

ACF Nationals 2016
Editors' Packet 6
Tossups

1. This person's philosophy is held to be a reaction against the "materialistic drift of physical science" in a set of lectures by F.M. Cornford which argued that this man's "achievement" was "the discovery of the soul." A 1991 book discusses W. K. C. Guthrie's view that this man made a "wickedly sophisticated use of ambiguity." This man, who was discussed as a "moral philosopher" in that book by Gregory Vlastos, was described as a "magnificent pause in the course of history" in a master's thesis submitted in 1841 that argued against Hegel's view that this man was merely a "founder of morality." That thesis argues that this philosopher facilitated the birth of subjectivity and makes "continual reference" to this man. Soren Kierkegaard's *On the Concept of Irony* discusses, for 10 points, what philosopher from antiquity, an interlocutor of such works as *Charmides*, *Ion*, and *Meno*?

ANSWER: **Socrates** [or *Before and After Socrates*]

2. A potentially more energy-efficient modification to this procedure, proposed by Hoelker and Silber, applies a change in energy during the third time an object intersects a line defined by the eccentricity vector. The "modified" version of this technique incorporates a small change in flight angle to allow for three-dimensional movement, since the non-modified form of this technique usually requires that the final output be coplanar with the input. "Phasing" employs this technique to change an object's true anomaly, and has the feature that the delta-v's used have the same magnitude but opposite directions. To use this technique to get an object farther away from the focus, an increase in speed is applied at an ellipse's perigee, and another increase in speed is later applied at the apogee. For 10 points, name this technique which uses half an orbit to efficiently move between two other circular orbits, a type of "transfer" named for a German engineer.

ANSWER: **Hohmann** Transfer Orbit [or **HTO**]

3. A general with this last name earned his nickname after ordering soldiers at the Battle of Paoli to fight with their bayonets only, to ensure surprise during a night attack. Another man with this last name succeeded Robert FitzRoy as governor of New Zealand, and dealt with the Flagstaff War started by Hone Heke. Together with an American diplomat, another man by this surname authored a document stating that the U.S. "would probably enter the war against Germany" if the Central Powers did not attend an American peace conference. The general known as "No-Flint" shares this last name, as does the man who wrote an aborted 1916 memorandum with Colonel Edward House, and famously remarked "the lamps are going out all over Europe. We shall not see them lit again in our lifetime." A Whig prime minister with this last name, also known as the Viscount Howick, pushed through the Reform Act of 1832. For 10 points, give this surname of a prime minister who lends his name to a type of tea.

ANSWER: **Grey** [or Charles **Grey**, 1st Earl Grey; or Sir George **Grey**; or Sir Edward **Grey**, 1st Viscount Grey of Fallodon; or Charles **Grey**, 2nd Earl Grey]

4. UNESCO appointed Titus Burckhardt to preserve the religious history of this city, which he described in a 1992 book on it. According to the *Salawat al-Anfus*, a chronicle of the saints of this city, the Sufi Abu Madyan once climbed its Jabal Zalagh nightly to meditate. The Al-Attarine school in this city was built by its perfumer's guild, who wished to promote Islamic learning. In the 15th century, the first *mellah*, a kind of Arabic ghetto, was built in this city. A rich woman named Fatima al-Fahri founded a center of learning in this city, whose most sacred site is a shrine dedicated to Idriss II. The Al-Qarawiyyin madrasa in this city is said to be the "world's oldest university" and was responsible for turning it into the second-largest African Islamic capital of learning behind Cairo. The Marinids once ruled this Moroccan city. For 10 points, the conical tarboosh is an alternative name for a brimless, red article of clothing that takes its name from what city?

ANSWER: **Fez** [or **Fes**]

5. This character sees a poster reading "HUMAN BEINGS ARE GOD'S MASTERPIECES AND SUICIDE IS BLASPHEMY" while visiting the Divine Light Teahouse. This person finds phrases such as "The Place Where God Does Not Exist" and "The Place Where the World Ends" on a snowflake diagram, in a chapter in which this character opens 40 unsent love letters and finds they all begin "My darling, I have thought long and hard about whether I should write to tell you this" when he searches an apartment in Frankfurt. Near the book's conclusion, this character learns that Kadife is out of prison for shooting Zaim; he also learns that Ipek has remained unmarried and still believes the revolutionary named Blue was betrayed. While visiting Kars, this character tells Ka he is working on *The Museum of Innocence*. For 10 points, name this character, a fictionalization of the author of *Snow*.

ANSWER: **Orhan Pamuk** [accept either underlined answer; or the **author in Snow** or the **author of Snow** until "author of Snow" is read; prompt on **narrator of Snow** as he is not the only narrator]

6. Composer and genre required. Johnny Reinhard realized an unfinished example of these pieces, whose underlying rhythm is based on repeated "basic units" of sixteen seconds. A "distant choir" of a harp and violins plays separately from the main orchestra in the final movement of the fourth of these pieces, which is so complex that it often requires multiple conductors. One of these pieces includes a second movement "comedy" which juxtaposes a quiet pilgrims' hymn with cacophonous marches and popular songs. The second one ends with an abrupt final chord frequently compared to a raspberry or Bronx cheer, and was premiered by Leonard Bernstein in 1951. The third one was awarded the Pulitzer Prize in 1947, and includes movements called "Children's Day" and "Old Folks Gatherin'." For 10 points, name this set of orchestral works that includes pieces nicknamed "Universe" and "The Camp Meeting," written by the composer of *The Unanswered Question*.

ANSWER: **symphonies** of Charles **Ives** [prompt on partial answer]

7. Charles Lamb stated that the murder scene in this play “aroused pity and terror beyond any scene ancient or modern.” In the 25th scene of the play, its main character states that he has been unable to sleep for ten days due to one playing “continually upon a drum,” and that his guards Maltrevers and Gurney have been tormenting him. In that scene of this play, the executioner Lightborn taunts the title character moments before killing him. Bertolt Brecht and Lion Feuchtwanger collaborated on an adaptation of this play, which opens with the title character’s lover reading a letter stating “share the kingdom with thy dearest friend.” After the Queen in this play rescinds an exile to Ireland, the Earls Lancaster and Warwick are executed by the title character, for killing his beloved Piers Gaveston. Isabella of France is imprisoned at the end of, for 10 points, what history play by Christopher Marlowe?

ANSWER: **Edward II** [or *The Troublesome Reign and Lamentable Death of Edward the Second, King of England, with the Tragical Fall of Proud Mortimer*]

8. This ruler was attacked in a series of letters written by his secretary Megaleas, who committed suicide rather than stand trial for treason. This king’s conquests were recognized by the Peace of Phoenice, after a war in which he sacked the city of Thermo and stole its treasure. He solidified his rule by concluding the Peace of Naupactus to end the Second Social War. To clear an indemnity of a thousand silver talents and free his son from captivity, he joined the war against King Nabis. This ruler, who was frequently allied against by the Aetolian League, had his army destroyed in battle by an uphill charge of elephants led by T. Quinctius Flaminius. His son Perseus was later defeated at the Battle of Pydna, echoing this man’s own failure at the Battle of Cynoscephalae. For 10 points, name this ruler known as “the beloved of all Greece,” who for a time allied with Hannibal, and served as king of Macedon for over 40 years starting in 221 BC.

ANSWER: **Philip V** of Macedon [prompt on Philip]

9. In a 1987 paper, Kuang and Freedman established criteria for uniqueness of limit cycles in one model of these systems called the “Gause-type.” The total time is split into “search time” and “handling time” in a “disc equation” describing these systems. One model of these systems incorporates a Holling type II functional response in one of the equations and a density-dependent term in the other equation; that model is named for Rosenzweig and MacArthur. These systems can be described by the equations “ $x' = a - bxy$ ” and “ $y' = cxy - d$.” The solutions to those coupled differential equations either drop to zero, or display oscillatory behavior where neither population reaches a carrying capacity. For 10 points, the Lotka-Volterra equations describe what type of interspecies interaction where one organism is a food source for another?

ANSWER: **predator-prey** interaction [accept answers indicating that “a **predator** is **eating**,” accept descriptive answers indicating that “**one species** is **eating another species**,” prompt on “foraging”]

10. In one portion of this event, a man is given the hide of an African lion whose claws have been gilded with gold. Before this event begins, a character pours two bowls of wine, two bowls of fresh milk, and two bowls of hallowed blood and scatters crimson petals, which causes a huge shining snake to auspiciously appear from an altar. Gyas angrily throws Menoetes into the sea during a part of this event that also sees Sergestus run aground. During one part of this event, a man is given a Thracian mixing bowl when he shoots an arrow and it blazes like a shooting star. A man named Entellus wins a bull and then dashes its brains out with a single blow during this event. Nisus slips on some blood and manure during a foot race in this event, which occurs in the realm of King Acestes. For 10 points, name this event described in Book V of the *Aeneid*, in which Aeneas honors the death of his father with a variety of athletic contests.

ANSWER: **funeral games** of **Anchises** [prompt on "Book V of the *Aeneid*" until it is read]

11. This thinker wrote that “the great enemy of communication, is the illusion of it” and criticized “the great free enterprise campaign” in an article collected in his book *Is Anybody Listening?* As part of a study, he hired his student Fred Kent and a group of volunteers from Hunter College to observe how often people had conversations of two minutes or more outside Saks Fifth Avenue, and how people ate lunch at Seagram Plaza, which led him to conclude “what attracts people most is other people.” He advises that you should repeat to yourself “I loved my father and my mother, but my father a little bit more” in an appendix to one of his books titled “How to Cheat on Personality Tests.” This editor of *Fortune* magazine and conductor of the Street Life Project is also known for coining the term “groupthink.” His best-known book describes how people conform in corporate settings because they assume their individual judgment to be less valuable. For 10 points, name this American sociologist who wrote *The Organization Man*.

ANSWER: William [Hollingsworth] "Holly" **Whyte**

12. The Green's functions used in the Korringa-Kohn-Rostoker method possess this property. A potential with this property can be simplified by assuming the potential is spherically symmetric within a certain radius and constant elsewhere; that assumption is used in the alternate plane wave method and is the muffin-tin approximation. A wavefunction which satisfies the Born-van Karman boundary conditions must possess this property. A potential with this property is constructed from a linear combination of atomic potentials in the tight binding model. Solving the Schrodinger equation in this type of potential gives rise to electronic band structure. A wavefunction resulting from a potential with this property can be decomposed into the product of a plane wave and a function with this property according to Bloch's theorem. For 10 points, name this property exhibited by crystal lattices, in which a structure repeats.

ANSWER: **periodicity** [or **translational symmetry**; do not accept or prompt on “symmetry”]

13. This artist drew a pair of intertwined spiral rings to draw a study of an octagonal hat that resembles a torus. This illustrator often drew a “vacuus,” or “empty” version of an object before following up with their “solidus” or “solid” counterparts in a group of works that illustrates the Platonic solids as elements, which culminates with a depiction of a 72-sided polyhedron. A manuscript discovered in 2006 called *On the Game of Chess* is thought to contain illustrations of chess pieces by this artist, since his mentor Luca Pacioli is the author of that work. Many of this artist’s illustrations are collected in the Codex Arundel and the Codex Atlanticus, and scholars think that this man’s portrait of a man drawn in red chalk is a self-portrait. This artist drew many pictures of tendons and muscles while studying under Andrea del Verrocchio. For 10 points, name this Italian artist of *The Virgin of the Rocks* whose notebooks contain text written in mirror script.

ANSWER: **Leonardo da Vinci** [accept either underlined answer]

14. The founder of this group was accused of diverting its government funds to build a brothel, and paying doctors to medically inspect the whores for venereal diseases. This group was organized through the efforts of economist Lauchlin Currie and John King Fairbank, who obtained loans to finance this group as an assistant under Thomas Corcoran. It consisted of three divisions, the first of which was called “Adam and Eve.” The plan to create this group was put forth by its leader’s press officer Joseph Alsop, and approved after a lengthy debate at the Trident Conference, to the dismay of a man known as “Vinegar Joe,” Joseph Stilwell. Members of this group were trained at a schoolhouse in Toungoo, and first saw action defending the Burma Road. This group, founded by Claire Lee Chennault, consisted of 99 Curtiss P-40 models with shark faces painted on the front. For 10 points, name this group of American pilots who fought in the Chinese Air Force in World War II.

ANSWER: **Flying Tigers** [or **AVG**; or the 1st **American Volunteer Group**]

15. One novel written in this language follows the "pure reader," who listens to the stories of Tyd, Rar, Das and other "ex-writers" who have renounced the written word. A man whose job is to lay cables is fired for making graphs depicting his colleague's alcohol consumption in a satire in this language titled for a certain city “to the End of the Line.” This language was used to write *The Letter Killers Club*, as well as a novel which ends with Toscoob's daughter sending Tos a message asking "Where are you My Love?" An author writing in this language wrote about a character's return to his home country in *Forever Flowing*, and a novel intended as a sequel to *For the Right Cause* that drastically reverses its themes, *Life and Fate*. The engineers rule Mars in this language's novel *Aelita*, while the destruction of the Green Wall signifies the beginning of the possible fall of the One State in a novel in this language presented as D-503’s journal. For 10 points, what language was used to write *We* by Yevgeny Zamyatin?

ANSWER: **Russian** language

16. This man and Simon Kochen used the “fin,” “twin,” and “spin” postulates to prove that some elementary particles have “free will” if humans have free will. A positive definite quadratic form with an integer matrix will represent all positive integers if it represents the numbers up to the namesake number according to this man's “15 theorem.” This man invented a mathematical game in which players take turns naming positive integers that are not sums of multiples of previously named numbers. An algorithm developed by this scientist begins by calculating the “anchor day” of a century and was inspired by the work of Lewis Carroll. This man devised the Doomsday algorithm to quickly compute the day of a week given an arbitrary date. A so-called “game” developed by this man led Bill Gosper to create the “Gosper Gun”, which is actually a pattern that oscillates. For 10 points, name this mathematician, who created the cellular automaton called the Game of Life.

ANSWER: John [Horton] **Conway**

17. This city is home to a large complex of buildings called its “Trade Fair” designed by Massimiliano Fuksas, which features a large “veil” covering its million square meters. Three skyscrapers called “The Straight One,” “the Twisted One” and “The Curved One” designed by Zaha Hadid, Daniel Libeskind and Arata Isozaki were built as part of this city’s ongoing CityLife project. In 1877 Giuseppe Mengoni finished what is considered to be the world’s oldest shopping mall in this city, the Galleria Vittorio Emanuele II. This city’s *duomo* features hundreds of gargoyle statues and is the second-largest Catholic cathedral in the world. A Giuseppe Piermarini-designed building in this city was commissioned after the Teatro Regio Ducal burned down. That building in this city was severely damaged by World War II bombing but reopened in 1946 with a Renata Tebaldi performance conducted by its former music director Arturo Toscanini. For 10 points, name this capital of Lombardy, the home of the La Scala opera house.

ANSWER: **Milan** [or **Milano**]

18. This conflict was covered by the journalist Anthony Mascarenhas, who traced its beginning to a speech calling for “every house to turn into a fortress.” One side split its military into units called K Force, S Force, and Z Force, also known as the Tura Brigade. That force launched Operation Jackpot under a military council headed by General M.A.G. Osmani. An American diplomat responded to this conflict by controversially blasting his own government as morally bankrupt for not intervening, stating “our government has failed to denounce the suppression of democracy”—that response is the Blood Telegram, named for Archer Kent Blood. The directive “kill three million of them—the rest will eat out of our hands” led to Operation Searchlight, in which towns were ransacked by Yahya Khan, prompting the formation of the Mukti Bahini freedom fighters. This conflict broke out after the Awami League won a majority of seats and was banned, sparking a genocide in 1971. For 10 points, name this war in which a polity with centers at Chittagong and Dhaka fought for independence from Pakistan.

ANSWER: **Bangladesh** Liberation War of 1971 [or **East Pakistan** Liberation; or obvious equivalents indicating that **Bangladesh** or **East Pakistan** is seeking **independence** from Pakistan; or 1971 **Bangladesh genocide**]

19. One of this author's poems describes someone who strode and rode "across the hills and broke them" and ends by using a line from George Meredith to describe how "Matthew and Waldo" embody the "army of unalterable law." After reading Bertrand Russell's "A Free Man's Worship," he wrote a poem whose title figure "laughed like an irresponsible fetus" and visited the "palace of Mr. Phlaccus, at Professor Channing Cheetah's." Another of his poems is set "Among the reaches of the street, held in lunar synthesis" and features street lamps delivering various lines, including "Regard the moon, / La lune ne garde aucune rancune"; that poem ends with the image of "the last twist of the knife." This author of "Cousin Nancy," "Mr. Apollinax" and "Rhapsody on a Windy Night" included those poems in a collection whose title poem ends "human voices wake us, and we drown." For 10 points, name this author of "The Lovesong of J. Alfred Prufrock."

ANSWER: T. S. **Eliot** [or Thomas Stearns **Eliot**]

20. An acid, a glycol, and one of these compounds is used in the industrial production of unsaturated polyester resins. One of these compounds is produced in the Tennessee Eastman process. Either an acid or one of these compounds reacts with cellulose to form a safer alternative to the film base cellulose nitrate. A phosphoric acid catalyst mediates the synthesis of aspirin from salicylic acid and one of these compounds. 1,3-BPG is an example of a "mixed" one of these compounds. A common dienophile in Diels-Alder reactions is a 5-membered ring known as the "maleic" one of these compounds. These compounds can be synthesized from the reaction of an acid chloride with a carboxylic acid. For 10 points, name this functional group containing two carbonyls connected to the same bridging oxygen, whose name suggests their synthesis from a dehydration reaction between two carboxylic acids.

ANSWER: carboxylic acid **anhydrides**

Tiebreaker. In a 2004 paper, Halford and Marko described the kinetics of this process using a "facilitated diffusion" model. Cold shock proteins contain domains which perform this activity. One type of protein which performs this activity consists of repeated sequences of 33-35 amino acids that only vary at the repeat variable di-residue. That type of protein which performs this activity is bound to FokI ["fock-one"] in a TALEN. This activity is performed by a coiled coil structure stabilized by hydrophobic interactions between heptad repeats. The lac repressor has one motif which performs this activity which consists of a "stabilization" and a "recognition" helix. This activity is carried out by proteins with leucine zipper, zinc finger, and helix-turn-helix motifs. For 10 points, name this activity in which a protein forms intermolecular attractions with the major or minor groove of a certain biomolecule.

ANSWER: **DNA binding** [accept word forms like "**binding to DNA**," accept "**DNA recognition**," accept answers describing "forming a **complex** with **DNA**"]

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Bonuses

1. Throughout this movie, the camera slowly zooms outward to make the frame resemble eighteenth-century paintings. For 10 points each:

[10] Name this period drama that used special Zeiss lenses with an f-stop of 0.7 in order to shoot scenes entirely by candlelight.

ANSWER: **Barry Lyndon**

[10] *Barry Lyndon* was directed by this filmmaker, in between his movies *A Clockwork Orange* and *The Shining*.

ANSWER: Stanley **Kubrick**

[10] In *The Shining*, Kubrick used this device invented by Garrett Brown to direct the scenes of Danny riding around the Overlook hotel on his tricycle. It allows cameramen to avoid the jerking motions of traditional handheld cinematography.

ANSWER: **Steadicam**

2. John Sartoris is voted out by his troops who make this man a general in "An Odor of Verbena," the last story that appears in *The Unvanquished*. For 10 points each:

[10] Name this character who vows to become wealthy after he is denied entry into the Pettibone Mansion by a slave who snubs him. He subsequently hires a French architect to build an enormous estate, after which he marries Ellen Coldfield.

ANSWER: **Thomas** Sutpen [or **Thomas** **Sutpen**; prompt on "Sutpen"]

[10] Thomas Sutpen builds his mansion in this novel by William Faulkner, which is narrated in flashback form by Quentin Compson to his Harvard roommate Shreve.

ANSWER: **Absalom, Absalom**

[10] Ikkemotubbe, who sells Thomas Sutpen the land in *Absalom, Absalom* on which he builds his mansion, also appears via flashback in this story from *Go Down, Moses*, in which Ike McCaslin kills a buck.

ANSWER: "The **Old People**"

3. From 1891 to 1903, this man published 17 volumes of his book *Life and Labour of the People of London*, and he put forth the idea of Old Age Pensions, which he called "limited socialism." For 10 points each:

[10] Name this British social reformer, who created "poverty maps" in which he colored areas of British cities to show how many families were living on less than 1.05 pounds per week, his definition of the poverty line.

ANSWER: Charles **Booth**

[10] For his research, Booth employed this woman, who drafted the Minority Report advocating social insurance while serving on a royal commission to analyze the Poor Laws. Together with her husband, this woman was a leader of the Fabian Society and wrote *Industrial Democracy*.

ANSWER: **Beatrice Webb** [prompt on just **Webb**, accept Beatrice **Potter**; or **Martha** Beatrice **Webb** née Potter; do NOT accept Sidney Webb because that is a dude]

[10] The Minority Report was a precursor to this better-known 1942 report on Social Insurance and Allied Services, which is credited with founding the welfare state in the UK.

ANSWER: **Beveridge** Report

4. For incompressible flow, the energy equation in this set of equations can be written “the time derivative of specific internal energy plus the dot product of the flow velocity with the gradient of specific internal energy” equals zero. For 10 points each:

[10] Name these equations, which require zero thermal conductivity. They consist of a mass conservation equation, a momentum conservation equation, and an equation of state.

ANSWER: **Euler** equations

[10] In addition to requiring zero thermal conductivity, the other major simplifying assumption used to obtain the Euler equations from the Navier-Stokes equations is that this quantity be zero. This quantity is given by the ratio of shear stress to shear rate for a Newtonian fluid.

ANSWER: **viscosity**

[10] The solution to Euler equations in one-dimensional flow under the Rankine-Hugoniot boundary conditions exhibits one of these features.

ANSWER: **shock** wave

5. The artist wrote that “an undulating line of the seashore” and the “fullness, variety, and joys” of the title entity runs through the works that comprise this series. For 10 points each:

[10] Name this group of paintings, which contains many depictions of the Madonna that use a border of sperm cells drawn by the artist. It also contains many paintings called *Jealousy*.

ANSWER: *The **Frieze of Life** - A Poem about Life, Love and Death*

[10] This iconic image, which depicts a reddish sky and its subject holding onto his head as he performs the title action, is from *The Frieze of Life*.

ANSWER: *The **Scream*** [or ***Sirik***]

[10] In this other painting from *The Frieze of Life*, the man on the lower left cowers in fear, as the woman in white in the middle places her hands on her head and gives a look of terror. One version of this painting is called *After the Fall*, but all three of them depict Munch’s belief that “love [is like] a flame.”

ANSWER: **Ashes** [since what's left of love is only ashes]

6. For 10 points each, answer the following about gold in Norse mythology:

[10] This goddess cries tears of gold when she loses her husband Otr, which then turn into amber. In another role, half of the warriors who die in battle go to her field of Folkvangr.

ANSWER: **Freyja** [or **Freya**]

[10] One kenning for gold is the “seed” of Fyris Wolds, since this Danish king once spread gold over the Fyrisvellir (FEE-riss-vell-eer) plain to distract Adil’s troops from catching up to him.

ANSWER: **Hrólf Kraki** [accept either underlined portion; accept **Hrodulf**, **Rolfo**, **Roluo**, or **Rolf** Krage]

[10] Another kenning for gold was this god’s “fire”, since he illuminated the floor of his hall, which was located beneath Hlesey, by putting gold into it. He also fathered nine billow maidens.

ANSWER: **Aegir**

7. The thinker who coined this term argued that capitalism attempted to reject this condition, resulting in the “double movement,” where liberal forces try to free up labor markets but are automatically countered by social forces. For 10 points each:

[10] Name this term originally used by Karl Polanyi to describe how economies cannot be separated from the societies in which they exist.

ANSWER: **embeddedness** [or word forms, such as **embed** and **embedding**]

[10] Mark Granovetter expanded on Polanyi by writing a seminal 1973 paper about the “strength” of these kinds of bonds, which he claimed were responsible for much of the embeddedness and structure of social networks.

ANSWER: **weak ties** [prompt on **ties**]

[10] The presence of a three-way strong tie within a group is named in honor of this early German sociologist, who wrote *The Philosophy of Money* and *The Metropolis and Mental Life*.

ANSWER: Georg **Simmel** [they are Simmelian ties]

8. Mark Overmars and Chee Yap solved Klee’s measure problem, which asks for the measure of the union of multidimensional rectangles, by using this data structure. For 10 points each:

[10] Name this binary space partitioning data structure that allows one to efficiently perform nearest neighbor searches on a group of points in an arbitrary number of dimensions.

ANSWER: **k-d tree**

[10] k-d trees are this type of tree in which every node has at most two children. The “search” type of them have an ordering enforced for their left and right children.

ANSWER: **binary** tree

[10] A k-d tree allows for a nearest neighbor search to be done with this average tight-bound big O run time. Give your answer in terms of n, the number of points.

ANSWER: **log** of n

9. Governor Edward Eyre had the politician George William Gordon arrested and executed for his alleged role in this rebellion. For 10 points each:

[10] Name this 1865 rebellion in which Paul Bogle led a group of three hundred black peasants who marched on the namesake coastal village in Jamaica.

ANSWER: **Morant Bay** rebellion

[10] In addition to Bogle and Gordon, Jamaica’s national heroes include this founder of the Black Star Line and the Universal Negro Improvement Organization, who promoted the Back to Africa Movement.

ANSWER: Marcus Mosiah **Garvey**, Jr.

[10] Another national hero of Jamaica is this leader of the People’s National Party who fought for universal suffrage along with Alexander Bustamante. He was Chief Minister of Jamaica from 1955 to 1959, after which he became premier.

ANSWER: Norman Washington **Manley**

10. A poem in this collection called “Confessions” features a speaker who states “How sad and bad and mad it was—/ But then, how it was sweet” while reminiscing about an affair. For 10 points each:

[10] Identify this poetry collection by Robert Browning named for its speakers. It includes “Rabbi Ben Ezra” and “Abt Vogler” and has a Latin title.

ANSWER: *Dramatis Personae*

[10] A poem in *Dramatis Personae* is named for this character, who meditates “upon Setebos” in a dramatic monologue. He is the son of Sycorax in *The Tempest*.

ANSWER: Caliban [or “Caliban Upon Setebos”]

[10] In another long monologue from *Dramatis Personae*, this character states “Now, don’t sir! Don’t expose me! / Just this once! This is the first and only time, I’ll swear!” This title character is based on Daniel Home, a “seer” who tried to trick the Brownings into having a séance with their dead unborn son.

ANSWER: Mr. Sludge, the Medium [prompt on the Medium]

11. Answer the following about the Portuguese Age of Discovery, for 10 points each.

[10] This servant and shield-bearer for Henry the Navigator brought wild roses to prove that he had rounded Cape Bojador in 1434 on his second expedition, which he had promised he would do or die trying.

ANSWER: Gil Eanes [or Gil Eannes]

[10] According to tradition, Jehuda Cresques was invited to Henry’s school at Sagres to work in this profession, whose other practitioners include Abraham Ortelius and Gerardus Mercator.

ANSWER: cartographer [or mapmaker; or obvious equivalents, such as cartography]

[10] Pope Calixtus III issued a bull by this name which authorized the Portuguese king Afonso V to sail and conquer the Saracens of Africa. A better known papal bull by this name was issued by Pope Alexander VI in 1493, and served as the basis for the Treaty of Tordesillas.

ANSWER: Inter Caetera [or “Among Other Works”]

12. For 10 points each, name these philosophers who wrote about utopias:

[10] In a dialogue between a “Genoese sea-captain” and a Knights Hospitaller Grandmaster, this philosopher imagined a utopian theocracy in which a priest governs over a community structured around astrological principles; that work is *The City of the Sun*.

ANSWER: Tommaso Campanella [or Giovanni Domenico Campanella]

[10] This German philosopher argued that art in the Western tradition should be read as reflections of the Utopian ideal in *The Spirit of Utopia*, his first major work. A Marxist reading of art is presented in his massive *The Philosophy of Hope*.

ANSWER: Ernst Bloch

[10] The word utopia was coined in this philosopher’s treatise *Utopia*, which suggested that communal property and the absence of social classes maximizes leisure.

ANSWER: Sir Thomas More [or Saint Thomas More; do not accept or prompt on “(Saint) Thomas”]

13. This author used multiple narrators in a novel in which Thomas Landman goes incognito after failing to assassinate his country's president using a car bomb for "The Organization." For 10 points each:

[10] Name this South African author of *An Act of Terror*, who fictionalized the life of a black slave named Cupido Cockroach in his novel *Praying Mantis*. His other novels include *A Chain of Voices* and *A Dry White Season*.

ANSWER: Andre **Brink**

[10] In *A Dry White Season*, this character dies in police custody after his son Jonathan is arrested and killed by the police. Ben du Toit spends the novel investigating this man's death.

ANSWER: **Gordon Ngubene** [accept either]

[10] In "Writing in a State of Siege," Andre Brink defends his decision to write in this language before translating his writings into English because "the threshold of overstatement is reached more readily" in English than this language.

ANSWER: **Afrikaans**

14. Answer some things about fiery club disasters not involving the band Great White, for 10 points each.

[10] Because Holy Cross ruined the Sugar Bowl hopes of Boston College, its football players didn't attend a gala at this Boston club on the night in 1942 when it became the site of the deadliest nightclub fire in history.

ANSWER: **Cocoanut Grove**

[10] The Summerland Disaster of 1971 occurred at a leisure center in Douglas, the capital of this island which sits in the middle of the Irish Sea and has a triskelion on its flag.

ANSWER: Isle of **Man** [or **Mann**]

[10] Spraying Spanish moss with petroleum-based insecticide led to the Rhythm Club Fire, also known as the Dance Hall Holocaust, in this city, which was wrecked by a great tornado in 1840. A historic forest trail known as this city's namesake Trace links it to Nashville, Tennessee.

ANSWER: **Natchez**, Mississippi

15. Two cysteine and two histidine residues link to the namesake cluster of one type of this class of proteins named for John Rieske. For 10 points each:

[10] Name this class of proteins. Examples of them important in major biochemical pathways include aconitase and the ferredoxins.

ANSWER: **iron-sulfur** proteins [or **Fe-S** proteins]

[10] Aconitase catalyzes the isomerization of this compound, which is formed from oxaloacetate and acetyl-CoA in the first step of the Krebs cycle.

ANSWER: **citrate** [or **citric acid**]

[10] An iron-sulfur cluster is the structure of this cofactor of bacterial nitrogenase, which is also called the M cluster. It is named for the two metals it contains.

ANSWER: **FeMoco**

16. In a discussion about verse 8 of Psalm 101, the characters of Peace and Truth in this work suggest that it is a “mystery of Satan” as to why “persons in New England plantations ... remain all members of the Church of England.” For 10 points each:

[10] Name this book, published by the author of *A Key into the Language of America*, which argues that the “garden of the Church” should be separate from the “wilderness of the world.”

ANSWER: *The **Bloody Tenent of Persecution**, for Cause of Conscience, Discussed in a Conference between Truth and Peace*

[10] This founder of Providence Plantations, which became Rhode Island, pretty much argued for a separation of Church and State in *The Bloody Tenent of Persecution*.

ANSWER: Roger **Williams**

[10] *The Bloody Tenent of Persecution* inspired Thomas Jefferson to describe a “wall of separation between Church and the State” in a letter to this city’s Baptists.

ANSWER: **Danbury**, Connecticut [or “Letter to the **Danbury** Baptist Association”]

17. When modeling these compounds as a random walk, their root-mean-square end-to-end distance is equal to the square root of the number of links times the link length. For 10 points each:

[10] Name these compounds whose conformations can be modeled using the “freely jointed chain” or the “freely rotating chain” when there is no branching.

ANSWER: **polymers**

[10] Because real polymers can exhibit heavy branching, the end-to-end distance cannot always be unambiguously defined. Instead, scientists use this quantity, defined as the average distance of all monomers from the center of mass.

ANSWER: **radius of gyration** [prompt on **radius**; do not accept “hydrodynamic radius”]

[10] Another issue with idealized chain models of polymers is the fact that two monomers cannot occupy the same space. To correct for this, the random walk model is replaced with this type of walk.

ANSWER: **self-avoiding** walk

18. These figures would often compose *partimen*, a style of verse in which a question would be posed and two of them would give an answer that fits the poem’s meter. For 10 points each:

[10] Name these medieval poets, such as Aimeric de Belenoi and Peirol, who composed courtly poetry in Occitan.

ANSWER: **troubadours** [or **troubaritzes**]

[10] Troubadours were often assisted by these French minstrels, who often performed acrobatics and recited great songs about the deeds of heroes.

ANSWER: **jongleurs**

[10] These songs of heroic deeds were typically performed by jongleurs. They typically concerned the Matter of France and, examples include Fierabras and Huon of Bordeaux.

ANSWER: **chansons de geste** [prompt on **chansons**]

19. Name these proprietary founders of colonies in the New World, for 10 points each.

[10] After this man funded the failed Popham Colony, he was given a grant with his friend John Mason, which they split at the Piscataqua River. Despite the fact that he never set foot in North America, this man is called the “father of English colonization” because he thusly founded the province of Maine.

ANSWER: Sir Ferdinando **Gorges**

[10] This man founded the debtor’s colony of Georgia, which he defended in historic clashes like the Battle of Gully Hole Creek.

ANSWER: James Edward **Oglethorpe**

[10] The “Concession and Agreement” was a document that set up the colony of New Jersey, written by John Berkeley and a man by this last name, whose wife named the colony’s capital of Elizabethtown. That man, George, had a cousin Philip with this same last name who was the first governor of New Jersey.

ANSWER: **Carteret** [George **Carteret** and Philip **Carteret**]

20. As an organ professor at the Paris Conservatoire, this composer’s pupils included Louis Vierne and Vincent d’Indy. For 10 points each:

[10] Name this composer of organ works such as *Grand Piece Symphonique*, who spent many years as the organist for Sainte Clotilde. He composed a popular setting of “Panis Angelicus.”

ANSWER: Cesar **Franck** [or César-Auguste-Jean-Guillaume-Hubert **Franck**]

[10] This contemporary of Franck incorporated an organ in the finale of his third symphony and composed the *Carnival of the Animals*.

ANSWER: Camille **Saint-Saens** [or Charles-Camille **Saint-Saens**]

[10] This French organ builder created Franck’s organ at Sainte Clotilde and reconstructed the Great Organ at Saint Sulpice. His modifications enabled organists to imitate orchestral instruments, inspiring many French composers to write organ symphonies.

ANSWER: Aristide **Cavaillé-Coll**