

ACF Fall 2015

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Tossups

1. A prison memoir from this country addresses a policeman as “Mr. Investigator” and “Mr. I”. A novel set in this country includes the diary of a doctor rehabilitating a starving man. *True Confessions of an Albino Terrorist* is set in this country, where, in another work, a character dreads his father’s return from the hospital and later spits at Sam, demanding to be called the play’s title phrase. In a novel from this country, a man tries to bring his dying mother to Prince Albert, and is a gardener with a cleft palate. For 10 points, “*Master Harold*”...and the Boys and *Life and Times of Michael K* are set in what home country of Athol Fugard and J.M. Coetzee?

ANSWER: Republic of South Africa

2. F-box protein TIR1 is a receptor for these compounds. These compounds activate proton pumps which in turn activate expansins. These compounds move via a namesake “polar transport” whose direction is controlled by PIN proteins. These compounds cause elongation per the acid growth hypothesis. Two of these compounds were mixed to make Agent Orange. An experiment involving growth of a coleoptile of monocots on agar led to the discovery of these compounds and their role in phototropism. The most common form of these compounds in nature is indole-3-acetic acid. For 10 points, name this plant hormone which promotes growth.

ANSWER: auxins [prompt on indole-3-acetic acid or IAA until “Agent” is read]

3. A montage in this film parodies Woody Allen’s *Manhattan* by playing *Rhapsody in Blue* on the soundtrack and having the protagonist perform oral sex on a bench underneath the Queensboro Bridge. A character in this film performs knee surgery while listening to “Uptown Girl.” The protagonist briefly dates a character played by John Cena and recalls her divorced father forcing her to repeat the statement “monogamy isn’t realistic.” LeBron James is the best friend and wingman of Bill Hader’s character, who is dating the commitment-phobic protagonist. For 10 points, name this 2015 film starring Amy Schumer as a woman getting her love life together.

ANSWER: Trainwreck

4. This philosopher claimed that the “shadowy interior of the household” became part of public life as the state took on housekeeping functions. A book by this author argues that Western philosophy has made the *vita activa* subordinate to the *vita contemplativa*. This thinker blamed imperialism and anti-Semitism for originating a form of “radical evil.” This author of *The Human Condition* was attacked by the left for her analysis of Stalinism in *The Origins of Totalitarianism*. This philosopher reported on the trial of a Nazi official who embodied “the banality of evil”. For 10 points, name this author of *Eichmann in Jerusalem*.

ANSWER: Hannah Arendt

5. This ruler's brother Thankmar revolted against him before being defeated in Eresburg. This man had his son and successor married to Theophano to conclude peace talks with Byzantium. He had several successful campaigns against the Slavs with the help of Gero the Great. This husband of Adelaide survived a battle that led to the deaths of Conrad the Red as well as Bulcsu and the chieftains Lel and Sur, who were executed at Regensburg. Seven years after he defeated the Magyars at Lechfeld, this man was crowned in 962 by Pope John XII. For 10 points name this Duke of Saxony who became the first German Holy Roman Emperor.

Answer: Otto I [or Otto the Great; prompt on "Otto"]

6. One of these animals accompanies Yvain during his quest to win back the hand of Laudine. Molochus is told to sacrifice to Zeus if one of these animals is not killed within thirty days. Seven thousand jars of beer are required to placate a goddess with this animal form, who is created by Ra to destroy humanity. That goddess is Ptah's wife Sekhmet. Arrows are found to merely bounce off of the impenetrable fur of one of these animals, which is instead strangled to death inside of a cave. For his first labor, Heracles slays one of these animals from Nemea. For 10 points, name this animal which forms the body of a sphinx.

ANSWER: lion [or lioness]

7. An equation named for this man can be derived by truncating the virial expansion at the second coefficient. That equation named for this man incorrectly predicts a universal critical compressibility factor of three-eighths. A phenomenon named for him is proportional to the negative sixth power of distance as seen in the Lennard-Jones potential. The realization that atoms have volume accounts for the "b" constant of his namesake equation. This man names a set of weak intermolecular interactions that includes London dispersion forces. For 10 points, name this Dutch scientist whose namesake equation modifies the ideal gas law.

ANSWER: Johannes Diderik van der Waals

8. A character in this novel compares guessing to stabbing water with a pitchfork and helps its protagonist by retrieving tarpaper to patch up a window. A film director in this novel who uses his connections to enable himself to keep his fancy fur cap is called Cesar. Alexander Tvardovsky wrote a preface for this work when *Novy Mir* published it in 1962. Its title character works on a wall alongside the Latvian joker Kilgas. Alyosha the Baptist sleeps on a bunk adjacent to that of this novel's title character, who serves under Tyurin in work gang 104. For 10 points, name this Alexander Solzhenitsyn novel about Shukhov's experience of a gulag.

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

9. This artist likely depicted himself as a kneeling Nicodemus supporting the body of Christ in his final painting, a version of the *Pietà*. The horn of a wreath-wearing white bull is being gripped by the title figure of one of his paintings. This artist painted a man in red standing in a crowd reaching up to another man in red being borne upwards by cherubs. This artist of *The Rape of Europa* and a massive *Assumption* emulated a pose used by his teacher Giorgione in a painting that shows a dog curled up on the sheets of a bed near a reclining nude who gazes intently at the viewer. For 10 points, name this Venetian painter of the *Venus of Urbino*.

ANSWER: Titian [or Tiziano Vecellio]

10. This organism is the subject of a long-term experiment run by Richard Lenski since 1988. Shiga-like toxin is produced in strains of this organism that cause hemolytic-uremic syndrome. Commonly studied strains of this organism include the B and K-12 strains. Edward Tatum and Joshua Lederberg used this organism to describe the exchange of genetic material via conjugation. To demonstrate the spontaneity of genetic mutations, Luria and Delbruck infected this organism with bacteriophages. The *lac* operon was discovered in this rod-shaped Gram-negative bacteria. For 10 points, name this model organism, a bacteria which is found in the human gut.

ANSWER: *E. coli* [or *Escherichia coli*]

11. This leader allowed Soviet Comintern agent Mikhail Borodin to escape during the April 12th incident. During this leader's tenure, a dispute involving a cigarette vendor triggered the 228 Incident, which led his government to enact a "White Terror". This leader trained his future generals as leader of the Whampoa Military Academy. He was encouraged to adopt Christianity by his wife, Soong May-ling. This self-styled "Generalissimo" forced a rival army to undergo the Long March but ultimately had to flee to Taiwan. For 10 points, name this leader of the Kuomintang who lost the Chinese Civil War to Mao Zedong.

ANSWER: Chiang Kai-Shek [or Jiang Jieshi]

12. In this composer's Symphony No. 1, the D minor third movement begins with a solo for a muted double bass over soft timpani beats on D and A. All seven hornists are instructed to stand in the finale of that symphony, whose third movement begins with a funeral march based on the "Frère Jacques" melody. This composer used the key of C-sharp minor for the opening trumpet solo of his Symphony No. 5, whose fourth movement is an Adagietto sometimes seen as a profession of love towards his wife Alma. For 10 points, name this composer of the *Titan Symphony*, whose eighth symphony is exaggeratingly called the *Symphony of a Thousand*.

ANSWER: Gustav Mahler

13. Incorporating the concept of increasing returns to scale is the key element of the "new" theory of this activity. The Leontief paradox undermined attempts to model this activity, which Paul Samuelson predicted to lead to factor price equalization. The Heckscher-Ohlin model predicts the patterns of this activity based on capital and labor. David Ricardo described a principle stating that two entities may achieve gains from this activity if they each have a comparative advantage at producing goods. For 10 points, name this activity that is the exchange of goods or services between parties.

ANSWER: trade [or exchange until it is read]

14. The title character of this novel disobeys a town council by waving a homemade flag on the carriage of a Royal Personage. After finding a starved goldfinch in a cage, one character in this novel finds a man dead in Abel Whittle's cottage. A character in this novel suffers a seizure after seeing a "skimmity-ride". A merchant in this novel loses his money after receiving bad advice from a weather prophet. After Lucetta miscarries and dies in this novel, Donald Farfrae remarries with Elizabeth-Jane, who the title character had drunkenly sold. For 10 points, name this Thomas Hardy novel in which Michael Henchard gains and loses the title office.

ANSWER: *The* Mayor of Casterbridge

15. This value is generalized by a complex-valued function named for Erik Fredholm. For transformation T applied to parallelogram P, this value for T equals the coefficient for the change in area of P under the transformation. To find the characteristic polynomial for A, this value is calculated for A minus the identity times lambda, which represents a scalar eigenvalue. Quotients of these values can be used to find the coefficients that solve a system of linear equations by Cramer's rule. Only the sign of this value is changed when rows or columns are swapped. For 10 points, name this value which, for a two row matrix, is often expressed as *ad* minus *bc*.

ANSWER: matrix **determinants**

16. The Taoist practice of bigu ["bee-goo"] is the technique of performing this action to achieve immortality. In one religion, adherents who do not perform this action are forced to either free a slave or feed and clothe sixty people. This action and prayer are the two "Great Obligations" of the Baha'i faith. Mormons often perform this action on the first Sunday of the month. In Jainism, Sallekhana consists of doing this until one's death. Jews do this on Tisha B'Av and Yom Kippur. This action is mandated by the pillar of "sawm". For 10 points, name this action practiced by Muslims during Ramadan, a voluntary refusal of food and drink consumption.

ANSWER: **fasting** [or **sawm** until it is read; accept any answer that describes **not eating or drinking**]

17. This author described his most famous character as "a complete man and a common man" in an essay that begins with the line "fiction in any form has always intended to be realistic." In one of his novels, the protagonist finds a woman passed out naked in front of a camera in a house owned by Arthur Geiger. Another of his novels ends with the discovery that Terry Lennox has fled to Mexico and received plastic surgery. This author of "The Simple Art of Murder" wrote a novel that begins with General Sternwood asking the protagonist to take up a blackmail case. For 10 points, name this author who wrote about detective Philip Marlowe in *The Long Goodbye* and *The Big Sleep*.

ANSWER: Raymond **Chandler**

18. A first-act tenor aria in this opera ends on a difficult sustained B-flat. That aria laments "If only I were that warrior!" and is titled for the singer's beloved, who is described as "Celeste," or "heavenly." In this opera's second act, a king offers to grant any one wish for a character who has just returned from a "Triumphal March." The high priest Ramfis sentences this opera's tenor lead to death after his fraternization with enemy king Amonasro is discovered by the princess Amneris. The Egyptian general Radamès is buried alive with his lover at the end of, for 10 points, what Giuseppe Verdi opera about the title Ethiopian princess?

ANSWER: **Aida** [or **Aïda**]

19. The impedance caused by these devices is directly proportional to the frequency. One of these devices designed to block alternating current from passing is called a choke. The energy stored in these systems is proportional to "one half current squared" times a namesake quantity. Two of these devices are used in transformers. The behavior of these circuit elements is described by Faraday's law. On circuit diagrams, these devices are depicted as coils. These devices generate a magnetic field when current passes through them. For 10 points, name these circuit elements whose namesake quantity is symbolized L and is measured in Henries.

ANSWER: **inductors** [or **inductance**; prompt on **solenoids**]

20. Protestors in this city built the Resurrection City shantytown during the Poor People's Campaign. Bayard Rustin deputy organized an event in this city under A. Philip Randolph. A speech delivered in this city described a check from the "bank of justice" marked "Insufficient Funds." The line "Thank God Almighty, we are free at last!" ends a speech given in this city that hopes people will be judged "by the content of their character" and not "by the color of their skin." A 1964 march for "Jobs and Freedom" occurred in, for 10 points, what city where Martin Luther King, Jr. declared "I have a dream" in front of the Lincoln Memorial?

ANSWER: Washington, D.C. [or D.C.; or District of Columbia]

Extra

The work of scholars at Bologna under an emperor of this name enabled that emperor's rehabilitation of Justinian's Corpus Juris Civilis. An incredible emperor with this name spoke six languages, including Greek and Arabic, and established such an advanced literary culture and bureaucracy in Southern Italy that he was called *stupor mundi* by contemporaries. Another emperor with this name was defeated by the Lombard League at the Battle of Legnano. That emperor's armor weighed him down while was crossing the Saleph river, leading him to drown while on the way to the Third Crusade. For 10 points, give this name of the Holy Roman Emperor known as "Barbarossa."

ANSWER: Frederick [or Friedrich]

Bonuses

1. This process was independently proposed by Bethe and Weizsacker. For 10 points each:

[10] Identify this series of reactions, which uses a series of catalysts to convert four protons into one alpha particle, two positrons, and two electron neutrinos. It is thought to be dominant in stars of greater than 1.3 solar masses.

ANSWER: CNO cycle [or carbon-nitrogen-oxygen cycle]

[10] The CNO cycle is a mechanism for the fueling of stars through this mechanism, contrasted with fission, in which the combination of multiple atoms into one generates energy.

ANSWER: nuclear fusion

[10] Another fusion mechanism, the proton-proton chain, was proposed by Arthur Eddington as a method to overcome the barrier imposed by this law, which contains a term equal to the inverse of four pi times permittivity.

ANSWER: Coulomb's law [accept the Coulomb barrier]

2. One artist in this movement used Ben-Day dots for pictures like *Drowning Girl* and one in which Daffy Duck says "I've hooked a big one" to his fishing partner, Mickey Mouse. For 10 points each:

[10] Identify this artistic movement that included Roy Lichtenstein and Andy Warhol in its number.

ANSWER: pop art

[10] This early British pop-artist showed a bodybuilder in front of some stairs and beside a naked women on a sofa in his *Just what is it that makes today's homes so different, so appealing?*

ANSWER: Richard Hamilton

[10] Hamilton drew X's across photos of this person on a beach. The Tate owns that print, as well as a half-color, half-black and white "diptych" depicting this person by Andy Warhol.

ANSWER: Marilyn Monroe

3. Answer the following about the generals who carved up Alexander the Great's empire after his death, the Diadochi, for 10 points each.

[10] This man managed to grab the lion's share of the empire, taking Mesopotamia, Persia, and Bactria. He later fought an unsuccessful war with Chandragupta Maurya.

ANSWER: Seleucus I [or Seleucus Nicator; prompt on "Seleucus"]

[10] Seleucus' dynasty would frequently war with that of Ptolemy I, who took over this region. Ptolemy's dynasty would produce a bunch of rulers who took his name, as well as Cleopatra.

ANSWER: Egypt

[10] Another member of the Diadochi was the one-eyed Antigonos, who started his namesake dynasty in this region of northern Greece that was Alexander's homeland.

ANSWER: Macedon [or Macedonia]

4. The role of this character was originated on Broadway by Jessica Tandy. For 10 points each:

[10] Name this fallen southern belle who declares "I have always depended on the kindness of strangers" at the end of a play in which she moves in with Stella and Stanley Kowalski, *A Streetcar Named Desire*.

ANSWER: Blanche DuBois [or Blanche DuBois]

[10] This playwright of *The Glass Menagerie* also wrote *A Streetcar Named Desire*.

ANSWER: Tennessee Williams

[10] This director introduced the world to Marlon Brando in his 1947 staging of *A Streetcar Named Desire*. His *On the Waterfront* defends his decision to testify before the House Un-American Activities Committee.

ANSWER: Elia Kazan

5. Answer the following about the monk Kūkai, for 10 points each.

[10] Kūkai imported China's Tangmi Buddhist tradition to this island nation as Shingon Buddhism. This country's many "new religions" include Tenrikyo and the doomsday cult Aum Shinrikyo.

ANSWER: Japan [or Nihon; or Nippon]

[10] Kūkai fled China because of its persecution of Buddhism under emperor Tang Wuzong, who favored native religions, such as this one that venerates the Jade Emperor as one of the Three Pure Ones.

ANSWER: Daoism [or Taoism]

[10] A Shingon mandala depicts the Womb realm and this other realm. A well-known sutra is named for "cutting" this tough substance, whose Sanskrit name gives an alternate name for the esoteric Tantric tradition.

ANSWER: diamond [or vajra; or vajrayana; or kongoseki; or Diamond Sutra; or Vajracchedika Prajnaparamita Sutra; or Diamond Realm; or Kongokai]

6. This city elected a leader called a *posadnik* from its assembly, the *veche*. For 10 points each:

[10] Name this city that was the center of a medieval Russian republic, which was led by Alexander Nevsky against the Teutonic Knights during the Battle on the Ice.

ANSWER: Veliky Novgorod [do not accept "Nizhny Novgorod"]

[10] According to the *Primary Chronicle*, the 9th century prince Oleg moved the capital of the state of Rus' from Novgorod to Kiev, the capital of this modern-day country.

ANSWER: Ukraine [or Ukraina]

[10] Oleg of Novgorod succeeded his kinsman, a Varangian prince who names this ruling dynasty Kievan Rus', which included the first Tsars of Russia.

ANSWER: Rurikid Dynasty

7. The preface to this collection includes a takedown of Thomas Gray's sonnet "On the Death of Richard West" as part of an argument that, with the exception of meter, poetry need not differ from prose. For 10 points each:

[10] Identify this 1798 collection, which includes poems such as "Lines Composed a Few Miles Above Tintern Abbey."

ANSWER: Lyrical Ballads, with a Few Other Poems

[10] Along with William Wordsworth, this poet wrote *Lyrical Ballads*. He also wrote *The Rime of the Ancient Mariner*.

ANSWER: Samuel Taylor Coleridge

[10] In this "Conversation Poem", Coleridge regrets being "reared / In the great city" and wishes for his son to grow up in the country. This poem's title phenomenon "performs its secret ministry / Unhelped."

ANSWER: "Frost at Midnight"

8. The spectrum of this element shows the Lyman series and Balmer series. For 10 points each:

[10] Name this element which is the only one to fit Bohr's model of the atom.

ANSWER: hydrogen [or H]

[10] The bands in hydrogen's spectrum can be calculated using this formula, which contains a constant which is approximately 13.6 eV ["electron volts"].

ANSWER: Rydberg formula

[10] This term refers to a splitting in Hydrogen's spectrum caused by a combination of relativistic effects and spin-orbit coupling. It is related to a constant which Arthur Eddington insisted was equal to 1/137.

ANSWER: fine structure [accept fine-structure constant; do not accept "hyperfine structure"]

9. This composer's Opus 10 is a collection of six flute concertos such as "Il gardellino," "La notte," and "La tempesta di mare." For 10 points each:

[10] Name this composer whose most popular setting of the Gloria is the one in D major numbered 589 in the Ryom-Verzeichnis, or RV, catalogue used to record his music.

ANSWER: Antonio **Vivaldi**

[10] Vivaldi's collection *The Contest Between Harmony and Invention* includes this set of four violin concertos about the divisions of the year.

ANSWER: *The **Four Seasons*** [or *Le **quattro stagioni***]

[10] Vivaldi's *L'estro armonico* is a set of this many concertos for one, two, or four solo violins. Incidentally, this is also the number of notes in the chromatic scale.

ANSWER: **twelve**

10. Vasco da Gama named this river the Espiritu Santo. For 10 points each:

[10] Name this river that forms the border between South Africa and Botswana on its way to the Indian Ocean.

Answer: **Limpopo** River

[10] The Limpopo River empties into the Mozambique Channel, whose northern border is this archipelago whose capital is Moroni.

Answer: **Comoros** Islands

[10] The Comoros claims ownership of Mayotte, an overseas department of this nation. Other overseas departments of this country include Reunión and Martinique.

Answer: **France**

11. During this event, Thor uses the might of his hammer to slay the Midgard Serpent, but is only able to take nine more steps before he succumbs to its poison. For 10 points each:

[10] Name this apocalyptic event in Norse mythology during which many of the gods die in battle with the giants.

ANSWER: **Ragnarok**

[10] During Ragnarok, both Loki and this son of nine billow maidens are slain in single combat with each other.

ANSWER: **Heimdall**

[10] Heimdall signals the onset of Ragnarok by performing this action. The title character of the *Song of Roland* uses the Oliphant to perform this action with such force that his head explodes.

ANSWER: he blows into a **horn** [or obvious equivalents]

12. Chess! For 10 points each:

[10] This most powerful piece in the game of chess can move as many squares as it wants vertically, horizontally, and diagonally.

ANSWER: **queen**

[10] In this common defensive chess move, the king moves two spaces in one direction and the rook "jumps" over the king and takes its place on the opposite side. It can't be done if the king and rook in question have moved.

ANSWER: **castling**

[10] White traditionally castles queenside, rather than kingside, in the Dragon variation of this common chess opening, in which Black plays c5 on the first move to counter an opening of e4.

ANSWER: **Sicilian** defense

13. One character in this novel uses empty straw ships to get arrows for a battle. For 10 points each:

[10] Name this novel in which Liu Bei is victorious at the Battle of Red Cliffs. It was written by Luo Guanzhong and depicts the time after the end of the Han dynasty.

ANSWER: Romance of the Three Kingdoms [or Sanguo yanyi; or San-kuo yen-i]

[10] *Romance of the Three Kingdoms* is one of the Four Great Classical Novels of this country.

ANSWER: China [or Zhongguo]

[10] Another Ming Dynasty novel is titled for this fruit “in the Golden Vase”. That novel documents the life and harem of Ximen Qing, and is studied for its pioneering narrative style and explicit sexual content.

ANSWER: plum [or *The Plum in the Golden Vase*; or mei; or Jin Ping Mei]

14. Answer the following about Vietnam War protests, for 10 points each.

[10] Anti-war protestors targeted this president with rhyming chants asking “how many kids do you kill today?” This Texan took over the Presidency after the death of John F. Kennedy.

ANSWER: Lyndon Baines Johnson [or LBJ; prompt on just “Johnson”]

[10] Under the leadership of Stokely Carmichael, this civil rights organization broadened its purview to include opposing the Vietnam War. It organized sit-ins and freedom rides, and was especially popular at universities.

ANSWER: SNCC [pronounced “snick”; or Student Nonviolent Coordinating Committee or Student National Coordinating Committee]

[10] This American actress infamously expressed her opposition to the war by visiting North Vietnam.

After getting photographed sitting on a North Vietnamese anti-aircraft gun, she was nicknamed “Hanoi.”

ANSWER: Jane Fonda

15. The release of this compound is the driving force of the Staudinger reaction. For 10 points each:

[10] Name this diatomic gas which is also released during the Wolff-Kishner reduction. In that reaction, this gas comes from the central atoms of hydrazine.

ANSWER: nitrogen [or N₂]

[10] This functional group is characterized by a nitrogen single bonded to carbon. They are derivatives of ammonia.

ANSWER: amines

[10] Nitrogen is also found in this anion, with formula N₃⁻ [“N-three-minus”], which is found in airbags.

ANSWER: azide

16. In this novel, Bruno makes elaborate knot sculptures based on the protagonist’s stories. For 10 points each:

[10] Identify this novel, whose protagonist Oskar Matzerath can shatter glass with his voice and refuses to age past three years old.

ANSWER: *The Tin Drum*

[10] This recently deceased German novelist wrote *The Tin Drum*.

ANSWER: Günter (Wilhelm) Grass

[10] *The Tin Drum* is the first novel in this sequence of Grass novels named after a Polish city.

ANSWER: The Danzig Trilogy

17. This artist was hired by the psychiatrist Étienne-Jean Georget to paint a series of portraits of his patients. For 10 points each:

[10] Name this French artist who depicted the aftermath of a shipwreck off the west coast of Africa in his *Raft of the Medusa*.

ANSWER: Theodore **Gericault**

[10] Gericault showed four jockeys riding horses that somehow have all of their feet in the air at once in this 1821 painting.

ANSWER: *The **Derby at Epsom*** [or *The **Epsom Derby***; accept any answer indicating a **horse race** at **Epsom**; accept *Le **derby à Epsom** de 1821*]

[10] Gericault's *The Charging Chasseur* shows a member of this man's army riding a horse. This man is the subject of multiple paintings by Antoine-Jean Gros and Jacques-Louis David.

ANSWER: **Napoleon** Bonaparte

18. Answer the following about the Mughal dynasty, for 10 points each..

[10] Mughal emperor Shah Jahan built this white marble landmark in Agra as a mausoleum for his favorite wife.

ANSWER: **Taj Mahal**

[10] This third Mughal emperor created the Din-e Ilahi, a syncretic combination of Islam and Hinduism, to advocate religious pluralism. His army was victorious at the Second Battle of Panipat.

ANSWER: **Akbar the Great** [or **Akbar I**; or Abu'l-Fath Jalal ud-din Muhammad **Akbar**; prompt on just "Akbar"]

[10] This ruler abandoned Akbar's pluralism in favor of strict religious law, reinstating the jizya tax on non-Muslims. Given the title Alamgir, or "world-seizer," he expanded the Mughal state to its greatest size.

ANSWER: **Aurangzeb** [or **Aurangzeb** Alamgir; or Abul Muzaffar Muhi-ud-Din Muhammad **Aurangzeb**]

19. Patients with Christmas disease or other forms of hemophilia have defects in this process. For 10 points each:

[10] Name this process which sees the aggregation of platelets and eventually forms a scab.

ANSWER: blood **clotting** [or **coagulation**]

[10] Blood clotting depends on this glycoprotein to bind to Factor VIII. Mutations in this compound cause the most common bleeding disorder.

ANSWER: **von Willebrand factor** [or **vWF**]

[10] von Willebrand disease can be treated with Desmopressin, which is a modified version of this peptide. This hormone triggers the insertion of aquaporins into the collecting ducts of the kidneys to increase water retention.

ANSWER: **anti-diuretic** hormone [or **vasopressin**; or **ADH**]

20. This philosopher attempted to debunk John Locke with a philosophical dialogue in his *New Essays*. For 10 points each:

[10] Name this philosopher who invented calculus independently from Isaac Newton.

ANSWER: Gottfried Wilhelm **Leibniz**

[10] Leibniz posited the existence of these difficult to understand, singular, indivisible substances that form the basis of his later metaphysics.

ANSWER: **monads** [or ***Monadology***]

[10] Leibniz's law, the principle holding that if two entities have all of their properties in common, then they are, in fact, the same item, is often called the "identity of" these things.

ANSWER: **indiscernibles** [or word forms like "**indiscernible** items"; or identity of **indiscernibles**]

Extra

Answer the following questions about islands in literature, for 10 points each:

[10] Which Anatole France novel is about an island full of the title birds, which are accidentally baptized and given human souls? It satirizes the history of France from the Dark Ages and into the future.

ANSWER: *Penguin Island*

[10] A group of young boys are stranded on an island in what William Golding novel? In it, Piggy's glasses are used to make fire before they are crushed by a rock.

ANSWER: *Lord of the Flies*

[10] The Ape-man is one of many animal-human hybrids in which H.G. Wells novel centering on Edward Prendick's experience at the title location?

ANSWER: *The Island of Doctor Moreau*