2018 Reinstein Set – Packet 10

Tossups

1. At the end of this poem, the two main characters were "hand in hand" and "took their solitary way". This poem states "What in me is dark illumine, what is low raise and support." This poem makes that request so that "I may assert Eternal Providence, And justify the ways of God to men." Some of this poem is set in Pandemonium, which is the capital of Hell. This poem begins "Of man's first disobedience, and the fruit of that forbidden tree". Name this 17th-century English poem whose main characters are Satan, Adam, and Eve that was written by John Milton.
Answer: ___*Paradise Lost*___

2. In an attempt to slow down this event, people drove past City Hall waving white flags and an American flag and then donated blood to the Red Cross. Many people in this incident had ducktail haircuts and were called *pachucos* [pah-CHOO-kohss]. This incident occurred a few months after several people were sentenced to San Quentin Prison for the death of José Gallardo Díaz [hoh-ZAY "guy-YARD-oh" DEE-ahz], which was nicknamed "the Sleepy Lagoon murder". Name these 1943 attacks in and around Los Angeles by servicemen against immigrants, named for the outfits many of the immigrants wore.
Answer: __Zoot Suit__ Riots

3. This object's synodic [sin-AH-dik] period, or a complete cycle of phases, is about 116 days. Relative to its total size, this planet has the largest core in the Solar System. In 2015, the MESSENGER spacecraft crashed onto the surface of this object after orbiting it for four years. A hilly region nicknamed the "Weird Terrain" is opposite the Caloris [kuh-LOR-iss] Basin on this object's surface. This planet has virtually no atmosphere and orbits the sun every 88 days. Name this planet that is the smallest in our solar system and the closest to the sun.
Answer: __Mercury__

4. As a young lawyer, this person successfully defended Aaron Burr when Burr was indicted for treason, but Jefferson then convinced this person of Burr's guilt. During his career, this person resigned as Speaker of the House three times: to negotiate a peace treaty, to pay off debts, and to become secretary of state. This person worked with John Calhoun [kal-HOON] to pass the Tariff of 1833, which ended the Nullification Crisis. Very late in his career, this person worked with Stephen Douglas to pass the Compromise of 1850. Name this Whig leader who got the Missouri Compromise through the House and was nicknamed "the Great Compromiser".
Answer: Henry __Clay__ (Sr.)

5. Cheater bars are used to increase this quantity, and epicyclic [EP-uh-"sigh"-klik] gearing mechanisms are used in objects named for their ability to multiply this quantity. This quantity on a dipole ["DIE-pole"] equals the dipole moment crossed with the electric or magnetic field. Integrating this quantity with respect to angle gives work. In static equilibrium, both force and this quantity must have a net value of zero. This quantity equals both the derivative of angular momentum with respect to time [pause] and the cross product of position with force. When using a wrench, this quantity can be increased by using a longer handle. Name this rotational analog of force.

Answer: **torque**

6. Early in his reign, this leader was rescued by Thomas Larsson while badly losing the Battle of Vittsjö [VEET-ruh]. Soon after that, this leader gave up Älvsborg to end the Kalmar War. This leader defeated Johann Tserclaes [YOH-hahn SUR-klass] at the Battles of Rain and Breitenfeld, helping this leader's House of Vasa against the Catholic League. This person's forces defeated the forces of Albrecht von Wallenstein at the Battle of Lützen, though this person died in that 1632 battle. Name this leader during the Thirty Years' War who succeeded his father Charles IX as the King of Sweden.

Answer: Gustavus (II) **Adolphus** [**Gustav II** Adolph; prompt on **Gustav**us]

7. One animal of this type in Irish mythology who cries tears of blood and rises out of a grey lake is Liath Macha [LEE-uth MAH-kuh]. Diomedes ["die"-oh-MEE-deez] of Thrace [thrayss] had animals of this type that ate people. Those animals were taken by Heracles as his eighth labor. Loki was the mother of one of these animals owned by Odin that unusually had eight legs, Sleipnir [SLIP-neer]. When Medusa was killed, a winged one of these animals named Pegasus came out of her body. Name this type of animal whose shape was used for a wooden gift that the Greeks used to enter Troy.

Answer: **horse**s [accept **mare**s or **steed**s]

8. In *The Battle of the Argonne*, this painter showed a cloud and a rock of about equal size in the sky. The center of that painting has a crescent moon in its middle; similarly, this artist's *Sixteenth of September* shows the Moon in the middle of a tree. Crescent moons are above each of the men in this painter's *The Mysteries of the Horizon*, which is one of his many paintings showing men in bowler hats. This artist showed men raining down in *Golconda*. Name this Belgian surrealist who showed an apple in front of a man's face in *The Son of Man*.

Answer: René (François Ghislain) **Magritte**

9. This type of tissue is attacked by the *Cryphonectria parasitica* ["CRY-foe-NECK-tree-uh" pair-uh-SIT-ih-kuh] fungus, which releases oxalic ["oak"-SA-lik] acid and causes cankers. Some lycophytes ["LIKE-oh-fights"] exhibit only the unifacial type of this tissue, which works only toward the interior. The cells in this tissue are ray initials and fusiform ["FUSE"-ih-form] initials. Dicots ["DIE-cots"] and gymnosperms [JIM-noh-"sperms"] have the vascular type of this tissue. Phellogen [FEL-oh-jen], which is located in the periderm ["PAIR"-ih-durm], is called the "cork" type of this tissue. Name this tissue that is theoretically a single layer of dividing cells responsible for the growth of phloem ["FLOW-um"] and xylem [ZY-lum] in trees.
Answer: (vascular) **cambium**

10. In one play by this writer, a character notes that his hands are trembling since he has not played billiards in a long time. He says that after his sister gives gold to a tramp. In another work by this writer, the title character steals morphine from Astrov ["AH-strove"] to attempt suicide after learning that Yelena [yeh-LEN-ah] is moving to Finland with Serebryakov [SER-bree-ah-KAWFF]. This playwright created Anya, who falls in love with the "eternal student" Trofimov [TROH-fee-mawff] in a drama ending with trees being cut down after Madame Ranevskaya [rah-nev-SKY-ah] sells her home to Lopakhin [loh-PAH-keen]. Name this Russian playwright of *Uncle Vanya* and *The Cherry Orchard*.
Answer: Anton **Chekhov**

11. Iron oxide combines with this ion to form lepidocrocite [LEP-ih-doh-KROH-"site"], which is part of rust. In a nickel-cadmium battery, the nickel oxide of this ion is used as an electrode, and as the battery discharges, this ion forms separate molecules with nickel and cadmium. Calcium and this ion form slaked lime, and the compound of this ion with sodium or potassium is lye. Arrhenius [uh-REE-nee-uss] bases release this ion in water. Name this ion with a −1 charge, comprised of one atom of oxygen and one atom of hydrogen.
Answer: **hydroxide** ion [prompt on **OH** or **OH**-minus (one) or **OH** (one) minus]

12. The land for this state's early Wright Flying School became Maxwell Air Force base. The Army Materiel [muh-teer-ee-EL] Command center is headquartered in this state's Redstone Arsenal, which is also home to NASA's Marshall Space Flight Center. This state's metal production caused one of its cities to be nicknamed "the Pittsburgh of the South" and the annual football game between its two largest universities to be called the Iron Bowl. This state's namesake river flows through Selma before emptying into the Gulf of Mexico at Mobile [MOH-bul]. Name this American state whose most populous city is Birmingham.
Answer: **Alabama**

13. This organelle contains most of the substance used to turn animal hides into leather, which is taken from trees and called tannin [TAN-in]. The membranes around these organelles are tonoplasts ["TONE"-oh-plasts]. In paramecia ["pair"-uh-MEE-see-uh], one of these organelles ruptures after coming in contact with the anal pore, which occurs after digestion in this structure. Though one of these organelles can take up most of the volume of a plant cell, it is common for animal or meristem ["MARE-uh-stem"] cells to have many small ones. In protists, these organelles contract to regulate the amount of water in the cell. Name these vesicles with a high concentration of sugars, salts, and enzymes that provide turgor pressure in plants.
Answer: **vacuole**s [VAK-yoo-ohlz] [prompt on **vesicle**s before "vesicles"]

14. This poet discusses praying during insomnia in "By Night When Others Soundly Slept" and bids God "My sinking heart I pray Thee raise / So shall I give it Thee" in "Deliverance from a Fit of Fainting". This poet tells one title character "I prize thy love more than whole mines of gold". This poet addressed the title object of a poem as "I cast thee by as one unfit for light" and called it the "ill-form'd offspring of my feeble brain". This writer used the poem "The Author to her Book" to respond to the criticism of her collection *The Tenth Muse Lately Sprung up in America*. Name this poet of "To My Dear and Loving Husband".
Answer: Anne (**Dudley**) **Bradstreet** [accept either underlined name]

15. The second act of this opera begins with a song about the sound of an ancient instrument called a sistrum, "Les tringles des sistres tintaient [lah treen-gul deh sees-tray "teen-tie-on"]". Many arias in this opera have nicknames such as "the Card Song", in which the title character sings about predictions of her death, and another aria's nickname comes from the title character boasting that she will dance the seguidilla [say-gee-dee-yah]. The title character's aria whose name means "Love is a rebellious bird" is nicknamed "Habanera", and "Votre toast" is called its "Toreador Song". Name this opera about a gypsy, composed by Georges Bizet [zhorzh bee-zay].
Answer: *__Carmen__*

16. A 2003 change to this program was pushed hard by Billy Tauzin and costs the federal government about 50 billion dollars each year. That change to this program originally had a provision that was commonly called "the donut hole". Many non-profit companies get customers through this program using a feature that was originally named "Plus Choice", but is now called "Advantage". People who receive Social Security Disability Insurance payments can also receive benefits through this program. Name this U.S. government program that provides health insurance to people who are at least 65 years old.
Answer: **Medicare** [do not accept "Medicaid"]

17. This person was criticized when, as Commissar of Foreign Affairs, he negotiated the Treaty of Brest-Litovsk, and soon after that he became the Commissar of War. This person was opposed by a troika that included Grigory Zinovyev [zih-NOHV-yeff] and Lev Kamenev [KAH-meh-neff]. This person applied Marxism to literature in *Literature and Revolution*, and he wrote *The Revolution Betrayed* while exiled in Norway. This person was killed by Ramón Mercader [rah-MOHN mair-kah-"DARE"] in 1940 in Mexico with an ice pick. Name this Soviet leader who lost a power struggle against Joseph Stalin after the death of Vladimir Lenin.
Answer: Leon **Trotsky** or Lev Davidovich **Bronshtein**

18. These functions are applied to tangent functions when making a Mercator [mur-KAY-tur] projection. These functions are listed first, ahead of inverse trigonometric functions, in a common rule of thumb used in integration by parts. The derivatives of these functions are proportional to reciprocal functions. An exponent inside one of these functions can be used as a multiplication factor outside them. These functions are the inverse of exponential functions. Name these functions whose "common" type is base 10 and whose "natural" type is base *e*.
Answer: **log**arithms or **log**arithmic functions [or **log**s; accept answers that additionally mention "common" or "natural" or any specific base]

19. In a dramatic poem by this writer, Prometheus [proh-MEE-thee-uss] states "Whom the gods would destroy they first make mad." This author of "The Masque of Pandora" wrote of a woman traveling down the Mississippi to find her lost love, Gabriel LaJeunesse [lah-zhoo-ness], after they were expelled from Acadie [ah-kay-dee] in their youth. Another of this author's title characters is an Ojibway warrior who loses his wife, Minnehaha ["mini"-HAH-hah], in a severe winter. This author of *Evangeline* coined the line "One, if by land, and two, if by sea" in a poem about a "midnight ride". Name this Fireside poet who wrote *The Song of Hiawatha* and *Paul Revere's Ride*.
Answer: Henry Wadsworth **Longfellow**

20. James Byrnes quit this job to head the Office of Economic Stabilization, and Arthur Goldberg quit it to be Ambassador to the United Nations. Samuel Chase is the only person ever impeached while holding this job, but he was acquitted. While holding this position, Joseph Story justified giving freedom to the *Amistad* rebels. When John Marshall Harlan held this position, he argued against segregation in an unsuccessful dissent. Name this position held by people who may not be chief but who serve on the top U.S. court.
Answer: (Associate) **Justice** of the **Supreme Court** of the United States [accept any reasonable answer containing all the underlined information; accept **SCOTUS** in place of **Supreme Court**; prompt on **justice** or **judge**]

21. A space equivalent to this construct can be generated from a basis with only one vector. Pascal's theorem relates a hexagon to points on this kind of figure. On an Argand diagram, one of these constructs represents real numbers, and another one represents imaginary numbers. Euclid's second postulate describes the creation of these constructs, and the intersection of two of them is the subject of the original form of his fifth postulate. Name these constructs that can be generated by graphing degree-one polynomials, and which can be written in slope-intercept form.

Answer: **line**s [accept **axis** or **axes**]

Bonuses

1. This apostle, who was originally named Simon, cried after denying Jesus three times.

A. Name this person who, along with his brother Andrew, was made a "fisher of men". Catholics consider him to be the first Pope.

Answer: (Simon) **Peter**

B. Peter was one of the three apostles who slept when Jesus went through the agony in this garden at the foot of the Mount of Olives.

Answer: Garden of **Gethsemane** [geth-SEH-mah-nee] [or **gat shmaneem**]

C. In the Book of Acts, Peter heals a lame man. What two things does Peter say he does not have just before healing the man?

Answer: **silver** and **gold** [either order]

2. This structure was built for the 1889 World's Fair, and for a few decades it was the tallest man-made structure in the world.

A. Name this wrought-iron lattice tower that is still the tallest structure in Paris.

Answer: **Eiffel** Tower [or Tour **Eiffel**]

B. Before building the tower, Gustave Eiffel worked with this sculptor to build the Statue of Liberty.

Answer: Frédéric (Auguste) **Bartholdi** [fred-er-ik bar-tohl-dee]

C. This American company made the elevators for the Eiffel Tower. It also made elevators for the Burj Khalifa and World Trade Center.

Answer: **Otis** Elevator Company

3. With reference to colonianlism, this novella states "All Europe contributed to the making of Kurtz."

A. Name this story in which Kurtz is an ivory trader who horribly mistreats Africans.

Answer: ***Heart of Darkness***

B. This author of *The Secret Sharer* wrote *Heart of Darkness*.

Answer: Joseph **Conrad** [or Józef Teodor Konrad **Korzeniowski**]

C. Kurtz is supported by a trader of this nationality. The trader of this nationality says "I heard he was lying helpless, and so I came up—took my chance."

Answer: **Russia**n

4. This woman had a son from her affair with Julius Caesar, and she also gave birth to Mark Antony's twins.

A. Name this ruler of Egypt.

Answer: **Cleopatra** (VII Philopator)

B. Cleopatra and Mark Antony committed suicide after this 31 BCE battle won by Octavian.

Answer: Battle of **Actium** [AK-tee-um]

C. Cleopatra's brothers and her son from Julius Caesar all shared this name.

Answer: **Ptolemy** [TAH-leh-mee]

5. The potential energy stored in one of these objects equals $1/2$ times its stiffness constant times the square of its displacement from equilibrium.

A. Name this type of object that can be stretched and compressed, and is often used to demonstrate Hooke's law.

Answer: **spring**s

B. This three-word phrase is used to describe objects, like springs, in which the restoring force toward equilibrium is directly proportional to the displacement from equilibrium.

Answer: **simple harmonic oscillator**s or **simple harmonic oscillation** [accept **simple harmonic motion**; accept **SHO**(s) or **SHM**]

C. This adjective describes simple harmonic oscillators impacted by an outside force, which is often used to overcome damping.

Answer: **driven**

6. Voltaire famously said that the three words in the name of this entity were all incorrect.

A. Give this term for the territories that were ruled by Charlemagne and many Habsburgs.

Answer: **Holy Roman Empire**

B. This son of Charlemagne was the co-emperor near the end of Charlemagne's life and took over when Charlemagne died.

Answer: **Louis the Pious** or **Louis the Fair** or **Louis the Debonaire** or **Louis I** [prompt on **Louis**]

C. This son of Henry the Fowler revived the concept of the Holy Roman Empire when he was crowned by the Pope in 962.

Answer: **Otto I** or **Otto the Great** [prompt on **Otto**]

7. The graph of this function is half of a parabola that opens rightward.

A. Name this function that is equivalent to raising a number to the one-half power.

Answer: square **root** [accept **radical**; accept answers that additionally mention a variable]

B. Put the square root of 75 in simplified radical form.

Answer: **5** times the square **root** of **3** [accept **5** times **radical 3**]

C. Put 20 divided by root 2 in simplified radical form.

Answer: **10** times the square **root** of **2** [accept **10** times **radical 2**]

8. This play's protagonist sees its title object as a sign that she is pregnant.

A. Name this play in which Serafina loses her husband Rosario. Serafina's daughter dates a sailor named Jack and ends up leaving for New Orleans after being attacked by Alvaro.

Answer: *The **Rose Tattoo***

B. In this other play by the same author, Stanley Kowalski attacks his sister-in-law, Blanche DuBois, who had "always depended on the kindness of strangers".

Answer: *A **Streetcar Named Desire***

C. This playwright wrote *The Rose Tattoo* and *A Streetcar Named Desire*.

Answer: (Thomas Lanier) "Tennessee" **Williams** (III)

9. This German composer's work with the violinist Ede Reményi [ED-eh reh-MEEN-yee] eventually led to this composer's *Hungarian Dances*.

A. Name this composer whose "Good evening, good night" is a popular lullaby.

Answer: Johannes **Brahms**

B. Brahms wrote two pieces he classified as this type of work in the summer of 1880, the *Tragic* and the *Academic Festival*.

Answer: (concert) **overture**s

C. This composer changed a common perspective on Brahms by writing the essay "Brahms the Progressive". This composer also wrote the book *Theory of Harmony* and the string sextet "Transfigured Night".

Answer: Arnold (Franz Walter) **Schoenberg** [shern-berg]

10. Identify these sources of federal government revenue:

A. This type of tax on individuals and corporations provides the majority of government revenue. This tax is allowed by the 16th amendment to the Constitution.

Answer: **income** tax(es)

B. This type of tax, whose opponents call it the "death tax", is paid on very large inheritances. During the 21st century, there has been relatively little revenue from this tax due to increasing exemptions and lowered rates.

Answer: **estate** tax

C. In addition to FICA [FY-kuh] and self-employment taxes, employers pay a payroll tax of about $40 per employee per year into this system.

Answer: Federal **Unemployment** [accept **FUTA** or Federal **Unemployment** Tax Act]

11. This unit of magnetic field strength equals one weber per square meter.

A. Identify this unit named for a Serbian-American scientist who was born in what is now Croatia.

Answer: **tesla**

B. Nikola Tesla helped George Westinghouse win the War of Currents, which is why this type of current is used for power-grid distribution rather than DC.

Answer: **alternating** current or **AC**

C. Tesla's work led to the development of the magnetic type of these devices which use direct currents to strengthen alternating currents. These devices are different than transformers because they can increase current and voltage simultaneously.

Answer: **amplifier**s

12. In statistics, this term refers to data that has been cut off at some point.

A. Give this term that in geometry refers to solids that have had a section removed. Doing this to a pyramid results in a smaller pyramid and a frustum [FRUSS-tum].

Answer: **truncate**d or **truncation** or **truncating**

B. Seven truncated polyhedra are among these 13 semi-regular convex polyhedra.

Answer: **Archimedean** solids [or solids of **Archimedes**]

C. A truncated tetrahedron has eight faces, four of which are triangles. What type of regular polygons are the other faces?

Answer: **hexagon**s [prompt on **6-gon**s]

13. These reactions are usually, but not always, spontaneous.

A. Name this class of chemical reactions characterized by the release of heat.

Answer: **exothermic** reactions

B. This similar class of reactions is characterized by a net release of energy.

Answer: **exergonic** [ek-sur-GAH-nik] reactions

C. Because they may have endergonic [EN-dur-GAH-nik] steps, some exergonic reactions are not spontaneous; they require an input of energy known by this term. This quantity is used in the Arrhenius equation.

Answer: **activation** energy

14. This novel's title character has the son Reizei [ray-zay] with his father's concubine, Lady Fujitsuno.

A. Name this 11th-century novel about the son of Emperor Kiritsubo. The title character is a prince who pursues affairs while married to Lady Aoi ["ow"-ee].

Answer: *The **Tale of Genji***

B. This Heian [HAY-un]-period Japanese noblewoman wrote *The Tale of Genji*.

Answer: Lady **Murasaki** (**Shikibu**) [accept either underlined name]

C. Genji's mother died when he was of this age. In Günter Grass's *The Tin Drum*, Oskar Matzerath decides to stop growing when he is of this age.

Answer: **three** years old

15. Factor these expressions.

A. x squared minus 36

Answer: $(x+6)(x-6)$ or $(x-6)(x+6)$

B. x squared minus $5x$ minus 24

Answer: $(x-8)(x+3)$ or $(x+3)(x-8)$

C. $2x$ squared plus $7x$ plus 6

Answer: $(2x+3)(x+2)$ or $(x+2)(2x+3)$

16. In this technique, a mobile phase flows through a stationary phase.

A. Name this method of separating mixtures. Its name comes from its original use, separating pigments.

Answer: **chromatograph**y

B. This type of chromatography is named for the format of the silica gel or alumina that is placed on a sheet of glass or plastic.

Answer: **thin-layer** chromatography

C. Chromatography depends on constituents having different values for this quantity, equal to the ratio of concentrations between the two phases.

Answer: **partition coefficient** or **distribution coefficient**

17. This dramatist reimagined Adolf Hitler as the Chicago gangster Arturo Ui [wee].

A. Name this German playwright who told of a woman losing her children in the Thirty Years' War in *Mother Courage and her Children*.

Answer: (Eugen) Bertolt (Friedrich) **Brecht** [BAIR-tolt brekt]

B. In this other work by Bertolt Brecht, the judge Azdak rules that Grusha is the mother of Michael after she refuses to pull him out of the title diagram drawn on the ground.

Answer: *The **Caucasian Chalk Circle*** [or *Der Kaukasische **Kreidekreis***]

C. Bertolt Brecht also wrote a play about this character working for the industrialist Pierpont Mauler in the stockyards of Chicago.

Answer: Saint **Joan** or **Joan** Dark [or **Joan** of Arc]

18. This agreement defined the U.S government for much of the 1780s.

A. Name this agreement that instituted a weak federal government prior to the ratification of the Constitution.

Answer: **Articles of Confederation** (and Perpetual Union)

B. The weakness of the Articles of Confederation was demonstrated by, among other things, the ineffective response to this rebellion in which the Armory at Springfield, Massachusetts was attacked.

Answer: **Shays**' Rebellion

C. The 1786 Meeting of Commissioners to Remedy Defects of the Federal Government took place in this city. Its most important recommendation was for a meeting in Philadelphia in 1787 to fix the federal government.

Answer: **Annapolis**, Maryland

19. The title character of this novel is an orphan who gets hit in the head for saying "Please, sir, I want some more."

A. Name this Charles Dickens novel.

Answer: *__Oliver Twist__, or The Parish Boy's Progress*

B. At one point this prostitute kidnaps Oliver Twist. When she later tries to help him, she is beaten by her boyfriend, Bill Sikes.

Answer: **Nancy**

C. Oliver Twist gets in trouble when the Artful Dodger and Charley Bates steal one of these objects from Mr. Brownlow.

Answer: (pocket-)**handkerchief**s

20. This process has light-dependent and light-independent reactions.

A. Name this process by which plants create oxygen and sugar.

Answer: **photosynthesis** [or **photosynthesizing**]

B. The light-independent reactions form this "cycle" named for a scientist.

Answer: **Calvin**(-Benson-Bassham) cycle

C. This molecule is created when a hydrogen atom attaches to another molecule in the light-dependent reaction. This molecule and ATP are used up during the Calvin cycle.

Answer: **NADPH** ["N-A-D-P-H"] [or **nicotinamide adenine dinucleotide phosphate hydrogen**; do not prompt on partial answers]

21. This economic school of thought emphasizes price stability and interest rates.

A. Name this economic school supported by the Shadow Open Market Committee and based in large part on the work of Milton Friedman and his colleagues at the University of Chicago.

Answer: **monetarism** or **monetarist** school [prompt on **freshwater**]

B. Milton Friedman and this economist co-wrote *A Monetary History of the United States, 1867–1960* to demonstrate the importance of monetary policy.

Answer: Anna **Jacobson Schwartz** [accept either underlined name]

C. Monetarists generally believe that this quantity is stable. This quantity is multiplied by money supply in the quantity theory of money and is a measure of how often money is used.

Answer: **velocity** of money