

**ACF Nationals 2016**  
**Editors' Packet 7**  
**Tossups**

1. In some religions, a red resin called *fardela* was smeared over this kind of religious object. Ernst Manker wrote a two-volume treatise on this sort of object used extensively in Lapp religion, which was covered with runes and said to be the “compass” of the Sami people. In another religion, a “living” sort of this object called a *mitigwakik* (MITT-ee-gwah-KEEK) was created by filling a log with water and was chiefly used by the Ojibwe. In yet another religious tradition, a spirit called an *ana* inhabits this kind of object and is used by an *akpwon*. The large *Iya*, the medium-sized *Itotele*, and the smallest *Okonkolo* are three types of this object called *bata*, which honor the *orishas* by inducing humans into a trance. Santeria makes use of a hourglass-shaped form of this object that is covered with a membrane from animal skin. For 10 points, Native Americans often honor their gods by beating what musical instruments?

ANSWER: **drums** [prompt on percussion instruments]

2. While serving as minister of war, one man with this last name was victorious at the Battle of Wattignies, traveling with the Army of the North. A later person with this last name rose to power after his predecessor was implicated in a scandal in which his son-in-law Daniel Wilson profited from the sale of Legion of Honour medals. The elder man of this surname wrote the 1810 work “A Treatise on the Defence of Fortified Places,” in which he described his namesake fortress wall. The younger man of this name succeeded Jules Grévy as president, but the anarchist Sante Caserio stabbed him to death as he was speaking at the Lyon Exposition in 1894. His grandfather of this name became known as the “Organizer of Victory” while serving on the Committee of Public Safety. For 10 points, give this last name shared the French general Lazare, an assassinated French president of the Third Republic, and the author of *Reflections on the Motive Power of Fire*, who is called the “father of thermodynamics.”

ANSWER: **Carnot** [or Nicolas Léonard Sadi **Carnot** or Lazare Nicolas **Marguerite**, Comte de **Carnot**; or Marie François Sadi **Carnot**]

3. If the limit of a function  $f$  of  $x$  as  $x$  approaches infinity is finite, then it equals the limit as  $y$  approaches zero of  $y$  times this operation of the function  $f$  of  $y$ , according to the final value theorem. A useful formula for calculating this operation applied to the product of the Heaviside step function times another function is given by the second-shifting property. This operation is always defined for a piecewise continuous function over the interval from zero to infinity by Lerch’s theorem. In complex analysis, a function is analytic if the strip of convergence in the two-sided form of this operation has a finite width. In circuit analysis, it is common to convert ODE’s with this operation into its moments, solve, and convert the result back into the time domain. For an input of one, this operation produces a value of one over  $s$ . For 10 points, name this integral transform which converts a function from its time domain into the  $s$ -domain.

ANSWER: **Laplace** transform

4. In 1971, Mario Roymans stole this painting and tried to ransom it using the name “Tilj [“till”] van Limburg” to raise money for victims of the Bangladeshi genocide. A crumpled piece of paper at its bottom right contains a nonsensical musical score and lies beneath a floral tapestry that serves as the *repoussoir* for this painting. The foreground of this painting includes a shadowy map rendered at a very sharp angle, while the floor is patterned in marbled white and X-shaped black tiles. A hearth, as well as a seascape with a boat and a landscape with a traveler, hang on the back wall shown in this painting. Morning slippers and a broom appear in front of this painting’s two people: a woman in blue who gazes with disapproval, and a woman dressed in yellow who holds a lute in one hand and the title object in the other. For 10 points, name this genre scene by Jan Vermeer in which a maid gives a woman a secret document.

ANSWER: *The Love Letter* [or *De liefdesbrief*]

5. In *The Disinherited Mind*, Erich Heller wrote that this location’s inhabitants are “Gnostic demons” who hold an advanced position against the “maneuvers” of a “soul” in contrast to another writer who called this place the “seat of divine grace.” While staying at a hotel, the protagonist stares through a keyhole to see the man in charge of the “Tenth Chancellery” of this place. After a woman rebuffs a man from this location during a celebration for a fire brigade, that woman’s family is ostracized. People from this location include a secretary who will not stop writing named Momus, and two men named Sortini and Sordini. A man named Westwest supposedly owns this location whose occupants include Erlanger, a secretary who comes down to the Herrenhoff to discuss business with the protagonist. An official named Klamm runs this location, which a land surveyor named K. tries to repeatedly enter. For 10 points, what abode titles Franz Kafka’s unfinished novel?

ANSWER: *The Castle* or *Das Schloss*

6. These quantities can be replaced by the boson creation and annihilation operators by applying the Holstein- Primakoff transformation. A vector whose components are these quantities is crossed with the momentum vector in a Hamiltonian describing an energy splitting observed in two-dimensional electron gases called the Rashba effect. . Multiplying these quantities by  $i$  and adding the identity element to the set produces a set isomorphic to the unit quaternions. The commutator of any two of these quantities equals  $2i$  times the Levi-Civita symbol times the third one of these quantities. These quantities serve as the generators of  $SU(2)$ . The un-normalized column vectors  $(1,1)$  [“one-comma-one”] and  $(1,-1)$  [“one-comma-negative-one”] are the eigenvectors of one of these quantities, whose eigenvalues are plus or minus  $\hbar$  over 2. For 10 points, name this set of three Hermitian “two by two” matrices used as spin operators.

ANSWER: **Pauli** spin matrices [accept **spin operators** or **spin matrices** before “matrices”]

7. An essay about “The Ecology” of these concepts considers them as “ecosystems” by using the example of Patient Medical History Forms in a physician’s office and was written by Anis Bawarshi. These concepts are defined as “typified rhetorical actions based in recurrent situations” in a Carolyn Miller essay that considers them as “social action.” The Hopkins-inspired term “outscape” is used to identify a “cardinal point” in the set of these concepts in an essay that suggests there are the four types of these things, including one named *epos*. That essay states these things are partly determined by the “radical of presentation,” or the way an audience is addressed, and is the fourth essay in Northrop Frye’s *The Anatomy of Criticism*, which is devoted to classifying them. Mode, object, and medium are used to classify these concepts in Aristotle’s *Poetics*. For 10 points, name these categories that include drama, and fiction.

ANSWER: **genres** [accept The Ecology of **Genre** or **Genre** as Social Action or Theory of **Genres**]

8. The second man to hold this post hastily built a navy called the “cardboard squadron,” including a frigate fitted with a Zalinski “dynamite gun,” after a group of mutineers seized all of his ships, like the ironclad Aquidaba. That holder of this post became known as the “Iron Marshal” after he put down the Federalist Revolt, led by a group called the Maragatos, during which he captured the town of Desterra and renamed it in his honor as Florianopolis. The first man to hold this office faced an economic disaster named for a horse-racing term meaning “mount the saddle,” the Encilhamento. A much later holder of this post, Washington Luís, was deposed, bringing an end to the “coffee-with-milk” period. This post, first held by Deodoro da Fonseca, ceased to exist on the rise of a dictator who killed himself at Catete Palace in 1954. For 10 points, name this highest political office which alternated between men from Minas Gerais and men from Sao Paulo during its country’s First Republic.

ANSWER: **President** of **Brazil** [prompt on "leader" or "ruler" of Brazil, do NOT accept emperor or king or monarch, accept **President of the First Brazilian Republic**]

9. Immediately before the score for a passage of this type, its composer wrote a Latin phrase translating as “Harmonic Labyrinth: Easy to Enter, Difficult to Escape.” An F-sharp minor piece of this name opens Johannes Brahms’s *Eight Pieces*, in which these pieces are paired with intermezzos. Pietro Locatelli’s opus 3 features twelve concerti, the first and third movements of each of which contains a passage known by this name. The horns introduce a “sighing theme” on which the orchestra plays variations in the second movement *Variazioni* of a piece named for this form. That example of this kind of piece is a work for solo violin and orchestra and features first and third movement alboradas that represent the dawn, and ends with cymbals and castanets energetically playing the Fandango Asturiano. For 10 points, give this term for pieces whose name reflects the composer’s whims, an example of which is Nikolai Rimsky-Korsakov’s “Espagnol.”

ANSWER: **caprices** [or **capriccios**]

10. This practice was attacked by a series of pamphlets entitled “*Why Not?*” and “*Is It I?*” by Horatio Storer, who authored a report which defended his “crusade” against this practice. This action was once known as “Restellism” in honor of Madame Restell, who advertised in support of it in New York with her husband Charles Lohman. Philippa Foot wrote about *this* and the “doctrine of the double effect” in a 1967 essay. A photograph of Gerri Santoro has been used by many to support this practice, which is the subject of the legal cases *Singleton v. Wulff* and *Stenberg v. Carhart*. The thought experiment of a violinist who needs a blood transfusion was used to defend this act by Judith Jarvis Thomson. Thomas Eagleton reportedly referred to George McGovern as a candidate who supported acid, amnesty, and this practice. For 10 points, name this practice constitutionally protected by *Roe v. Wade*.

ANSWER: **abortion** [accept any answer referring to abortion, such as: the problem of **abortion**, partial-birth **abortion**, third-trimester **abortion**]

11. This poem compares the “smoothness” of a woman to “goodly champaign plain,” and asserts that women are weak since “men have marble, women waxen, minds.” The main male character of this poem is neither buffeted by the smoke of a torch nor “the needle his finger pricks” when he picks up the title character’s glove. Its title character states “Time’s glory is to calm contending kings / To unmask falsehood and bring truth to light” after the title action, which causes her to tear “senseless Sinon with her nails” while destroying a painting of Trojan warriors. Its title character clads herself in “mourning black” and kills herself after telling her husband Collatinus to avenge her honor. This poem is dedicated to the Earl of Southampton and is based on the *Fasti* of Ovid, who also provided the source material to its author’s *Venus and Adonis*. For 10 points, name this narrative poem recounting Tarquin’s downfall, written by William Shakespeare.

ANSWER: *The **Rape of Lucrece***

12. A Romanian artist who worked for most of his life in this country made chryselephantine sculptures of such subjects as “Starfish Dancer” and “Ring Dancer.” An artist born in this country used his wife Isabel Nagle as the model for his buxom *Standing Woman*. American architect John Eberson helped design this country’s huge Grand Rex movie theatre. An artist from this country depicted a nude male and female swirling around the central timepiece in his *The Day and the Night*. That artist from this country produced extensive glass works for St. Matthew’s Church in Millbrook, New Jersey and created *Spirit of the Wind* and *Spirit of Ecstasy*, which were popular hood ornaments. For 10 points, name this country of origin of the Art Deco movement, whose members included Demetre Chiparus, Gaston Lachaise and Rene Lalique.

ANSWER: **France** [or the **French Republic**; or République **française**]

13. Infection by one organism in this genus is detected by PCR of its B1 gene or by the Sabin-Feldman dye test. Infection by one organism in this genus causes irregularly shaped germinal centers and clusters of epithelioid histiocytes on lymph node biopsy. Like sarcocystis, organisms in this genus have a motile tachyzoite stage susceptible to antibiotics and a bradyzoite stage that is resistant. In AIDS patients, either lymphoma or infection by a member of this genus are the main causes of ring-enhancing lesions in the brain. It's not Listeria, but congenital infection with an organism in this genus causes a characteristic chorio-retinitis; that organism in that genus is the first of the TORCH infections, which is why pregnant women are told to avoid raw milk and raw meat. For 10 points, name this genus of parasites, whose *gondii* species is commonly transmitted from cats to humans.

ANSWER: toxoplasma gondii [or toxoplasmosis]

14. This place was the home of the historian Erchempert, as well as Leo Marsicanus, whose chronicle of events at this location was based on the writings of Amatus. After it was ransacked during a night raid led by the Duke Zotto, this place was restored by a man named Petronax, who is called its "second founder." Much later, this place was captured by Wladyslaw Anders, who commanded the II Corps, an army-in-exile during Operation Diadem. A prophecy that he would rule for ten years and then die was given to king Totila when he was rebuked while visiting this location. This location was the weak point of the Gustav Line after the flooding of the Rapido River, though Albert Kesselring initially agreed not to station troops at this place, which became a battleground in 1944. The founder of this place came here from Subiaco along with his sister, St. Scholastica. For 10 points, name this monastery where a saint from Nursia wrote the Benedictine Rule.

ANSWER: Monte Cassino [or just Cassino]

15. In 1862, Adolf Trendelenberg argued that a certain philosopher had not shown these concepts to be non-objective, an objection sometimes called the "neglected alternative." The "worm view," in contrast to the "stage view," uses these concepts to uniquely identify physical objects. Contra the philosopher Samuel Clarke, a relativist argument for these concepts was advocating using both the Principle of Sufficient Reason and the Identity of Discernibles in a correspondence by Leibniz. In the "Transcendental Aesthetic" section of *Critique of Pure Reason*, Immanuel Kant suggests that these two concepts are inherently subjective. In *A Treatise of Human Nature*, David Hume argues that these concepts are not infinitely divisible. For 10 points, identify these two philosophical concepts, which are unified into a four-dimensional continuum in relativity.

ANSWER: space and time [accept the answers in either order]

16. The headwaters of this river were found by Randolph Marcy, but ambiguities in his report led to a political dispute. A railroad named for this river was built by Ralph Smith-Smith, then busted up by Joseph Bailey to build Bailey's Dam during a military campaign that included the Battle of Pleasant Hill. Captain Richard Sparks led a group of soldiers that accompanied Thomas Freeman and Peter Custis when they explored this river. A military campaign named for this river saw Richard Taylor force the army of Nathaniel Banks to retreat, smashing him at the Battle of Mansfield. This river once contained the "Great Raft," a huge mass of timber blocking its flow. An 1806 expedition named for this river, funded by Thomas Jefferson, was stopped at the Spanish Bluff, due to the actions of James Wilkinson. According to the Adams-Onís Treaty, this river's southern bank marked the U.S. boundary with Spain. For 10 points, name this river which forms much of the boundary between Oklahoma and Texas.

ANSWER: **Red** River of the South

17. In one work, this thinker writes that words which originally imitate the sound of nature evolve into "exclamative" words and then "attention-calling or demonstrative" words. He collaborated on a paper entitled "A Visit to the Other World" with his wife Mary Haas, and his article "The Phonemic Principle" provided an early definition of the phoneme put to use by William Twadell. Dell Hymes wrote the foreword to this man's unfinished book, posthumously edited by Joel Sherzer, entitled *The Origin and Diversification of Language*. After being fired from the City College of New York for alleged communism, this man was hired by Lázaro Cárdenas' government and worked in Mexico City for the rest of his life, developing the discipline of lexicostatistics. For 10 points, name this American linguist whose technique in glottochronology includes publishing 100 words that he posited to be a universal basic vocabulary, referred to as his namesake "list."

ANSWER: Morris **Swadesh**

18. Molecules possessing two chromophores and this property exhibit an energy splitting in their excited states due to exciton coupling. The benzoate sector rule and the octant rule are methods for predicting the sign and magnitude of an effect observed in absorption spectra of molecules with this property. Molecules with this property exhibit the Cotton effect in their ORD spectra. (DHQ)2-PHAL and Tröger's base are tertiary amine compounds which exhibit this property. BINAP exhibits the "axial" form of this property. Compounds with this property can be synthesized using "auxiliaries" used to induce it. Circular dichroism spectroscopy is used to study molecules with this property, which is not possessed by meso compounds. Molecules with this property exhibit optical activity. For 10 points, name this property possessed by molecules which cannot be superimposed on their mirror images.

ANSWER: **chirality**

19. This author's story about Swift Doyer's domestic abuse is presented as a duel between "an alarm clock" and "a suicidal purpose." A surreal story by this man features a giant tigress watching over the title crying infants. This author wrote "In the Tenderloin" and "An Explosion of Seven Babies", the latter of which is one of his *Sullivan County Sketches*. In another story by this man, a drummer's tale about a "woman with two scuttles of coal" is interrupted, causing two Mexicans to leave the Weary Gentlemen Saloon when the town drunk comes by, causing a character to board it up. In that story by this author, a character admits that "I ain't got a gun on me," and that he has just returned from San Antonio with his new wife. A gunfight between Scratchy Wilson and Jack Potter does not take place in a story by, for 10 points, what author of "The Bride Comes to Yellow Sky" and "The Open Boat"?

ANSWER: Stephen **Crane**

20. In the first book of the *Ars Amatoria*, this woman holds a "beating heart" after a "bloody priest" "feigns some holy rite of sacrifice" on her competition. Cicero claimed that ephors received prophetic dreams by sleeping at a shrine to this woman in Thalamea. One of this woman's children was accidentally murdered by his own son Althaemenes, while another of her sons died after winning all the prizes in the Panathenaic Games and being ambushed by his jealous rivals. The seer Polyidus found another of this woman's children after that child drowned in a jar of honey. This mother of Androgeos, Catreus, and Glaucus cursed her husband by forcing him to ejaculate scorpions and spiders when he was unfaithful. She released Icarus and Daedalus in exchange for Daedalus's earlier help in allowing her to satisfy a curse laid by Poseidon that resulted in the conception of Asterion. For 10 points, name this wife of Minos, the mother of the Minotaur.

ANSWER: **Pasiphae**

Tiebreaker: After an ancient king of this region was murdered in Rome, his household slave Aedemon started a popular revolt here supported by the chief Sabalus. That king of this region married a woman named Julia Urania and requested the help of the governor Publius Cornelius Dolabella to fend off the revolt of Tacfarinas and Garamantes. That final king of this region was Ptolemy, while a more famous earlier king secretly betrayed his son-in-law to Lucius Cornelius Sulla. A modern state by this name was run under a one-party system by Moktar Daddah, who lost power to a bloodless coup led by Mustafa Salek when this country's Zouerate Railway system was attacked. This country's control of the Rio de Oro led it to join Morocco in being plunged into a guerilla war with the Polisario Front. Two ancient kings named Bocchus ruled, for 10 points, what region that shares its name with a modern African nation located to the south of Western Sahara?

ANSWER: **Mauritania** [or the Islamic Republic of **Mauritania**; also accept **Mauri** Kingdom or the **Moorish** Kingdom]

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**Bonuses**

1. This writer is called a “dream spook” in the short treatise *Dreams of a Spirit Seer*. For 10 points each:

[10] Name this author of such books such as *Heaven and Hell* and *The Heavenly Doctrine*, which details his visits to Satan and God. His other works include a 12-volume commentary on Exodus and Genesis, *Arcana Coelestia*.

ANSWER: Emanuel **Swedenborg** [or Emanuel **Swedberg**]

[10] W. H. Auden praised this other author’s “negotiations with God,” *Markings*, whose quote “The longest journey is the journey inwards” provided the title to the adventure game *The Longest Journey*.

ANSWER: Dag [Hjalmar Agne Carl] **Hammarskjöld**

[10] Both Emmanuel Swedenborg and Dag Hammarskjöld are religious writers from this country, whose most celebrated saint is Bridget.

ANSWER: Kingdom of **Sweden**

2. John McLaughlin’s version of this song on *My Goal’s Beyond* was the only song on the album in which he re-recorded the guitar in the original. For 10 points each:

[10] Name this song in E flat minor, which was written as a tribute to Lester Young.

ANSWER: "**Goodbye Pork Pie Hat**"

[10] "Goodbye Pork Pie Hat" appears on an album named for this jazz musician followed by the syllables Ah Um. He depicted the evolution of humanity in *Pithecanthropus Erectus*.

ANSWER: Charles **Mingus**

[10] Mingus sings “Oh Lord, no more swastikas!” and “Name someone ridiculous, Dannie” on the original version of this song, named in part for a Southern politician. The version on *Mingus Ah Um* removes the lyrics.

ANSWER: "**Fables of Faubus**"

3. Answer the following about African writers who are cuckoo for Okonkwo puffs, for 10 points each.

[10] A resident of this village named Okonkwo stars in Chinua Achebe's *Things Fall Apart*. Its namesake "Progressive Union" sends Obi Okonkwo to England in *No Longer At Ease*.

ANSWER: **Umuofia**

[10] In this novel, Aku-nna’s uncle and stepfather Okonkwo believes that the title thing will be large since she is educated and healthy. This Buchi Emecheta novel tragically begins with Aku-nna's father Ezekiel dying and ends with Aku-nna herself dying in childbirth.

ANSWER: *The **Bride Price***

[10] An essay by noted scholar Juliet Okonkwo states that this author's *People of the City* was an early representative of African urban fiction. He wrote two novels about the prostitute Jagua Nana.

ANSWER: Cyprian **Ekwensi**



4. So-called “positive” and “negative” deviations from this law give rise to azeotropes in binary mixtures. For 10 points each:

[10] Name this law which states that the vapor pressure of a component in a mixture of liquids equals the vapor pressure of the pure component times the mole fraction of the component.

ANSWER: **Raoult's Law**

[10] Raoult's Law says nothing about the temperature-dependence of vapor pressure, which can be modeled by this simple equation which states that the log of the vapor pressure equals  $A - B/T + C$ , where A, B, and C are empirically determined parameters.

ANSWER: **Antoine equation**

[10] The non-ideality of a solution can be quantified using this parameter denoted phi. It is proportional to minus the natural log of the activity divided by the molality.

ANSWER: **osmotic coefficient**

5. This man reportedly declared “the faster the Germans become Americans, the better it will be,” sparking the legend that he stopped German from becoming an official language of the US. For 10 points each:

[10] Name this man who allegedly suggested the title “Mr. President” and was the first Speaker of the US House of Representatives.

ANSWER: Frederick Augustus Conrad **Muhlenberg**

[10] Muhlenberg was a politician from this state, as was Founding Father John Dickinson, who authored twelve essays called “Letters from a Farmer” in this state.

ANSWER: **Pennsylvania**

[10] Another great German-American was this Dutch Reformed minister called the “Apostle of the Raritan Valley,” who initiated the First Great Awakening in the middle colonies. This man's great grandson of the same name was the vice president on Henry Clay's ticket in 1844.

ANSWER: Theodorus Jacobus **Frelinghuysen** [or Theodore **Frelinghuysen**]

6. In classical mechanics, these statements can be used to reduce the number of degrees of freedom, and thus the number of generalized coordinates needed to specify a system. For 10 points each:

[10] Name these statements which can be written in the form “a function f of the generalized coordinates and time equals zero.”

ANSWER: **holonomic constraints** [do not accept or prompt on “constraints”]

[10] Whether the constraints are holonomic or not, this principle named for a Frenchman states that the sum of the work done by forces acting on a particle during a virtual displacement consistent with the constraints imposed on the particle is zero.

ANSWER: **d'Alembert's principle**

[10] The state of a non-holonomic system depends on the form of this entity required to achieve the state. The work done by a conservative force as a particle is moved between two points is independent of the nature of this entity between the two points.

ANSWER: the **path** taken [or **trajectory**]

7. A text of *The Iliad* called Venetus A contains a summary given by Proclus's *Chrestomathy* of these now-lost epic poems. For 10 points each:

[10] Name this group of poems, which begins with the *Cypria* and ends with the *Telegony*, in which Odysseus dies. It sometimes includes *The Iliad* and *The Odyssey*.

ANSWER: **Epic Cycle** [or **Epikhos Kyklos**]

[10] About thirty lines survive from this poem in the Epic Cycle, in which Odysseus and Diomedes venture to Lemnos to retrieve the arrows of Heracles. Philoctetes kills Paris in this poem, which ends with the construction of the Trojan Horse.

ANSWER: **The Little Iliad** [or **Ilias mikra** or **Ilias parva** do not accept or prompt "Iliad."]

[10] *The Little Iliad* is written in hexameters comprised of this poetic foot, comprised of a stressed foot followed by two unstressed feet.

ANSWER: **dactyls** [accept **dactylic hexameter**]

8. Six articles allegedly written by Dr. Andrew Grant caused this event by announcing the discovery of two-legged beavers, furry human bats, and unicorns, who pranced among fields of amethyst crystals. For 10 points each:

[10] Name this event in 1835, in which people went into a frenzy and bought up all the copies of the New York Sun after it announced the discovery of extraterrestrial life.

ANSWER: Great **Moon Hoax** of 1835 [Do not accept or prompt on any other answers]

[10] The backstory for the satire was that the son of this great astronomer had recently gone to South Africa to conduct secret telescope research. This man, who composed 24 symphonies, also discovered the planet Uranus.

ANSWER: [Frederick] William **Herschel**

[10] Annoyed by a Methodist debate about whether Genesis proved that giants roamed the Earth, the atheist George Hull cut a ten foot block of gypsum in 1869 and had it buried on Stub Newell's Farm, then claimed he'd discovered a "petrified man." That giant became the famous hoax named for this village in New York.

ANSWER: **Cardiff** Giant

9. These aspects of the sky were formed from the severed head and decapitated body of a figure who was slain during the Churning of the Oceans. For 10 points each:

[10] Name these two aspects of an *asura* who came to symbolize the two orbital nodes of the Moon. In Hinduism, eclipses are explained by these two inauspicious figures.

ANSWER: **Rahu** and **Ketu** [accept the answers in either order; prompt on "parts of Rahu"]

[10] In Hindu astrology, Rahu and Ketu are two of the *Navagraha*. Another of the *Navagraha*, Shani, represented this celestial object, which in Greco-Roman myth is named for a god married to Ops.

ANSWER: **Saturn**

[10] The planet Saturn was also associated with this member of the Trimurti. This creator god was born from a cosmic egg.

ANSWER: **Brahma**

10. Answer the following about eagles in history, for 10 points each.

[10] Bertrand du Guesclin, the man known as the “Eagle of Brittany” and the “Black Dog of Brocéliande,” was defeated in this 1367 battle in Spain. Edward the Black Prince and John of Gaunt allied with Peter the Cruel to defeat the French-backed forces of Henry of Trastámara here.

ANSWER: Battle of Nájera [or Battle of Navarrete]

[10] According to legend, this man found an eagle’s nest with seven chicks in it, which foretold his election as consul a record seven times. He also made the eagle the symbol of the People of Rome, as the leader of the populares opposed to Sulla.

ANSWER: Gaius Marius

[10] Known as the “Eagle of Lille,” this man was the first German flying ace during World War I. He invented a namesake turn in which the aircraft executes an ascending half loop, then a half roll to start flying in the opposite direction at higher altitude.

ANSWER: Max Immelmann

11. The recoil generated if these systems collide can alter the velocity of their center of mass by over 4,000 kilometers per a second, which is an unexplained but flagrant violation of Newton’s 3rd law. For 10 points each:

[10] Name these systems, whose components lose angular momenta as they leave a wake in their orbits. The fact that these systems coalesce into one despite dynamical friction becoming insignificant is the final parsec problem.

ANSWER: black hole binaries [or binary black holes; accept answers indicating black holes that are orbiting each other; prompt on binaries; prompt on (rotating) black holes; do not accept or prompt on “black hole mergers”]

[10] When a black hole binary coalesces, it will release more energy than all of the stars in the universe. Some of that energy is emitted as these ripples in spacetime predicted by Einstein.

ANSWER: gravitational waves [or gravitational radiation]

[10] This projected ESA mission, currently scheduled for launch in 2034, will allow for the detection of gravitational waves with frequencies much shorter than the ones currently detected by LIGO.

ANSWER: Evolved Laser Interferometer Space Antenna [or eLISA]

12. This man put forth the “chain store paradox,” in which it may be simultaneously rational and irrational for a store to threaten a price war when another store threatens to enter its market. For 10 points each:

[10] Name this game theorist who also invented a game called his “horse” because of the shape of its diagram in extensive form. He proposed the notion of “subgame perfection” used in dynamic games.

ANSWER: Reinhard **Selten** [Reinhard Justus Reginald **Selten**]

[10] The concept of subgame perfection is a refinement on this idea, named for the man who won the Nobel with Selten and John Harsanyi. It occurs in a game when all players know each other’s strategy but gain nothing by changing their own.

ANSWER: **Nash equilibrium** [or **Nash solution**]

[10] This British transport analyst used the same concept as Nash equilibrium to develop two namesake principles, intended to minimize the total travel cost on a congested roadway. One of his principles examines route choice and the other, the average journey time.

ANSWER: John [Glenn] **Wardrop** [accept **Wardrop**'s principles or the **Wardrop** equilibrium]

13. In one scene of this play, Japheth insists that he should use a rudder to navigate the Ark, though Noah thinks that it is sacrilegious. For 10 points each:

[10] Name this last play of its author, which depicts a 600-year-old Noah challenging God’s will. It is named for a fruit that symbolizes the “renewal of life” in God.

ANSWER: *The **Flowering Peach***

[10] The name of Eisenhower’s favorite golf course inspired the title of this author’s play *The Flowering Peach*. The travails of the Bronx family of Myron Berger are the subject of this author’s play *Awake and Sing!*.

ANSWER: Clifford **Odets**

[10] Yells of “Strike! Strike! Strike!” end this other play by Clifford Odets, in which the title character never appears on stage but is shot dead as taxi-drivers strive to “make a new world.”

ANSWER: ***Waiting for Lefty***

14. In 1959, this socialist released his Medicare plan, which promised to provide every person in Saskatchewan with public health care. For 10 points each:

[10] Name this Baptist minister who served for seventeen years as Premier of Saskatchewan, and then led the newly-formed New Democratic Party from 1961 to 1971.

ANSWER: Tommy **Douglas** [Thomas Clement **Douglas**]

[10] Douglas remarked that the government is “using a sledgehammer to crack a peanut” when Pierre Trudeau invoked this legislation to deal with the October Crisis. This bill gave the government the power to arrest and detain suspects without trial.

ANSWER: **War Measures** Act

[10] Douglas was defeated in the 1962 federal elections largely due to backlash over this labor dispute. It was mediated by Lord Taylor, and ended by the Saskatoon Agreement.

ANSWER: Saskatchewan **Doctors’ Strike** [prompt on just “Strike”]

15. Blotches of yellow, black, over gray comprise this artist's painting inspired by Ronald Reagan's Star Wars initiative, *S D I*. For 10 points each:

[10] Name this German artist who made a cracker-jack homemade squeegee to apply paint to canvases, thus creating his trademark "blur", in artworks that he called *Abstract Painting*.

ANSWER: Gerhard **Richter**

[10] Before embracing abstractionism, Richter made many images in this style, which gave its name to a movement whose members include *Photo Booths* painter Richard Estes and the wheelchair-bound Chuck Close.

ANSWER: **photorealism** [accept word forms; do not accept "realism"]

[10] During the 1980s Gerhard Richter created dozens of paintings depicting candles and these other objects. Damien Hirst studded one of these things with diamonds to create *For the Love of God*.

ANSWER: **skulls** [or **craniums**; prompt on "heads"]

16. Answer the following about examples of polyphenism, which is when one genotype epigenetically produces multiple discrete sets of traits. For 10 points each:

[10] During development, this organism can enter a Dauer stage instead of its normal L3 stage in order to survive harsh conditions. Its two genders are hermaphrodite and male, depending on whether its sex chromosomes are XX or XO.

ANSWER: *Caenorhabditis* **elegans** [prompt on partial answer]

[10] Caste polyphenism causes organisms displaying this type of social structure to develop into groups such as "workers," "soldiers," and "queens." Ants and bees display this type of social structure, which is also characterized by cooperative brood care and overlapping generations.

ANSWER: **eusociality**

[10] In an example of predator-induced polyphenism, *Daphnia* fleas form neckteeth around their heads in response to this type of chemical secreted by the predator. Contrasted with allomones, these chemical messages benefit the receiver, but not the sender.

ANSWER: **kairomones** [prompt on "hormones" or "semiochemicals"]

17. One member of this school of thought, Henry More, argued that the soul was truly incorporeal in *Enchiridion Metaphysicum*. For 10 points each:

[10] Name these thinkers, including Anne Conway and Joseph Glanville, who argued that Forms comprised the fundamental structure of the world. They are named for the British university where they taught.

ANSWER: **Cambridge Platonists** [accept **Cambridge Platonism**; prompt on Platonists or Platonism; prompt on Cambridge]

[10] In *The True Intellectual System of the Universe*, Ralph Cudworth argued that the universe has this property, which basically states that all matter is truly alive.

ANSWER: **hylozoism** [accept word forms]

[10] Cudworth appropriated the idea of hylozoism from this ancient Greek school, the first school known to have imagined the world as being created through the will of anthropomorphic gods. Its members included Anaximenes and Anaximander.

ANSWER: **Milesian** school [accept answers indicating the school at **Miletus**; accept **Ionian** school]

18. Answer the following about the military career of Giuseppe Garibaldi, for 10 points each.  
[10] This volunteer unit, created in 1859 by Garibaldi in Cuneo, saw action in the second and third wars for Italian independence, including their invasion of Trentino in 1866 and victory at the Battle of Bezzeca.

ANSWER: **Hunters of the Alps** [or **Cacciatore della Alpi**]

[10] Later, Garibaldi commanded a volunteer group called the Army of the Vosges during this war, which included the 1870 Battle of Sedan.

ANSWER: **Franco-Prussian War** [or **Franco-German War**]

[10] While championing the slogan “Rome or Death,” Garibaldi’s force met Emilio Pallavicini at this mountain massif in 1862, where he was taken prisoner in battle and shot in the foot, an episode which inspired the popular nursery rhyme “Garibaldi fu ferito.”

ANSWER: the **Aspromonte** [or “the day at **Aspromonte**”]

19. The presto fifth movement of this piece begins with the cello playing a blunt E major arpeggio followed by complete silence, as if it came in too early. For 10 points each:

[10] Name this seven-movement piece. Despite its published number, it was actually composed *after* a similar piece which has a movement designated as a “Holy Song of Thanksgiving.”

ANSWER: Ludwig van **Beethoven's String Quartet No. 14** [or **Beethoven's Opus 131**; or **Beethoven's String Quartet in C-sharp minor**]

[10] While Beethoven worked to integrate the fugue into his fourteenth quartet and create an organic whole, this composer took a more lyrical approach and based the second movement of his fourteenth string quartet on his earlier song “Death and the Maiden.”

ANSWER: Franz **Schubert**

[10] Beethoven's earlier quartets include 3 which comprise his Opus 57, and are named for this Russian ambassador, who commissioned them.

ANSWER: Andreas **Razumovsky**

20. Lieutenant Blackberry Rich rides in a hansom cab to watch the president of this group die in a duel with Prince Florizel. For 10 points each:

[10] Name this group infiltrated and dismantled by Colonel Geraldine and the aforementioned Florizel, after they meet a young man distributing cream tarts for free.

ANSWER: The **Suicide Club**

[10] This author wrote “The Story of the Young Man with Cream Tarts” and “The Adventure of the Hansom Cab” about the Suicide Club. He also penned a biography of Father Damian and wrote the *New Arabian Nights*.

ANSWER: Robert Louis [Balfour] **Stevenson**

[10] Stevenson’s shorter writings also include a novella about this fictional doctor, who transforms into the hideous Mr. Hyde.

ANSWER: Doctor **Henry Jekyll** [accept either underlined answer]