s socialist government, the Palace of the Republic, was demolished in 2008. This city’s Alexanderplatz is home to an iconic television tower whose design was inspired by Sputnik-1.

ANSWER: **Berlin** [or **East Berlin**]

16. This artist received formal artistic training as a teenager in the Netherlands after moving there to escape the Second Boer War. For 10 points each:

[10] Name this Afrikaner painter known for his Art Nouveau-inspired landscape paintings of South Africa.

ANSWER: Jacobus Hendrik **Pierneef**

[10] While in the Netherlands, Pierneef absorbed the influence of the early landscapes of this Dutch artist, who later ditched landscapes for purely geometric shapes and primary colors in paintings like *Broadway Boogie-Woogie*.

ANSWER: Pieter Cornelis (Piet) **Mondrian**

[10] Pierneef painted a series of 32 landscapes of South and South West Africa for display in Johannesburg in this type of building. One of these places is the setting of the first panel in a series of 60 by Jacob Lawrence.

ANSWER: **railroad station** [or **railway station**; or **train station**; accept "terminal" for "station"]

17. One of these equations accounts for the minimum number of equilibrium separations needed, while the other accounts for the reflux needed to complete separation. For ten points each:

[10] Identify the triply-eponymous iterative method for designing a system to separate a multicomponent mixture via a certain chemical process. It is often combined with the Kirkbride equation for optimization.

ANSWER: **Fenske-Underwood-Gilliland** method [accept **FUG** method, prompt on partial]

[10] The FUG Method is used to design multicomponent separations while using this process that, for a binary mixture, is designed using the McCabe-Thiele method.

ANSWER: **distillation**

[10] Both the McCabe-Thiele and the FUG methods assume equilibrium separations on each tray of a distillation column. That assumption can be modified by using this man’s namesake tray efficiency.

ANSWER: Eger Vaughan **Murphree**

18. This essay begins “The strongest and oldest emotion of mankind is fear, and the oldest and strongest fear is fear of the unknown.” For 10 points each:

[10] Name this long essay, originally published in 1927, that traces the development of the title genre from the middle ages to the Gothic novel and the “weird tradition” in America and the British isles.

ANSWER: “**Supernatural Horror in Literature**”

[10] “Supernatural Horror in Literature” was written by this American author, who himself contributed to horror fiction by writing “The Shadow over Innsmouth” and “At the Mountains of Madness.”

ANSWER: Howard Phillips (H. P.) **Lovecraft**

[10] The final section of “Supernatural Horror in Literature” praises this Irish fantasy author of *The King of Elfland’s Daughter* as one of the four masters of modern horror along with Arthur Machen, Algernon Blackwood and M. R. James. He also wrote the short story collection *The Book of Wonder*.

ANSWER: Lord **Dunsany** [or Edward **Plunkett**]

19. This woman’s diary describes the Purrinton murders and a paternity suit against her own son, Jonathan. For 10 points each:

[10] Name this midwife, who wrote about her life in Hallowell, Maine between 1785 and 1812 in a series of diaries that are now an important primary source about household life in the early years of the United States.

ANSWER: Martha Louise Moore **Ballard**

[10] This Harvard historian of gender and early America collected and analyzed Ballard's diaries in *A Midwife's Tale*. In an article about Puritan funeral sermons, she coined the phrase "well-behaved women seldom make history."

ANSWER: Laurel **Thatcher Ulrich** (accept either)

[10] Ulrich's book *A House Full of Females* analyzed diaries written by 19th-century women who practiced this religion. The founder of this faith claimed to have translated one of its central texts from some golden tablets.

ANSWER: **Mormonism** [or Church of Jesus Christ of **Latter-Day Saints**]

20. A number of this engineer writings have been translated into English as *The Qur'an, Morality and Critical Reason*. For 10 points each:

[10] Name this Syrian writer who set out his liberal interpretation of the Qur'an and Islamic law in several popular books in the 1990s. His followers call themselves the United Submitters International.

ANSWER: Muhammad **Shahrour**

[10] Shahrour's theology, along with that of assassinated American religious leader Rashad Khalifa, is distinguished from mainstream Islam by its downplaying or outright rejection of this.

ANSWER: **hadith** [accept **sharia**]

[10] A hadith is classified as strong or weak based on this chain of narrators, ensuring that each narrator is trustworthy and contemporaneous with the next.

ANSWER: **isnad**