2018 Reinstein Set – Packet 5

Tossups

1. In one story by this author, the title characters hold hands while being executed by a firing squad for not giving up a password. Another of this author's stories was reversed in Henry James' story "Paste". This author wrote about a group of travelers convincing a prostitute to sleep with an officer to allow their passage during the Franco-Prussian War. In the story reversed by "Paste", this author wrote of Mathilde Loisel [mah-teeld lwah-zel] spending ten years working off a debt from buying a piece of jewelry to replace the one she lost that belonged to Madame Forestier [for-est-yay]. Name this French author of "Ball of Fat" and "The Necklace".
Answer: (Henri René Albert) Guy de **Maupassant**

2.   Richard Feynman described a thought experiment to show that these particles behave like photons with respect to a double slit. The de Broglie [duh BROY-lee] hypothesis was confirmed by aiming these particles at nickel in the Davisson-Germer experiment. This is the lightest particle whose charge is a nonzero integer. Cathode rays consist of these particles, which is how J. J. Thomson discovered them. The antiparticles of these particles are positrons. Name these negatively-charged fundamental particles often found in atomic orbitals.
Answer: **electron**s

3.   This person did not attend the surrender ceremony of Negus Mikael because Mikael was the grandfather of this person's wife Menen Asfaw. This person was the first chair of the Organisation of African Unity, which he hosted in his country. This leader replaced the Fetha Nagast [FET-ah NAH-gahst] with a written constitution declaring that all leaders would descend from him and that he was a descendant of Solomon. Following the Wollo famine, this leader was deposed and replaced with a committee called the Derg in 1974. Name this leader who was temporarily exiled from his country in 1936 following Italy's invasion of Ethiopia.
Answer: **Haile Selassie** ["highly" seh-LAH-see] I [or Tafari **Makonnen** Woldemikael; prompt on **Selassie**]

4. This cabinet-level department oversees the Vocational Rehabilitation and Employment Program and the Dependents Education Assistance Program. President Reagan signed the law raising this department to the cabinet level. Though the National Park Service oversees several high-profile cemeteries, most national cemeteries are overseen by this department. This department also oversees a Health Administration that had scandalously long delays in 2014. Name this department that helps people who have served in the military.
Answer: United States Department of **Veterans Affairs** [accept **VA**]

5. The government of this place was structured by the Foraker Act and then the Jones-Shafroth Act. In 1950 people from this place attempted to assassinate President Truman at Blair House, and in 1954 people supporting independence for this place shot into the House of Representatives chamber from a balcony. This place is in a debt crisis that in 2016 led the U.S. Congress to pass PROMESA [proh-MAY-sah]. Many people moved from this place to the mainland U.S. in 2017 following Hurricane Maria. Name this U.S. territory in the Caribbean Sea whose capital is San Juan.

Answer: (Commonwealth of) **Puerto Rico** or (Estado Libre Asociado de) **Puerto Rico** or (Territory of) **Puerto Rico**

6. This character asks "How can you hate Hitler so bad and be so ugly about folks right at home?". This character is taken aback by the amount of molasses that Walter Cunningham uses while eating lunch at her house. This girl is told that her friend had escaped being chained up by his father to explain why he left Meridian, Mississippi. This friend of Dill Harris is taught to read and write by Calpurnia [kal-PUR-nee-uh]. This resident of Maycomb, Alabama watches her father defend Tom Robinson on trial. Name this younger sister of Jem and daughter of Atticus in Harper Lee's *To Kill a Mockingbird*.

Answer: (**Jean-Louise**) **Scout** Finch [accept either underlined portion; prompt on **Jean** or **Louise** or **Finch**]

7. This artist showed a person in front reaching his hand forward while looking back at this artist in *Self-Portrait with a Friend*. Another possible self-portrait by this artist is *Portrait of a Young Man*, which has been missing since World War II. Two little winged angels look up from the bottom of this artist's *Sistine Madonna*. Several paintings by this painter are in the Stanza della Segnatura [sen-yah-TOO-rah] in the Vatican, including *La Disputa* [lah dees-POO-tah]. Name this High Renaissance Italian artist who portrayed Plato and Aristotle at the top of steps, surrounded by many famous thinkers, in *The School of Athens*.

Answer: **Raphael** [or Raffaello **Sanzio** da Urbino]

8. This object is not attached properly in the condition accreta [uh-KREE-tuh]. The two parts of this object are the chorion frondosum [KOR-ee-ahn frahn-DOH-sum] and the decidua basalis [duh-SID-oo-uh bay-SAL-us]. This object produces human chorionic gonadotropin [goh-NAD-oh-TROH-pin] even when it is not cancerous, a hormone similar to luteinizing [LOO-tuh-ny-zing] hormone. This object exists in the life cycle of most mammals, but not monotremes or marsupials. This vascular organ attaches to the uterus and has an umbilical cord connecting it to the fetus. Name this organ that is expelled as afterbirth.

Answer: **placenta**

9. This sequence is complete even if one of its elements is deleted, but not if two are deleted. These numbers generate a tiling in which squares are added repeatedly to form larger rectangles. The spiral named for these numbers can either be an approximation of the golden spiral or the actual golden spiral. Ratios of these numbers get successively closer to the golden ratio. Name these numbers generated by starting with 1 and 1, then generating each number by adding the prior two numbers, thus producing the sequence 1, 1, 2, 3, 5, 8, 13, and so on.

Answer: **Fibonacci** [fib-oh-NAH-chee] numbers or **Fibonacci** sequence

10. In this novel, cigarettes are packaged in plain boxes with a gold dollar symbol. In this novel, Orren Boyle suggests the "anti-dog-eat-dog" rule to cripple the Phoenix-Durango Line. A burning oil well in this novel is named Wyatt Torch, and an Argentine copper billionaire Francisco d'Anconia [dan-KOH-nee-ah] delivers a "money speech". In this novel, a stronger, lighter alternative to steel is developed by Hank Rearden, who joins the mysterious John Galt in a strike against the "moochers" and "looters". Name this novel about the railroad baroness Dagny Taggart, written by Ayn Rand.

Answer: _**Atlas Shrugged**_

11. This English king made a deal with Tancred of Sicily to make Arthur of Brittany the heir presumptive of Sicily, releasing this King's sister Joan. Part of this English king is buried in Rouen [roo-aw] Cathedral across from his older brother Henry the Young King. This English king was successful at the Siege of Acre [AH-kray] along with Philip II of France and King Guy [gee] of Jerusalem. He signed the Treaty of Jaffa in 1192. Name this Plantagenet [plan-TAJ-eh-net] king who ruled between Henry II and John, and who made a deal with Saladin during the Third Crusade.

Answer: **Richard I** or **Richard the Lion-heart**(ed) [or **Richard Coeur de Lion**; prompt on **Richard**]

12. Before this type of motion becomes steady, there is a bouncing called nutation [noo-TAY-shun]. The apsidal [AP-sih-dul] and axial types of this motion by the Earth over thousands of years explain Milankovitch [mih-LAN-koh-vich] cycles. Objects that are asymmetric about their axis of rotation will exhibit this motion without torque, while any object can exhibit the torque-induced type of this phenomenon. Name this phenomenon in which an object rotates around an axis that is itself rotating.

Answer: **precess**ion [or **precess**ing]

13. In this novel, a mother tells her daughter a story about the birds deceiving Tortoise before the daughter joins Chielo [CHEH-loh] in a sacred cave. During a week celebrating Ani [AH-nee], a priest orders the protagonist of this novel to sacrifice a goat and a hen for beating his wife. During a locust swarm, the protagonist of this novel is told that the Oracle has declared his adopted son must die, so he kills that son, Ikemefuna [ih-keh-MAY-foo-nuh], and hangs himself after returning from exile to his village, Umuofia [oo-MOE-fee-yuh]. Name this novel about Okonkwo [oh-"CON"-kwoh] written by Chinua Achebe [chin-OO-ah eh-CHEH-bay].

Answer: ___Things Fall Apart___

14. The chorda tympani [KOR-duh tim-PAN-ee] nerve carries signals from this organ to the brain. A condition known as ankyloglossia [ayn-kih-lho-GLAW-see-uh] can limit the genioglossus [JEE-nee-oh-GLAW-suss] muscle, which in turn limits this organ's movement. Blood is supplied to this organ by a branch of the carotid artery called the lingual artery. Papillae [puh-PILL-ee] cover this organ, giving it a rough appearance. Muscles in this organ facilitate speech and swallowing. Name this organ that is covered in taste buds.

Answer: **tongue**

15. In John Keats' "Ode to a Nightingale", the title bird is called the "Dryad of" these things. A poem by William Blake named for this type of object begins "I was angry with my friend; / I told my wrath, my wrath did end." According to "The Waste Land", the dead one of these objects "gives no shelter". Ogden Nash parodied a poem about these things, writing that billboards are less lovely than them. Name these subjects of a Joyce Kilmer work stating "Poems are made by fools like me / but only God can make" one of these things.

Answer: **tree**s [accept poison **tree**s between "angry" and "shelter"]

16. The company On-Line PLC more than tripled in value when it changed its name to mention this technology. Ethereum [eh-THEER-ee-um] is an app platform for this type of technology. Changes in this technology that require all users to upgrade their protocol software are called hard forks. This technology uses distributed ledgers rather than centralized ledgers, which makes it more difficult for hackers to manipulate data. Name this technology that creates verifiable, permanent records that are useful when using cryptocurrencies like Bitcoin.

Answer: **blockchain** [prompt on **bitcoin** or **cryptocurrency**/ies]

17. This device uses a tube that can have an end window or side window, or can be of the "pancake" type. This is the best-known device that uses electrons to free other electrons in a process called the Townsend discharge or avalanche. Part of this device is coated with boron when it is used for neutrons, and is partly named for the person who made it more practical, Walther Müller [VAL-tur MUR-lur]. Older versions of this device either flash light or make clicking sounds. Name this device that detects alpha and beta particles, X-rays, and other radiation.

Answer: **Geiger**(-Müller) **counter** [or **Geiger**(-Müller) **tube**]

18. This person's autobiography is *Random Reminiscences of Men and Events*. Though Marshall Field donated the land, this person and his son donated the money to start the University of Chicago. This person's grandson was the vice president under Gerald Ford. The Panic of 1910 to 1911 was blamed on the enforcement of the Sherman Antitrust Act against this person's company. A book claiming that this person's company was rigging railroad prices was written by Ida Tarbell. Name this very wealthy person who established the first major U.S. business trust, the Standard Oil Company.

Answer: John D(avison) **Rockefeller** (Sr.)

19. A temple to this goddess was established by Iphigenia [if-uh-jin-"EYE"-uh] at Brauron, and girls worked at the temple to prepare for womanhood. When Niobe [ny-OH-bee] bragged about being better than this goddess's mother, this goddess killed Niobe's daughters. During the Trojan War, Hera hit this goddess over the head, causing this goddess to cry and return to Olympus. Zeus disguised himself as this goddess to impregnate Callisto, and then either this goddess or Hera changed Callisto into a bear. This daughter of Leto was the twin sister of Apollo. Name this goddess of the hunt whose Roman equivalent was Diana.

Answer: **Artemis** [accept **Diana** before the end]

20. A solo on this instrument opens Claude Debussy's [deh-BYOO-seez] *Prelude to the Afternoon of a Faun*. This is the only instrument in Debussy's *Syrinx*. The bansuri [bahn-SUR-ee] is a traditional Indian instrument of this type. Jasmine Choi, Jean-Pierre Rampal, and James Galway are famous performers on this instrument. A magic one of these instruments is given to Tamino [tah-MEE-noh], as mentioned in the title of a Mozart opera. Name this reedless wind instrument that is usually held about parallel to the floor.

Answer: **flute**(s)

21. A conic written in general form is a hyperbola if its discriminant is this type of number. The signum [SIG-num] of these numbers equals one. If the second derivative of a function is one of these numbers, then the first derivative is increasing, and the function is concave up. All of the trigonometric functions output these numbers in the first quadrant, and on the unit circle these numbers measure angles generated by counterclockwise rotations. If the discriminant of a quadratic polynomial is one of these numbers, then its graph has two *x*-intercepts. Give this term for a number greater than 0.

Answer: **positive** numbers or **positives** [accept **greater than** 0 before "greater"; do not accept or prompt on answers mentioning "greater than or equal to 0"]

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Bonuses

1. For variations on trigonometric functions, this property equals half the difference between the greatest output and the least output.

A. Give this term for the "size" of a wave.

Answer: **amplitude**

B. For a sine or cosine function, this quantity equals two pi divided by the coefficient of the input variable. Without context, this quantity is indistinguishable from wavelength.

Answer: **period**

C. Find the smallest positive x-intercept of the graph of y equals 3 plus 3 times the sine of x, where x is in radians.

Answer: **3 pi / 2** (radians) or **3/2 pi** (radians) [or **1.5 pi** (radians)]

2. This character tells his stories to a porter who has the same name as him.

A. Name this character who escaped being entombed alive with his dead wife on his fourth voyage. Earlier, a roc bird helped him escape an island with enough diamonds to make him wealthy in Baghdad.

Answer: **Sinbad**

B. Scheherazade [sheh-"HAIR"-ah-ZAHD] tells "The Seven Voyages of Sinbad the Sailor" as part of this collection, which also includes "Ali Baba and the Forty Thieves" and "Aladdin's Wonderful Lamp".

Answer: *The **Thousand and One Nights** or **Arabian Nights** or **Alf layla wa-layla** [accept equivalents]

C. In this Jorge Luis Borges story, Juan Dahlmann is unable to read *One Thousand and One Nights*, first because of a head injury and later because of a duel.

Answer: *The **South** [or *El **Sur**]

3. Rocks are often divided into three major types based on how they form.

A. Bowen's reaction series describes the formation of this type of rock in terms of the crystallization of magma as it cools.

Answer: **igneous** [IG-nee-uss] rock

B. The bottom of Bowen's reaction series is this mineral made of silicon dioxide. It is found in igneous rocks such as granite, as well as in sedimentary rocks like sandstone.

Answer: **quartz**

C. Metamorphic rocks are formed by changes from an original rock. That original rock is known by this name.

Answer: **protolith**(s)

4. East Timor became an independent country in 2002, but this country still controls the western half of Timor [tee-MOR].

A. Name this country between the Pacific and Indian Oceans.

Answer: (Republic of) **Indonesia**

B. This Indonesian volcano erupted in 1883, killing tens of thousands of people and making a noise that was heard thousands of miles away.

Answer: **Krakatoa** ["CRACK"-ah-TOH-ah] [or **Krakatau**]

C. This person declared Indonesia's independence just after World War II and served as its president until 1967.

Answer: **Sukarno** [do not accept "Suharto"]

5. Consider the graph in two dimensions of the equation x squared over 25, plus y squared over 16, equals 1.

A. What shape is the graph of that equation?

Answer: **ellipse** [or **elliptical**; prompt on **conic** section or **oval**]

B. Find the distance from the center to either focus of the ellipse.

Answer: **3** units

C. Find the area of the ellipse.

Answer: **20 pi** square units

6. This value equals about 6.6 times 10 to the -34th joule ["jewel"]-seconds.

A. Name this constant often represented by a lowercase h.

Answer: **Planck**'s constant

B. The energy of a photon equals Planck's constant times this property of the photon.

Answer: **frequency**

C. Dirac's ["DEER-ox'"] constant, which is also called h-bar, is found by dividing Planck's constant by this number.

Answer: **2** (times) **pi** [do not prompt on partial answers]

7. There are several paintings called *The Bath*.

A. This American painter, who moved to France, often painted women with children—including the painting *The Bath*, which is also called *The Child's Bath*.

Answer: Mary **Cassatt**

B. This French artist painted dressed men and nude women in *The Luncheon on the Grass*, which was originally called *The Bath*.

Answer: Édouard **Manet** [ayd-war man-ay]

C. This 19th-century French painter set many of his works in Islamic bathhouses, including one most commonly called *The Bath* that shows a seated woman being sponged.

Answer: Jean-Léon **Gérôme** [zhahn leh-ohn zhair-ohm]

8. This name of this belief system was coined by T.H. Huxley, the grandfather of Aldous Huxley.

A. Give this term for the position that whether God exists is unknown or unknowable.

Answer: **agnostic**ism

B. This person wrote that he told philosophers he was agnostic but common people that he was an atheist. This author of *Why I Am Not a Christian* made an analogy between belief in God and belief in a teapot orbiting the Sun.

Answer: Bertrand (Arthur William) **Russell**(, 3rd Earl Russell)

C. The third type of proof of god criticized by Russell is the argument from design, which is often given this name.

Answer: **teleological** [TEE-lee-oh-"logical"] proof or **teleology**

9. Part of this novel takes place at Clongowes [KLAHN-"goes"] school, where the protagonist is punished for breaking his glasses.

A. Name this novel about the childhood of Stephen Dedalus.

Answer: *A **Portrait of the Artist as a Young Man***

B. This author wrote *A Portrait of the Artist as a Young Man*. Stephen Dedalus also appears as a major character in this author's novel *Ulysses*.

Answer: James (Augustine Aloysius) **Joyce**

C. In *A Portrait of the Artist as a Young Man*, this real-life Leader of the Home Rule League dies. Several characters have strong opinions on this Irish politician.

Answer: Charles Stewart **Parnell**

10. As the U.S. ambassador to France, this person helped negotiate the Treaty of Paris of 1783.

A. Name this scientist and founding father who used the pseudonym "Richard Saunders" to write *Poor Richard's Almanack*.

Answer: Benjamin **Franklin**

B. In 1754 Franklin drew a political cartoon showing a snake separated into pieces representing the different colonies. These three words appeared underneath the snake.

Answer: "**JOIN, or DIE**"

C. This biographer wrote about Benjamin Franklin in his 2003 book subtitled *An American Life*. This person has also written biographies of Albert Einstein, Steve Jobs, and most recently Leonardo da Vinci.

Answer: Walter **Isaacson**

11. This person designed a lamp that could be used in coal mines.

A. Name this English scientist who isolated barium, boron, calcium, magnesium, potassium, sodium, and strontium.

Answer: Humphrey **Davy**

B. Davy isolated elements using this technique, in which direct current causes chemical changes.

Answer: **electrolysis** [eh-lek-TRAH-lih-siss]

C. Davy isolated many of the elements from amalgams, which are alloys involving this element.

Answer: **mercury**

12. At the end of this war, Gibraltar was given to Great Britain in the Treaty of Utrecht [OO-trekt].

A. Name this war fought late in the reign of Louis XIV [14]. It was caused, in part, by Charles II Habsburg changing his will shortly before he died.

Answer: War of the **Spanish Succession**

B. Part of Louis XIV's claim to the Spanish throne was the fact he was the son of this daughter of Philip III of Spain.

Answer: **Anne** of Austria

C. The Duke of Marlborough and Prince Eugene of Savoy won this 1704 battle, a turning point in the War of the Spanish Succession that ended Bavaria's support of France.

Answer: Battle of **Blenheim** [BLEN-um] [or Battle of **Höchstädt**]

13. This poem declares "I made a model of you / A man in black with a Meinkampf ["MINE"-kahmpf] look."

A. Identify this poem that opens "You do not do" and states that "every woman adores a Fascist." Its German-speaking title figure is described as having an "Aryan ["AIR"-yun] eye" and "one gray toe / Big as a Frisco seal."

Answer: "**Daddy**"

B. This author included "Daddy" in her collection *Ariel*. She also wrote the novel *The Bell Jar*.

Answer: Sylvia **Plath**

C. In "Daddy", Plath says she has a picture of her father standing at one of these objects.

Answer: black**board** [accept chalk**board**]

14. Organisms in this kingdom have long, branching structures called hyphae ["HIGH-fee"].

A. Name this kingdom that includes mushrooms.

Answer: **Fungi** [or **fungus**es]

B. While fungi are sometimes parasitic, in other cases they demonstrate this type of symbiosis [sim-by-OH-siss] in which both organisms benefit each other.

Answer: **mutualism** [or **mutualist**ic symbiosis]

C. This common association between fungi and plant roots is usually mutualistic: the plant's roots get more nutrients, and the fungi get more carbohydrates.

Answer: **mycorrhiza**e [my-kor-HEE-zee] [or **mycorrhiza**s]

15. During the first performance of this composer's "Farewell" Symphony, each musician had a lit candle that was put out when their part was done.

A. Name this Austrian composer of 106 symphonies. He is known as the "Father of the Symphony" and "Father of the String Quartet"

Answer: (Franz) Joseph **Haydn** ["HI-din"]

B. Haydn based this oratorio on the book of Genesis.

Answer: The ***Creation*** [or *Die **Schöpfung***]

C. Based on a request from Anton Weidinger [ahn-tohn "VIE-ding"-ur], Haydn wrote a concerto for this instrument. Weidinger designed a keyed version of this instrument that allowed performers to hit more notes.

Answer: **trumpet**

16. This country's newest seawater desalination [dee-SAL-ih-"nation"] plant will be in the city of Ashdod.

A. Name this country between the Mediterranean Sea and the Dead Sea. Its National Water Carrier brings fresh water from its Golan [goh-LAHN] Heights to population centers like Tel Aviv [ah-VEEV].

Answer: (State of) **Israel** [or Medinat **Yisra'el**]

B. This desert comprises the southern half of Israel, stretching from Beersheba ["beer"-SHEH-bah] in the north to Eilat [ay-LAHT] on the Gulf of Aqaba [AH-kah-bah].

Answer: **Negev** Desert

C. This narrow "strip" of land separates the Negev from the Mediterranean Sea. It is a self-governing Palestinian territory.

Answer: **Gaza** Strip

17. In this novel, a bookcase falls on Leonard Bast after Charles Wilcox attacks him.

A. Name this novel in which Bast quits his insurance job and impregnates Helen Schlegel [SHLAY-gul].

Answer: *__Howards End__*

B. This English author of *A Passage to India* wrote *Howards End*.

Answer: E(dward) M(organ) **Forster**

C. E. M. Forster also wrote this posthumously-published novel in which the title character has homosexual relationships with Clive Durham and Alec Scudder.

Answer: *__Maurice__*

18. If this kind of chart has a hollowed-out center, it is called a donut chart.

A. Name this type of chart that usually is given a different dessert-related name.

Answer: **pie** chart or **pie** graph

B. In geometry, the wedge shapes that make up a pie chart are given this name. These shapes have two sides that are radii [RAY-dee-"eye"] of a circle, and the other side is an arc of that circle.

Answer: (circle or circular) **sector**

C. If *x* percent of data are in a category, then you multiply *x* by this number to find the degree measure of the central angle of the sector representing that category in a pie chart.

Answer: **3.6** or **3 3/5** or **18/5**

19. This president was the first one to be impeached, and he came within one vote of being removed.

A. Name this president who took office upon the assassination of Abraham Lincoln.

Answer: **A**ndrew **Johnson** [prompt on **Johnson**]

B. Johnson was impeached for violating this 1867 law. It required Senate approval to fire people whose hiring had required the advice and consent of the Senate.

Answer: **Tenure of Office** Act

C. Johnson vetoed a Colorado statehood bill and then used a pocket veto against this state, which passed a draft constitution that only allowed white males to vote.

Answer: **Nebraska**

20. Kary Mullis developed this technique in 1983.

A. Name this method used to make many copies of a segment of DNA.

Answer: **polymerase chain reaction** or **PCR**

B. In this early step of PCR, DNA is heated so that it loses much of its structure.

Answer: **denaturation** or **denaturing** or **denature** [prompt on DNA **melt**ing]

C. PCR was improved by using this enzyme taken from bacteria in hot springs.

Answer: **Taq** ["tack"] DNA polymerase

21. The five-factor model is one way in which psychologists seek to understand this concept.

A. Name this usually-stable collection of traits and behaviors that define an individual.

Answer: **personality**

B. Kevin Leman and Frank Sulloway have written that this factor has a major impact on personality. Kevin Leman's book on this topic is subtitled *Why You Are the Way You Are*.

Answer: **birth order** [accept any reasonable description related to the idea of the order in which children are born]

C. The inferiority complex was central to this Austrian psychologist's conception of personality development.

Answer: Alfred **Adler**