

## ACF Nationals 2016

Packet by Maryland A (Jordan Brownstein, Naveed Chowdhury, Ophir Lifshitz, and Sam Rombro) and McGill (Sam Baker, Daniel Lovsted, Derek So, Joe Su)

### Tossups

1. In this region, the factor Patrick Sellar ordered the burning of a cottage and a 90-year-old woman who refused to leave it, a crime of which he was acquitted in just 15 minutes. The plight of this region's residents was investigated by the Napier Commission, whose findings were incorporated into an 1886 Holdings Act that improved security of tenure. In this region, the Duke of Sutherland oversaw a policy of destroying homes and ordering their occupants to take up fishing. Mass waves of emigration away from this region occurred during 1792, the "Year of the Sheep," and during a non-Irish Potato Famine in the 1840s. Crofters protesting the namesake "clearances" of this region were sometimes dispersed by this region's Black Watch regiment. This region is home to the Grampian Mountains. For 10 points, name this area whose traditional clan system declined after the Jacobite rebellions, a region of Scotland that lies in the north.

ANSWER: the Scottish **Highlands** and Islands [prompt on "Scotland"]

2. In a parody of this book, the narrator sees a "Giant Transcendentalist" after leaving an area where flammable gas is collected in pipes and used to light two lengthy rows of red lamps. The organization of this book inspired that of a novel whose characters include a Belgian count fond of painting horses and a large black man nicknamed Jean Le Negre. An epigraph "adapted from" this book opens *Little Women*, whose first chapter depicts the young March sisters playacting its events. A parody of this book ends with the protagonist throwing himself off a boat when smoke emits from the nose of Mr. Smooth-it-Away, only to wake from a dream. The warden in E. E. Cummings' *The Enormous Room* is named for a character from this novel, whose settings are traversed by train tracks in Nathaniel Hawthorne's "The Celestial Railroad." For 10 points, name this book which features the demon Apollyon, the Slough of Despond, and Vanity Fair, an allegory by John Bunyan.

ANSWER: *The **Pilgrim's Progress***

3. An artist with this surname created a row of twelve glass water-cooler bottles with labels such as "blood" and "pus," and has used beeswax to create many life-sized sculptures of naked humans excreting various body fluids. An artist with this surname used found tools and scraps he dubbed "chopped clouds" to create twenty-seven pieces while working in an abandoned factory in Voltri, Italy. The best-known of the two-dimensional "drawings in space" created by that artist with this surname is the *Hudson River Landscape*. A sculptor with this surname created a 6-by-6-foot object entitled *Die*, one of his pioneering minimalist sculptures. Another sculptor with this surname created series such as *Tanktotem* and *Agricola*, as well as several sculptures consisting of various combinations of highly polished, stainless steel hexahedrons. For 10 points, give this surname of artists Kiki, Tony, and David, the creator of the *Cubi* series.

ANSWER: **Smith** [accept Kiki **Smith**, Tony **Smith**, or David **Smith**]

4. The Fantasia first movement of this composer's solo cello sonata opens with a slow all-interval tetrachord pizzicato arpeggio and features a short-long falling minor third motif. A violin cadenza opens movement 4 of this composer's string quartet "in romantic-phantastic style," leaping down from a *ponticello* A–E chord to a D-sharp that becomes "pure noise." A tam-tam hit ushers in an "ugly, obscene" subharmonic version of the Dies Irae in the movement "Devil-music" from a work by this composer that later instructs players to whisper Hungarian numbers over maracas. A boy sings Garcia Lorca texts offstage and a soprano sings vocalise into a piano to open his *Ancient Voices of Children*. Threnodies titled "Night of the Electric Insects" bookend this composer's 1970 "electric string quartet," while a 153-piece collection by Bartók inspired his four volumes of *Makrokosmos*. For 10 points, name this avant-garde American composer of *Black Angels*.

ANSWER: George **Crumb**

5. In an episode called the "Triple Tragedy," a princess of this royal house died during childbirth, her son was stillborn, and her doctor Richard Croft committed suicide in despair. A ruler from this house used the spy William Oliver to foil a rebellion led by Jeremiah Brandreth called the Pentrich Rising. Another ruler of this dynasty created the "Milan commission" headed by John Leach to investigate his wife's alleged adultery with Bartolomeo Pergami. Another of its kings was nearly killed by Edward Despard. The last king of this house had ten illegitimate kids with the actress Dorothea Jordan, and was known as the "Sailor King"—all of those kids took the surname FitzClarence. This house took the throne because the Act of Settlement began the succession with its Electress Sophia. Two of its kings married Caroline of Ansbach and Caroline of Brunswick. For 10 points, name this German house which ruled Great Britain with four Georges and one William.

ANSWER: House of **Hanover** [accept **Hanoverian**; accept house of **Brunswick and Lüneburg**, Hanover line; prompt on "Georgian"]

6. This group is named after a man who was cursed to perpetual celibacy after he killed a copulating deer that was actually a human in disguise. This group's oldest member had the chance to ascend to heaven after climbing a mountain, but refused to abandon his dog even after Indra commanded him to. A member of this group is given a list of the thousand names of Vishnu by his dying grandfather. This group is divided into the Kaunteya and the Madreya, the latter of whom are the sons of the Ashvin twins. They were forced to spend twelve years in a forest and another year living anonymously after losing a gambling contest rigged by Shakuni and their recurring foe Duryodhana. Bhima and Yudhishthira were the eldest two members of this group, all of whom were married to Draupadi. For 10 points, name this quintet of half-brothers whose foremost member, Arjuna, was assisted by Krishna in the Kurukshetra War against the Kauravas.

ANSWER: **Pandavas**

7. This man once made a fortune by investing the money of his wife Clara in a Mexican mine, an experience recounted in “The Making of a Dandy-Ubermensch,” a chapter of a biography of him called *Mona Lisa’s Escort*. This man was once sentenced to three years in prison for stealing four *devatas* from the Banteay Srei temple complex. That experience inspired one of his writings in which Perkin and Claude venture through jungles meeting the *mois* of Vietnam. As an art critic, this author of some *Anti-Memoirs* created the concept of a “museum without walls” and was made France’s Minister of Culture in 1959. This author created settings such as a phonograph shop owned by Himmelrich and the Black Cat night club, where de Clappique, Kyo, and Ch’en plan the arrival of arms for their uprising against Chiang Kai-Shek’s government in Shanghai. For 10 points, name this author of *Man’s Fate*.

ANSWER: André Malraux

8. In this type of potential, the four-vector probability current simply equals two times the four-momentum. In natural units, the normalization factor for the relativistic solutions of this type of potential equals the square root of energy plus mass. This potential is characterized by a doubly-degenerate continuous energy spectrum ranging from zero to positive infinity. The Hamiltonian for this potential was written as  $\alpha \cdot \mathbf{p} + \beta m$  by Paul Dirac. This potential’s solutions can be written as a sum of two plane waves traveling in opposite directions, but since that solution is not normalizable, a Fourier transform can be introduced to write the solution as a wave packet. This system is conceptually equivalent to a particle-in-a-box with an infinite box length. For 10 points, name this quantum system consisting of a particle in a region with zero potential energy.

ANSWER: free particle [or zero potential before the word “zero” in the giveaway is read, accept answers expressing that “there is no potential”; prompt on “spin 1/2 particle” or “fermion” or “spin plus 1/2 particle” or “spin minus 1/2 particle”]

9. The first empirical demonstration of the onset of this phenomenon was provided by Emory University psychologist Patricia Bauer. A widely-replicated 1994 study by M.K. Mullen found this phenomenon affects Asian-American students for longer duration than white Americans; some theories for that discrepancy invoke levels of “maternal elaboration.” The common name for this phenomenon, which also affects males for longer than females, was coined in *Three Essays on the Theory of Sexuality* by Sigmund Freud, who claimed it arises from repression of traumatic sexual experiences. This phenomenon, now thought to be caused by continuing neurogenesis in the hippocampus, is often subject to commonly-cited exceptions, such as visits to the emergency room or the birth of siblings. This non-disease phenomenon usually gives way to “fragment” rather than “episodic” memories. For 10 points, give the name for most adults’ inability to recall events from before the age of about 3.

ANSWER: childhood amnesia [or infantile amnesia; prompt on amnesia or descriptive equivalents such as memory loss]

10. A member of this organization was accused of choosing an inauspicious time and place for the burial of an infant prince, nearly resulting in his execution during the following “Calendar Case.” Members of this organization such as Joachim Bouvet espoused the belief that one country’s ancient texts contain references to the events of Genesis, a doctrine known as Figurism. A member of this organization, Ferdinand Verbiest, founded an observatory after replacing fellow member Johann Schall von Bell as head court astronomer. A map called the “Impossible Black Tulip” was created by a member of this organization who was the first European to document the Kaifeng Jews. This organization’s tolerance for practices like ancestor worship sparked the Chinese Rites controversy, one cause of which was the accommodation advocated by its member Matteo Ricci. For 10 points, name this organization whose evangelical work in Asia was extended by Francis Xavier.

ANSWER: **Jesuits** [or **Society of Jesus**, or **Societas Iesu**]

11. Xu Zhen claims that the etymology of these entities comes from “mouth” and “dark” since objects cannot be seen in darkness. In *Shiji juan*, Sima Tan states that a group named for these entities engaged in a Sophist-like type of public debates known as “discrimination” or “distinction-drawing.” Xunzi claimed that the regulation of these entities by sage kings would allow the separation of “noble” from “base” and “same” from “different.” Xu Gan and Gongsun Long wrote about the relationship between these things and actualities. These constructs provide the name of one of the “Hundred Schools of Thought” associated with the Mohists. The belief that disorder stemmed from the failure to use these things properly was the basis of the Confucian doctrine of the “rectification” of them. For 10 points, name these words central to Chinese philosophy, which are designations for people, places and things.

ANSWER: **names** [accept *zhèngmíng*; prompt on “terms,” “words,” “nouns”]

12. Lutz and Kelker found that surveys tend to infer this quantity at about 30 percent less than what it truly is. The fifth root of 100 is a defining ratio for a system used to measure this quantity, the Pogson scale. The tendency to select objects with a high value for this quantity is known as the Malmquist bias. Pieter van Rhijn and Jacobus Kapteyn made a “curve” plotting distributions of this quantity, which Edwin Salpeter used to posit a “formation function” that would connect functions of this quantity to the IMF. This quantity is analogously defined for a galaxy as the Schechter function. The maximum value for this quantity is proportional to mass, since a star’s radiation pressure needs to overcome gravity; that bound on this quantity is the Eddington Limit. The vertical axis of an HR diagram plots, for 10 points, what quantity, the amount of energy emitted from a body, such as a star?

ANSWER: stellar **luminosity** [or stellar **luminosity**; accept **magnitude**]

13. One of these poems by this author encourages its addressee to “let Euclid rest, and Archimedes pause” and dubs that addressee’s grandfather a “British Themis.” Another of these poems by this author begs its addressee “Help us to save free conscience from the paw” of Gospel-driven “hireling wolves.” Cyriack Skinner is the addressee of two of these poems, a third of which laments the actions of “Time, the subtle thief of youth.” One of these poems mentions a time “when all our fathers worshipped stocks and stones” and exhorts “Avenge, O Lord, thy slaughtered saints, whose bones / Lie scattered on the Alpine mountains cold.” The speaker of another of these poems asks “Doth God exact day-labour, light denied?” and is assured by Patience that “They also serve who only stand and wait.” For 10 points, name this group of 14-line poems including “On the Late Massacre in Piedmont” and “When I Consider How My Light is Spent”, by the author of *Paradise Lost*.

ANSWER: sonnets by John Milton [prompt on partial answers]

14. One politician with this last name enlisted the help of his minister of information, Dominique Sakombi Inongo, to set up his cult of personality, under which he was known as “the Mzee.” Che Guevara briefly offered to assist that man in leading a revolution, but then backed out, claiming he was “not the man of the hour,” due to his alcoholism. That rebel leader with this last name took power as head of the AFDL, but was assassinated four years later by one of the many “kadogos,” or child soldiers, who served under him. He was succeeded by another politician with this surname, who defeated Étienne Tshisekedi in fraudulent elections in 2011. The first leader with this last name claimed to have ended the “Kleptocracy” by forcing the previous ruler into exile, declaring himself president in Lubumbashi. For 10 points, give this last name shared by Joseph and Laurent-Désiré, the Presidents of the Democratic Republic of the Congo since 1997.

ANSWER: Kabila

15. Four cyanide ligands are bonded to each atom of this element in a complex whose center is a one-dimensional chain of atoms of this element; that complex is named KCP or Krogmann’s salt. This element is found in the center of Speier’s and Karsdedt’s catalysts, which catalyze hydrosilylation reactions. This metal is coordinated to three chlorines and the double bond of an ethylene molecule in Zeise’s salt. This element’s dioxide is Adams’ catalyst, whose catalytic power is only gained when this element is converted to its pure “black” form. This element is used in proton exchange membrane fuel cells to split hydrogen atoms. It is found in the center of a square planar complex with chemotherapeutic properties. The standard hydrogen electrode contains, for 10 points, what element used alongside rhodium and palladium in catalytic converters?

ANSWER: platinum [or Pt]

16. In his *Determinatio*, John of Paris promoted a doctrine named after this thing which holds that this substance is incarnated by God. In the Coptic Church, a form of this thing called *qurban* often features an image of a cross surrounded by twelve dots. This thing is placed on top of *artoklasia* tables at the very end of some Orthros rituals. During the Proskomedia, a large seal consisting of the letters “IC, XC, and NIKA” is used to sanctify this substance. *Antidoron* is a form of this thing which is made from discarded components of the *prosphora*. When it is used for rituals, this thing is carried in the *diskos*. In the West, the *ciborium* and the smaller *paten* is used to hold it. According to Ulrich Zwingli’s position at the Marburg colloquy, it is said to become flesh. Consumed alongside grape juice or wine is, for 10 points, what substance that turns into the body of Christ during Eucharist?

ANSWER: sacramental **bread** [accept the **host**; prompt on **Eucharist**; prompt on **food**]

17. The open-mouthed faces of a dozen ugly angels surround the central figure in this artist’s *Madonna of the Cherubim*. This artist depicted two hunched old men approaching Mary and the baby Jesus in his engraving *Virgin in the Grotto*, while a figure holds two fish by their tongues and prepares to strike another figure in his engraving *The Battle of the Sea Gods*. A scythe-carrying man on a horse can be seen in the clouds to the left of the pillar against which the central figure stands in a painting by this man in the Kunsthistorisches Museum, one of his three depictions of St. Sebastian. He painted two depictions of the family of his patron Ludovico III Gonzaga and a *di sotto in su* ceiling panel consisting of an oculus opening onto a blue sky surrounded by putti for the Camera degli Sposi. For 10 points, name this artist who used extensive foreshortening in his *Lamentation over the Dead Christ*.

ANSWER: Andrea **Mantegna** [accept **Madonna of the Cherubim** until "artist" is read]

18. This book’s so-called “defense of the career girl,” which chides men who look down upon women, is used as the basis for a “Poetics of Voyeurism” by Edith Serra. The protagonist of this book hires a gardener to protect a giant pile of snow to win a bet that it will last until the fifteenth of the month. The protagonist of this book sometimes “starts crying” when talking about a dog that is flogged nearly to death for attacking a cat, but the dog subsequently receives an Imperial pardon when he whimpers over his own pitiful state. This book frequently describes paintings on sliding screens and describes figures like the Major Counsellor and Controller First Secretary. A “lying-in room when the baby has died” is called a “Dispiriting thing” in this book, which also catalogues “Embarrassing Things” and “Pleasant Things.” For 10 points, name this collection of observations of Heian-era court life by Sei Shonagon.

ANSWER: *The* **Pillow Book** or **Makura no Soshi**

19. Noy-Meir's pulse-reserve paradigm treats these areas as being activated by "trigger" events. The autecological hypothesis states that the population of these areas are dependent solely upon the population's reaction to the environment. A species of frog in these areas called *Phyllomedusa* secretes and coats itself with a lipid. In these areas, one can find goatnuts from jojoba, whose wax is indigestible by every animal except Bailey's Pocket Mouse. Elephant trees in these areas have developed caudiciform central trunks, while caenophidian snakes in these areas often move by sidewinding. In these areas, female pronuba moths have developed special organs to help spread the pollen of Joshua Trees. Fauna in these regions, such as the *Gopherus* genus of tortoises engage in aestivation. Xerophytes such as the Barbary Fig can be found in, for 10 points, what ecosystems which generally lack precipitation and include Death Valley?  
ANSWER: deserts [prompt on arid environments or barrens or wastelands]

20. One mayor of this city described his trip to Yellowstone in the book *A Summer's Outing and the Old Man's Story*. Another mayor of this city was opposed by "Fast Eddie," Edward Vrdolyak, the leader of its City Council, in the so-called Council Wars. This city's Democratic machine was called "a house for all peoples" due to the breadth of ethnic groups it served. The Lone Star Saloon run by the pickpocket Mickey Finn was shut down by this city's mayor, who was indicted for negligence after a fire broke out at the Iroquois Theater. In 1979, an inept response to a massive snowstorm in this city led to the ouster of Michael Bilandic. In addition to Carter Harrison and its first black mayor Harold Washington, this city's mayors included a man who was killed in Miami's Bayfront Park by Giuseppe Zangara; that man was Anton Cermak. For 10 points, name this city run by Richard J. and Richard M. Daley, where Barack Obama worked as a community organizer.  
ANSWER: Chicago

Tiebreaker. A reproduction of this painting with a green-skinned central figure makes up Martial Raysse's *Made in Japan*. This painting is referenced by the title of an assemblage made of a collage-covered box between a pillow and a stuffed rooster. The head of this painting's main figure was replaced with an ape for a Guerilla Girls poster attacking the underrepresentation of female artists in the Met. Robert Rauschenberg created a "cock-eyed parody" of this painting, which was a companion to the now-lost *Sleeping Woman of Naples*, also commissioned by Caroline Murat. The blue curtain in the right background of this painting is decorated with peacock-feathered fans similar to the one held in its foreground. The central figure of this painting has a pose inspired by another artist's portrait of Madame Recamier and has an unrealistically lengthy back. For 10 points, name this nude painting by Jean-Auguste-Dominique Ingres.  
ANSWER: *The Grand Odalisque* [prompt on "Odalisk"]

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### Bonuses

1. Polyeidus found Glaucus drowned in a jar of honey in a cellar after seeing one of these animals fighting a swarm of bees. For 10 points each:

[10] Name this sort of animal into which Demeter transformed Ascalaphus, as punishment for his revealing that Persephone had eaten pomegranate seeds in Hades.

ANSWER: owls [or screech owls; accept strix or striges]

[10] The owl was also a symbol of this Greek goddess of wisdom, who was worshipped at the Parthenon.

ANSWER: Athena [or Pallas Athena]

[10] Minerva transformed Nyctimene into an owl after she fled into the forest out of shame for having committed this specific action. Myrrha's intense desire to perform this specific action eventually led to the birth of Adonis.

ANSWER: having sexual intercourse with her father [or synonymous equivalents; prompt on partial or less specific answer like "having sex with a family member" or "incest"]

2. DNase-seq and FAIRE-seq are both used to differentiate between open and closed varieties of this substance. For 10 points each:

[10] Name this substance consisting of DNA wrapped around histones, which comes in "hetero-" and "eu-" forms, depending on whether it is tightly or loosely packed.

ANSWER: chromatin

[10] Chromatin can also be studied using ATAC-seq, which uses one of these enzymes to cut loosely-bound DNA. Their catalytic domains typically contain a DDE motif bound to a divalent metal cation like magnesium or manganese.

ANSWER: transposases [accept Tn5 or Tnp]

[10] The Tn5 transposase has also been used as a DNA fragmenter in a version of this other technique where antibodies are used to extract DNA crossed-linked to a binding protein.

ANSWER: chromatin immunoprecipitation or ChIP

3. Answer the following about the quest for "divine proportion" in Renaissance art, for 10 points each:

[10] This Roman theorized that a man lying supine with outstretched limbs could form a square and circle centered on his navel. That theory was illustrated by da Vinci's drawing of a man named for this thinker.

ANSWER: Vitruvius [or the Vitruvian Man]

[10] Double-entry bookkeeping pioneer Luca Pacioli also penned a treatise on geometrical proportions in the human form, but Vasari alleges that he stole those ideas from this artist of the *History of the True Cross* fresco series.

ANSWER: Piero della Francesca [accept either name]

[10] This later artist of *The Triumphal Arch* filled his *Four Books on Human Proportion* with ridiculously mechanical and awkward drawings of human figures.

ANSWER: Albrecht Dürer





4. This war was nearly solved with the Peace of Regensburg, but France's refusal to cease hostilities with the Habsburgs prolonged it for another year, until the Treaty of Cherasco. For 10 points each:

[10] Name this war that pitted the dukes of Nevers [nuh-VAIR], Savoy, and Guastalla against each other to gain possession of the namesake city.

ANSWER: War of the **Mantuan Succession** (prompt on partial answer)

[10] In 1629, this man was left behind to handle negotiations at Casale after that city was taken in the war. In 1642, he succeeded his mentor Cardinal Richelieu as Chief Minister to Louis XIV.

ANSWER: Cardinal Jules **Mazarin** [or Jules Raymond **Mazarin**, Cardinal-Duke of Rethel Mayenne and Nevers, or Giulio Raimondo **Mazzarino** or **Mazarini**]

[10] The Mantuan Succession crisis occurred because the last three dukes of this family died without male heirs. This family, which ruled Mantua for 400 years, has included Saint Aloysius, Queen Marie Louise of Poland, and two Holy Roman Empresses named Eleonora.

ANSWER: **Gonzaga**

5. A memoir by this author describes "armchairs covered with human skin" in the castle of the Counts of Conversano in its chapter "Siegfried and the Salmon," which asserts "fish do not like Germans." For 10 points each:

[10] Name this Italian author who wrote about his dinners with Nazi officials and other depravities in *Kaputt*.

ANSWER: Curzio **Malaparte** [or Kurt Erich **Suckert**]

[10] In *Kaputt*, Curzio Malaparte compares the cacophonous start of this war with the act of finding the Duchess of Guermantes in a whorehouse. It is also described in a novel in which Billy Pilgrim becomes "unstuck in time."

ANSWER: **World War II** [or **Second World War**]

[10] In *Kaputt's* chapter "The Rats of Jassy," Curzio Malaparte documents his attempts to save hundreds of Jews in this country, though some historians doubt that he did. A Nobel-winning author born in this country wrote *The Hunger Angel* and *The Land of Green Plums*.

ANSWER: **Romania**

6. Act 4 of this opera includes the Grand Duo's "immortal melody" "Tu l'as dit" and the Blessing of the Daggers, while Act 1 contains the puritanical servant Marcel's brash battle song "Pif! paf!" For 10 points each:

[10] Name this *grand opéra* based on a historical event that unfolds despite Queen Marguerite's attempt at reconciliation, which involves marrying Raoul to Valentine.

ANSWER: *Les* **huguenots** [accept *The* **Huguenots** or *Die* **Huguenotten** or *Gli* **Ugonotti**]

[10] At the end of Act 2, Raoul, Nevers, and St.-Bris take this action in a slow section beginning "Par l'honneur" in C minor octaves, as Marcel wishes death on his enemies. A minute after this action, Raoul rejects Valentine, thinking she is Nevers' immoral mistress, and chaos ensues.

ANSWER: swearing an **oath** of eternal peace between the Catholics and Huguenots [accept **vow**, **swearing**, or **serment**; prompt (for a specific action) on "making peace" or equivalents]

[10] This Prussian Jewish composer fused German orchestration, Italian melody, and French drama in operas like *Robert le diable* and *Les huguenots*.

ANSWER: Giacomo **Meyerbeer** [or Jakob Liebmann Meyer-**Beer**]

7. In her essay on the “foundations of [this discipline],” Nancy Easterlin proposes a “bio-epistemological perspective” to connect it with science and the realm of human knowledge. For 10 points each:

[10] Name this topic, whose “literary” form is the subject of an “introduction” written by Terry Eagleton, and a “very short introduction” by Jonathan Culler.

ANSWER: literary **theory** [do not accept or prompt on “literary criticism”]

[10] Perhaps the first work in literary theory is Aristotle’s *Poetics*, which discusses the classical unities. One of the unities is the unity of time, which holds that plays should have this constraint.

ANSWER: it takes place in a **single day** and night [or less than **24 hours**; accept synonyms and equivalents]

[10] This critic attacked the “unsupple obduracy” of literary theory and philosophy in his essay “The Pursuit of Metaphor” from his *Allusion to the Poets*. He defended *Milton’s Grand Style* in a book of the same name and also wrote a book about Bob Dylan’s “visions of sin.”

ANSWER: Christopher **Ricks**

8. About 15 percent of languages have a “split” form of this typological property, but in Basque, this property is nearly pure. For 10 points each:

[10] Name this morphosyntactic alignment in which the subject of a transitive verb is treated distinctly from the subject of an intransitive verb, for example, by carrying a different case or agreement.

ANSWER: **ergativity** [or **ergative**–absolutive]

[10] Tagalog’s *two* transitive voices are similar to the active voices of the ergative and the accusative. That unusual alignment is characteristic of the Austronesian family, which includes the language spoken by these native people of New Zealand.

ANSWER: **Maori**

[10] In the early 1980s, Chomsky proposed a biuniqueness constraint on verbs’ argument structure named for this letter. It governs the “slots” a verb must fill: for example, *to give* and *to put* both have 3 roles named for this letter.

ANSWER: **theta** [accept **theta** roles, **theta** grid, or **theta** criterion]

9. This value can be defined as half the second derivative of the energy with respect to the total number of electrons while maintaining a constant external potential. For 10 points each:

[10] Name this quantity sometimes symbolized eta. Substances with a high value of this quantity tend to be not very polarizable and have small cationic or anionic radii.

ANSWER: chemical **hardness**

[10] The hard type of these substances include acetate, hydroxide, ammonia, and halide anions, all of which have low energy HOMOs. These substances are electron pair donors according to the Lewis definition.

ANSWER: **bases**

[10] Two answers required. The Drago-Wayland equation gives the change in enthalpy of a reaction between Lewis acids and Lewis bases as a function of two parameters denoted E and C, which represent what two types of interactions?

ANSWER: **electrostatic** and **covalent**

10. This man's proposed government, which included a tricameral legislature, was never implemented. For 10 points each:

[10] Name this man who issued the "Decree of War to the Death," sanctioning the killing of Spanish resistance. He was known as the "Great Liberator" and founded Gran Colombia.

ANSWER: Simón Bolívar [or Simón José Antonio de la Santísima Trinidad Bolívar y Palacios]

[10] The first constitution of Gran Colombia was named after this city, where it was enacted. This city was the site of the first battle of the Admirable Campaign, and a meeting organized by Antonio Nariño at the Villa del Rosario.

ANSWER: Cúcuta [or San José de Cúcuta]

[10] In 1828, Bolívar convened a constitutional convention in this city, which he did not attend, instead sending Daniel O'Leary as his proxy. After this convention failed to come to an agreement and the Santander faction walked out, Bolívar declared himself dictator of Gran Colombia.

ANSWER: Ocaña

11. Francisco Tárrega's challenging "tremolo étude" for guitar is titled *Recuerdos de*, or *Memories of*, this location. For 10 points each:

[10] Both Joaquín Rodrigo's *Junto al Generalife* and the first movement of de Falla's *Nights in the Gardens of Spain* were inspired by a palace adjacent to what large Moorish castle in Granada?

ANSWER: the Alhambra [or Calat al-Hamra]

[10] de Falla's postcard from the Alhambra might have inspired this composer's piano habaneras, like the duet *Lindaraja*, a prelude titled "La puerta del vino" at the end of the score, and "Evening in Granada" from *Estampes*.

ANSWER: Claude Debussy

[10] This composer of *El ultimo trémolo* wrote two movements inspired by an organist playing Bach on a visit to Montevideo's Basílica de San José. This Paraguayan guitarist later added a "Preludio Saudade" to his *La Catedral*.

ANSWER: Agustín Barrios Mangoré [accept either underlined portion]

12. A triplestore is a less versatile version of this kind of architecture, since it conflates properties and relationships into a simple list of edges. For 10 points each:

[10] Name this type of storage system. Neo4j and Titan are popular examples of these NoSQL systems that can be queried in Cypher, Gremlin, or SPARQL languages.

ANSWER: graph databases [prompt on partial answer; prompt on "network database"]

[10] Because "context" is often returned from these requests to retrieve data, graph database requests are often called semantics. These operations put the "Q" in the name SQL.

ANSWER: queries [or query]

[10] The ACID rules for reliability ensure these single units of change on a database are atomic, consistent, isolated, and durable. In SQL, the keyword COMMIT ends them, while ROLLBACK aborts them.

ANSWER: transactions

13. Arthur Schopenhauer's essay on the "Metaphysics" of this concept argues that it is a result of a biological drive to continue the species. For 10 points each:

[10] Name this concept. *Agape* and *eros* were among the types of it defined by the ancient Greeks.

ANSWER: the **love** of the sexes

[10] "The Metaphysics of Love" discusses how the "[this concept] of the species" is at odds with "[this concept] of the individual." *Parerga und Paralipomena* states there are two parts of this concept for a person, "one for itself and the service of its will"; it also states "Switzerland" resembles this concept, since she is "sublime."

ANSWER: **genius**

[10] In *The World as Will and Idea*, Schopenhauer states that geniuses produce art by first doing this action. Schopenhauer also maintains that the only way to relieve suffering is through this act.

ANSWER: aesthetic **contemplation** [accept word forms; accept **kontemplation**]

14. Following the Glorious Revolution, this former Dutch soldier seized power in the name of William III. For 10 points each:

[10] Name this militia leader who set up a rebel government, taking control of public funds belonging to lieutenant governor Francis Nicholson at what is now Battery Park. He was arrested after the arrival of Henry Sloughter.

ANSWER: Jacob **Leisler**

[10] In the same year as Leisler's rebellion, rebels deposed this governor of the Dominion of New England.

ANSWER: Edmund **Andros**

[10] Also in 1689, a revolution led by this man deposed the Catholic government of Maryland and established Protestantism as the state religion of the colony. He declared himself the leader of the "Protestant Associators."

ANSWER: John **Coode**

15. This concept appears as "a brain-like network of currents and ejections" controlling the humans in Napoleon's army on a battlefield in a play in which the Spirit of the Years describes how it "works unconsciously, as heretofore, eternal artistries in Circumstance." For 10 points each:

[10] Identify this concept that is repeatedly shown controlling the course of events in *The Dynasts*. It is similar to its author's concepts of the "Fate of Circumstances" and the "President of the Immortals."

ANSWER: the **Immanent Will**

[10] The "Immanent Will that stirs and urges everything" prepares a "sinister mate" in the form of a "Shape of Ice" in this poem by the author of *The Dynasts* that describes the sinking of the Titanic.

ANSWER: "The **Convergence of the Twain**"

[10] "The Convergence of the Twain" was written by this Victorian author, who incorrectly considered *The Dynasts* his best work instead of novels like *Tess of the d'Urbervilles*.

ANSWER: Thomas **Hardy**

16. This theorem allows an arbitrary vector function to be written as the sum of minus the gradient of a scalar potential and the curl of a vector potential. For 10 points each:

[10] Name this theorem used in electromagnetism, which gives the conditions under which a vector function can be uniquely specified by its divergence and its curl.

ANSWER: **Helmholtz** theorem

[10] The answer to this bonus part will be a function of  $r$ . For a function  $F$  of  $r$  with a divergence  $D$  of  $r$  and a curl  $C$  of  $r$ , a mathematically rigorous statement of the Helmholtz theorem states that  $F$  is uniquely specified by  $D$  and  $C$  only if  $F$  goes to zero as  $r$  goes to infinity, and  $D$  and  $C$  go to zero *faster than this function of  $r$*  as  $r$  goes to infinity.

ANSWER: **1 over r squared** [or  **$r$  to the minus 2** power, or  **$r$  to the negative 2** power, accept **inverse square**]

[10] In electrostatics, the Helmholtz theorem allows for this quantity to be written as minus the gradient of the electric scalar potential, since Faraday's law states that its curl is zero and Gauss's law states that its divergence is proportional to charge density.

ANSWER: **electric field** [or **E-field**, prompt on just "E"]

17. George Roden once challenged this religious leader to raise the dead, but after Roden actually illegally dug up a corpse, this man called the police to have Roden arrested and a gunfight ensued. For 10 points each:

[10] Name this religious leader who was born Vernon Wayne Howell. While at the Mount Carmel Center, he was accused of prostitution and raping children.

ANSWER: David **Koresh**

[10] David Koresh claimed that he was the final prophet of this group, which consisted of radical Seventh Day Adventists, many of whom died during a siege on its compound in 1993.

ANSWER: **Branch Davidians**

[10] Cyrus Teed started an unrelated religion called Koreshan Unity, which advanced an incredibly bizarre version of this theory. Cotton Mather's *The Christian Philosopher* supports this theory by citing Edmund Halley's books.

ANSWER: **Hollow Earth** [accept theories indicating the **Earth is hollow**; accept **Cellular Cosmogony**. Note: Teed's version of Hollow Earth held that the sky was the inner surface of an even bigger Earth, and that we live on "inner Earth."]

18. This man's supporters had his half-brother Edward the Martyr murdered during a friendly visit to Corfe Castle, and pronounced him king. For 10 points each:

[10] Name this king of the house of Wessex, whose defeat to an invading Danish army at the battle of Maldon forced him to pay a tribute of 10,000 pounds of silver. This father of Edward the Confessor got his nickname because his counselors gave him bad advice.

ANSWER: **Æthelred the Unready** or **Æthelred II** [prompt on Aethelred]

[10] Æthelred's most foolish move may have been ordering this slaughter of all the Danes in England, including entire settler villages. This massacre prompted retaliatory invasions by Sweyn Forkbeard, who eventually deposed Æthelred.

ANSWER: **St. Brice's** Day massacre

[10] Æthelred's son Edmund Ironside battled Canute but finally lost at this 1016 CE battle, where according to a tale, the Bishop of Dorchester was slaughtered while giving mass.

ANSWER: Battle of **Ashingdon** [or **Assandun** or **Essendune** or **Ashdon**]

19. A letter to Dr. Francis Kinnicutt discovered in 2007 reignited the debate about whether this literary event was deliberate or accidental; in either case, it is caused by an overdose of chloral hydrate. For 10 points each:

[10] Name this event that takes place shortly after the character involved pays off her debts using a ten thousand dollar inheritance from Aunt Peniston.

ANSWER: the death of Lily Bart [or the suicide of Lily Bart; accept any answer that contains either death or suicide and either Lily or Bart]

[10] Lily Bart is the protagonist of this 1905 novel by Edith Wharton. Its title comes from a quote from *Ecclesiastes* that claims that “the heart of fools” can be found in the title place.

ANSWER: *The House of Mirth*

[10] The morning after Lily’s death, this lawyer arrives to finally propose to her and encounters his cousin Gerty Farish. *The House of Mirth* opens with this man encountering Lily in Grand Central Station and taking her to his apartment.

ANSWER: Lawrence Selden [accept either underlined portion]

20. Chinese scientist Youyou Tu won the 2015 Nobel Prize in Physiology for her work in treating this disease. For 10 points each:

[10] Name this disease caused by the genus *Plasmodium* that has historically been treated with the drug quinine.

ANSWER: malaria

[10] Tu isolated a substance from this genus of plant in developing a novel drug to treat malaria. This genus of plant that includes mugwort and wormwood are common plants used in traditional Chinese medicine whose qinghao extract has historically been used to treat similar diseases.

ANSWER: Artemisia

[10] This numerically named project during the Cultural Revolution and Vietnam War led the effort to discover new malarial drugs. In addition to artemisinin, this project also developed Coartem, the treatment for drug-resistant malaria.

ANSWER: Project 523 or task number five hundred and twenty three