2020 Reinstein Set – Packet 1

Tossups

1. Some animals in this class go for several months each year during which they drink water but do not eat, which is their brumation [broo-MAY-shun] period. An early animal in this class is the hylonomus ["hi"-LAH-nuh-mus], which lived during the Late Carboniferous [kar-buh-NIFF-ur-uss] period. The tuataras [too-uh-TAH-ruhz] in this class live only in New Zealand. Many of the animals in this class are either Testudines [tes-TOO-duh-nees] or Squamata [skwah-MAH-tuh]. The sauropsids [suh-RAHP-sidz] evolved into birds and these animals. These ectothermic [EK-toh-THUR-mik] vertebrates have dry, scaly skin. The dinosaurs belonged to this class. Name this class of animals that includes turtles and lizards.
Answer: **reptile**s [or **reptilia**]

2. This leader had an affair with Margherita Sarfatti ["margarita" sar-FAH-tee], who wrote a biography about him, but she left his country around the time his government published the *Manifesto of Race* and passed racial laws. When King Zog refused to renew the Treaty of Tirana, this person made Albania a protectorate. During the Abyssinia [ab-uh-SIN-ee-uh] Crisis, this leader ignored the League of Nations and invaded Ethiopia. This person often used bound wood as a symbol for his political movement. Name this leader of Italy who led the Fascist Parties and was killed by Italians near the end of World War II.
Answer: Benito (Amilcare Andrea) **Mussolini**

3. One of the leagues in this sport faced a recent boycott led by Nicky Spiva ["SPY"-vuh] and Hannah Leathers over unequal gender representation. Henry Callahan, who was killed in 1982, is the namesake of both an award given to college players in this sport and a move in which a defender scores a point. The two main positions in this sport are handler and cutter; handlers make the important throws. Types of throws in this sport are called the "scoober" and the "high release flick". Like football, the goal of this sport is to advance over the goal line into the end zone. Name this sport overseen by the World Flying Disc Federation that is played with a frisbee.
Answer: **ultimate** frisbee [prompt on **frisbee**]

4. In one novel by this author, Jacquin Labarre [jak-wan luh-bar]—who is the host of an inn—refuses to feed or house a traveler after hearing who that traveler is. This author then describes how that traveler uses the name "Monsieur Madeleine" and becomes the mayor of a town. In another novel by this author, a fictional version of the poet Pierre Gringore [gran-gor] watches an attempted kidnapping that is foiled by Captain Phoebus [FEE-buss]. That kidnapping is ordered by Claude Frollo in this author's book about Esmeralda and Quasimodo. Name this author who wrote about Jean Valjean [zhahn val-zhahn] in *Les Misérables* [lay mee-zair-ahb'l] and who wrote *The Hunchback of Notre-Dame.*
Answer: Victor (Marie) **Hugo**

5. This painting was once vandalized with the words "Kill all lies." This painting was made for the 1937 World's Fair in Paris and was based on an article by George Steer. Nazi Germany referred to this painting as "a hodgepodge of body parts that any four-year-old could have painted". When asked to describe this painting's symbolism, the artist stated "This bull is a bull and this horse is a horse." The horse in this painting is screaming above a person on the ground holding a broken sword. Name this painting based on a Spanish Civil War bombing, made by Pablo Picasso.
Answer: ***Guernica*** [gair-NEE-kah]

6. In one novel by this author, two characters move to Weatherbury after the woman rejects the man's marriage proposal. In that novel, Gabriel goes to a hiring fair in a town that this author later used as the primary setting of a novel in which a man breaks off an engagement with Lucetta Templeman. In that later novel, this author wrote about two characters named Elizabeth-Jane, one of whom is auctioned off with her mother to Richard Newson. Name this author who wrote about Bathsheba Everdene in *Far from the Madding Crowd* and about Michael Henchard in *The Mayor of Casterbridge.*
Answer: Thomas **Hardy**

7. These objects are classified into the C-group, S-group, X-group, or eleven other groups according to Tholen classification, which is similar to the SMASS classification of these objects. The moon Dactyl [DAK-tul] goes around one of these objects called Ida ["EYE"-duh]. The spacecraft OSIRIS-REx is collecting a sample from one of these objects named Bennu. The spacecraft *Dawn* orbited one of these objects named Vesta before orbiting the largest of these objects, which is also the dwarf planet nearest to Earth. Name these rocks, most of which are in a belt between Mars and Jupiter.
Answer: **asteroid**s [accept **minor planet**s or **planetoid**s; do not prompt on "planet(s)"]

8. In this novel, a light truck swerves to hit a turtle, making the turtle flip. A character in this novel who has not been home for four years wraps the turtle in his coat to take it home to his little brother, and on the way home he shows it to a former preacher, who goes home with him. Later in this novel, that little brother—Al—falls in love with Agnes Wainwright. By the end of this novel, their family is abandoned by Connie Rivers, even though Rose of Sharon is pregnant. Much of this novel is set on Route 66 on the way to California. Name this novel about the Joad family from Oklahoma, written by John Steinbeck.

Answer: *The **Grapes of Wrath***

9. This number is the principal quantum number of barium, cesium, and radon. When a central atom has this number of ligands [LIG-undz], a molecule can have either pentagonal pyramidal or octahedral molecular geometry. When one molecule of glucose is created in photosynthesis, this many oxygen molecules are also created. This is the oxidation number of the sulfur atom in a sulfate ion. This is the number of hydrogen atoms in an ethane [ETH-ayn] molecule, and it is the number of carbon atoms in a benzene molecule. Give this atomic number of carbon.

Answer: (positive) **6**

10. Alexander Berkman and Emma Goldman started a league opposed to this process, leading to two-year jail sentences for them. When this process was introduced in the United States, people could hire a substitute or pay 300 dollars to avoid it. The ability of wealthy people to avoid this process was a factor behind a massive riot in New York City, which turned into a race riot, in 1863. During the Vietnam War, many men burned cards they were supposed to carry with them; those cards were supposed to show they took part in this process. Some people avoid this process by being declared conscientious objectors. Name this process of compulsory enlistment into the armed forces.

Answer: military **draft** or military **conscription** [or being **draft**ed or **conscript**ed; accept answers that additionally specify it's registration for the draft; prompt on **Selective Service** System; prompt on **military service**]

11. This god used a threat to free Thanatos [THAN-uh-tohss] and cause Sisyphus [SISS-ih-fuss] to submit to Hades [HAY-deez]. When Athena wore the helmet of darkness, she helped Diomedes ["die"-oh-MEE-deez] throw his spear at this god's stomach, making this god scream in pain. Cadmus had to serve this god for eight years because this god was the protector of the dragon that Cadmus killed before founding Thebes [theebz]. This god was the father of Phobos [FOH-bohss] and Deimos ["DIE"-mohss]. Hephaestus [huh-FESS-tuss] used a net of gold to catch this god when he had an affair with Hephaestus's wife Aphrodite [af-roh-"DIE"-tee]. Name this Greek god of war.

Answer: **Ares** [prompt on **Mars**]

12. These chemicals are transported between cells by PIN proteins. A synthetic counterpart to these natural chemicals is Quinclorac. One of these chemicals can be called "2,4-D" and was used in the herbicide Agent Orange. Fritz Went discovered these chemicals, explaining Charles Darwin's studies of coleoptiles [koh-lee-AHP-"tiles"]. The most common form of these chemicals is indole-3-acetic [in-dohl "three" uh-SEE-tik] acid. These chemicals regulate cell elongation and are more effective in the presence of cytokinins ["sight-oh-KINE-inz] and gibberellins [jib-ur-ELL-inz]. Name these chemicals that play a major role in tropisms ["TROPE"-izmz] and which are a class of plant hormones.

Answer: **auxin**s [prompt on plant **hormone**s]

13. Many countries have a Martyrs' Day; *this* country's Martyrs' Day commemorates a 1964 effort to take down an American flag and replace it with this country's flag. That incident may have influenced the creation of the 1977 Torrijos [toh-REE-hohss]-Carter Treaties between this country and the U.S., which went into effect at the end of 1999 and abolished the Hay-Bunau-Varilla [boo-"NO" vah-REE-yah] Treaty. During Operation Just Cause in 1989, the U.S. captured this country's ruler, Manuel Noriega [man-oo-EL noh-ree-AY-gah]. Name this country whose independence from Colombia in 1903 was supported by the U.S. to build a canal between the Atlantic and Pacific Oceans.

Answer: (Republic of) **Panama** or (República de) **Panamá**

14. This character is shown a cane and asked what he thinks about it as a tooth, and whether it is a sharp tooth or a double tooth. That occurs after Tungay leaves the room. Those words are spoken to this character by Mr. Creakle, who used the cane to punish this boy for biting the hand of someone who was beating him. One of the only adults who treats this boy well is his nanny Clara Peggotty. When he grows up, this character's first wife Dora Spenlow dies, and he then marries Agnes Wickfield. Edward Murdstone's hand is bitten by what Charles Dickens title character?

Answer: **David Copperfield** [accept either]

15. On some economics graphs, producer surplus is the area below the equilibrium price but above the curve representing this quantity. That curve representing this quantity is shifted down by a subsidy. The curve representing this quantity has a positive slope on that graph, which places this quantity on the x-axis and price on the y-axis. Cost-push inflation occurs when this quantity decreases. An economic theory based on increasing this quantity focuses on deregulation and lower taxes for the wealthy. This quantity is the amount of a good that can be produced. Name this quantity often compared to demand.

Answer: **supply** [accept **supply**-side economics]

16. In double slit-interference, there is constructive interference where the distance between slits, times the sine of the angle a ray makes with the normal, is an integer multiple of this property. The Bragg condition for constructive interference is that $2d$ sine theta is an integer multiple of this property. This quantity is fairly large for radio waves but very small for gamma rays and X-rays. This quantity equals a wave's speed divided by frequency. For visible light, this quantity ranges from 380 to 740 nano·meters. Give this term for the distance between successive wave crests.

Answer: **wavelength**

17. This writer's poem about a game of euchre [YOO-kur] that turns into a fight [pause] was used politically by people who opposed Chinese immigration into the United States. That poem, "Plain Language from Truthful James", led to a collaboration between this writer and Mark Twain on the play *Ah Sin*. In a short story by this writer, Piney Woods and Tom Simson join up with four people. One of those four people is Uncle Billy, who takes all of the horses and mules in this writer's story. Name this writer who wrote about an honorable gambler named John Oakhurst in his story about people kicked out of a town, "The Outcasts of Poker Flat".

Answer: (Francis) Bret **Harte**

18. Part of this place is the Great Bitter Lake, which was the location of the Yellow Fleet during the late 1960s and early '70s. The Convention of Constantinople was an international agreement over this piece of infrastructure, continuing a policy that Ferdinand Marie de Lesseps [duh les-ep] had agreed to. The United Nations Emergency Force Peacekeepers were used to end a crisis over this place that involved a failed alliance between France, the United Kingdom, and Israel. That crisis occurred after this infrastructure was nationalized in 1956 by Gamal Abdel Nasser. Name this waterway connecting the Mediterranean Sea to the Red Sea.

Answer: **Suez Canal** [prompt on partial answer]

19. This property is the only field axiom that uses both operations in the same equation. This property can be used both ways with union and intersection, though its most common examples place one operation "over" another. A version of this property can be used when a product or quotient is raised to a power, though it is most commonly used when a sum or difference is multiplied by a number. Name this property whose version "for multiplication over addition" states that x times the quantity y plus z [pause] always equals xy plus xz.

Answer: **distributive** property or **distributivity**

20. The fourth movement of one work by this composer is labeled "Scene and Gypsy Song" and has sections in which the string instruments imitate guitars. That work's last section is labelled "Fandango asturiano" [fahn-DAHN-goh ah-stoo-ree-AH-noh]. An opera by this composer features "The Song and Dance of the Birds" and is about the daughter of Spring Beauty and Grandfather Frost. This composer of *The Snow Maiden* and *Capriccio Espagnol* [kah-PREET-choh ess-pahn-YOHL] wrote a concert overture set during an Orthodox holiday and a symphonic suite based on *One Thousand and One Nights.* Name this Russian composer of the *Russian Easter Festival Overture* and *Scheherazade* [shuh-HAIR-uh-zahd].

Answer: Nikolai **Rimsky-Korsakov**

21. An integral along a path or curve is commonly named for this shape even when the path is not this shape. In polar coordinates, this shape is generated by graphing r equals the secant of theta. Playfair's axiom, which begins with one of these shapes and a point not on it, is equivalent to Euclid's [YOO-klid'z] parallel postulate, which describes where two of these shapes meet. A transversal is one of these shapes that crosses two others of these shapes. Name these entities that are infinitely long and straight.

Answer: **line**s

Bonuses

1. The protagonist of this novel is a Lithuanian immigrant who gets a job sweeping cattle entrails.

A. Name this 1906 novel set in Packingtown, which is part of Chicago.

Answer: *The **Jungle***

B. This author wrote *The Jungle.* He later ran for Congress and tried to become governor of California.

Answer: Upton (Beall) **Sinclair** (Jr.)

C. In *The Jungle*, Jurgis [YUR-guss] Rudkus is called by this term before listening to a speech. This term is used to refer to many people in a movement featuring Nicholas Schliemann [SHLEE-mahn].

Answer: "**comrade**"

2. During the 19th century, some musical pieces were classified as this type of piece even though they did not fit the old definition, such as Hector Berlioz's *Roman Carnival.*

A. Name this type of music typically used to introduce a larger work such as an opera.

Answer: **overture**(s)

B. In 1880, this composer wrote the *Academic Festival Overture* and *Tragic Overture.*

Answer: Johannes **Brahms**

C. This composer based his *Festive Overture*–which was written for an anniversary of the October Revolution—on Mikhail Glinka's *Ruslan and Ludmilla* [ROOS-lahn and lood-MEE-luh].

Answer: Dmitri (Dmitriyevich) **Shostakovich**

3. This element has the highest known electrical and thermal conductivity.

A. Name this element whose Latin name is "argentum" [ar-JEN-tum].

Answer: **silver** [prompt on **Ag**]

B. Silver sulfide leaves a black mark on silver, which is known by this term.

Answer: silver **tarnish**

C. Silver is used as a catalyst to create formaldehyde [for-MAL-duh-"hide"] from this compound.

Answer: **methanol** [or **methyl alcohol**; accept **wood alcohol**; do not prompt on "alcohol"]

4. After people tried to find this route for centuries, Roald Amundsen finally navigated it in 1903.

A. Give this term for a route from the Atlantic Ocean to the Pacific involving what is now Canada.

Answer: **Northwest Passage**

B. In 1611, this English explorer was kicked off his ship by his crew while searching for the Northwest Passage. A strait, river, and bay are now named for him.

Answer: Henry **Hudson**

C. This half-brother of Sir Walter Raleigh [RAH-lee] inspired searches by writing *A Discourse of a Discovery for a New Passage to Cataia* [kuh-TIE-uh]. He died while returning from Newfoundland [NOO-fund-lund].

Answer: Humphrey **Gilbert**

5. Trigonometric [TRIG-uh-noh-"metric"] functions have this property because they satisfy the relationship "f of x always equals f of the quantity x plus some fixed constant".

A. Name this property that a function has if it repeats the same values regularly.

Answer: **period**icity or **period**ic function

B. This periodic shape is generated by tracing the path of a point on the rim of a rolling circle.

Answer: **cycloid**

C. Find the period of the function "f of x equals 7 plus 5 times the tangent of $3x$". Assume x is in radians.

Answer: **pi over 3** or **pi divided by 3** or **1/3 pi**

6. When neither side abided by this document, Pope Innocent III annulled it, leading to the First Barons' War.

A. Name this document signed in 1215 in Runnymede, England that gave legal rights to barons and lesser rights to serfs.

Answer: **Magna Carta** (Libertatum)

B. This king signed the Magna Carta. He died the next year and was succeeded by his son, Henry III.

Answer: King **John** (Lackland)

C. Henry III defeated this king of France, who aided the barons and for a time claimed to be the king of England.

Answer: **Louis VIII** [or **Louis Coeur-de-lion** or **Louis the Lion**-heart; prompt on **Louis**]

7. The Spenserian [spen-SAIR-ee-un] type of this poem ends with a rhymed couplet.

A. Name this type of 14-line poem.

Answer: **sonnet**(s)

B. The type of sonnet named for this Italian poet starts with an octave whose rhyme scheme is "A B B A, A B B A".

Answer: Francesco **Petrarch** [accept **Petrarchan** sonnet]

C. This Italian phrase describes the rhyme scheme in some sonnets and some poems by Dante [DAHN-tay]. This scheme is "A B A, B C B".

Answer: **terza rima** [TAIR-zah REE-mah]

8. These tissues are very similar to tendons.

A. Name this tissue that connects bones and cartilage, but does not connect to muscle.

Answer: **ligament**s

B. This often-injured ligament goes from the femur to the tibia at the middle of the knee. This ligament is nearer to the front of the body than a similar ligament.

Answer: **ACL** or **anterior cruciate** ligament

C. The zona orbicularis ["ZONE"-uh or-BIK-yoo-LAIR-iss], which is also called the annular ligament, is in this joint next to the pelvis.

Answer: **hip** [or **acetabulofemoral** joint]

9. In chapter 1 of the Book of Luke, this woman says "I am the handmaid of the Lord. Let it be done unto me according to your word."

A. Name this mother of Jesus.

Answer: (Blessed Virgin) **Mary** or **Mariam**

B. In the Book of Luke, this angel tells Mary that she will become the mother of Jesus.

Answer: **Gabriel** or **Jibril**

C. This song, sometimes called the Canticle of Mary, is based on words spoken by Mary in the Book of Luke.

Answer: **Magnificat**

10. There are currently three museums named for people in this family, in New York City, Venice, and Bilbao.

A. Identify this family. Two of the museums are named for an American miner named Solomon, and the one in Venice is named for his niece, Peggy.

Answer: **Guggenheim**

B. The Guggenheim in New York City is a cylindrical building designed by this Prairie School architect, who worked on it while at Taliesin [tal-ee-EH-sin] West.

Answer: Frank Lloyd **Wright** [or Frank Lincoln **Wright**]

C. The Guggenheim in New York City exhibits this French cubist's paintings *The Smokers* and *Nude Model in the Studio.* This painter of *Contrast of Forms* was sometimes called a tubist [TUBE-ist].

Answer: (Joseph) Fernand (Henri) **Léger** [leh-zhair]

11. The title character of this novel has two amulets, one of which has his father's *ne varietur* [neh var-ee-eh-tur], and the other of which is from Babu [BA-boo].

A. Name this novel in which the title character helps a Tibetan lama find the River of the Arrow.

Answer: ***Kim***

B. This author wrote *Kim, The Jungle Book,* and "The White Man's Burden".

Answer: (Joseph) Rudyard **Kipling**

C. In this Rudyard Kipling poem, the narrator talks about being on the road to the title location, where the flying-fishes play.

Answer: **"Mandalay"**

12. This legislation prohibited slavery north of a latitude of 36 degrees, 30 minutes, except in the state it was named for.

A. Name this "compromise" that allowed the admission of a slave state while keeping the number of slave and free states balanced by also making Maine a state.

Answer: **Missouri** Compromise

B. This person was the Speaker of the House during the Missouri Compromise and eventually became known as the Great Compromiser.

Answer: Henry **Clay** (Sr.)

C. This senator from New York, who had been the last Federalist Presidential candidate in 1816, spoke out strongly against admitting Missouri as a slave state.

Answer: Rufus **King**

13. This warming of water temperature is paired with a negative Southern Oscillation Index affecting air pressure.

A. Name this Pacific Ocean phenomenon that occurs about every four years, leading to above-average rainfall in the southern United States.

Answer: El **Niño**

B. These cyclones move farther east during El Niño, sometimes putting Tahiti at risk.

Answer: **typhoon**s

C. Recent El Niños have caused the polyps in these anthozoans [an-thoh-ZOH-unz] to expel their zooxanthellae [zoh-uh-zan-THEL-uh]. Give the common name.

Answer: **coral**s [accept **coral** bleaching]

14. The title character in this play is told to "Beware the ides of March."

A. Name this William Shakespeare play about a leader of ancient Rome.

Answer: *(The Tragedy of)* ***Julius Caesar***

B. In *Julius Caesar*, Mark Antony gives a speech beginning with these three words to define his audience. Those words are followed by "lend me your ears".

Answer: "**Friends, Romans, countrymen**"

C. Before Antony's speech, Brutus used this adjective to describe Caesar, explaining why he killed him. Antony says several times in his speech that Brutus says Caesar was this adjective.

Answer: **ambitious**

15. Consider a histogram with equal-sized bins and the measured values along the horizontal axis.

A. What quantity would be on the vertical axis? It might be relative or absolute.

Answer: (relative or absolute) **frequency**

B. This term describes histograms that are lopsided rather than approximately symmetric. Their mode differs significantly from their mean.

Answer: **skew**ed histograms [accept **skew**ness]

C. Find the relative frequency of a value if an experiment involved 40 total measurements and the value was measured 6 times. Give your answer as a decimal.

Answer: 0**.15**

16. The Porcupine Mountains are in this region.

A. Name this large part of a U.S. state that is connected by land to Wisconsin but not connected by land to the rest of its state.

Answer: **Upper Peninsula** of Michigan or **U. P.** [or **Upper Michigan**]

B. This Great Lake is north of the Upper Peninsula and Wisconsin.

Answer: Lake **Superior**

C. Northern Michigan University is in this city, the most populous city in the Upper Peninsula.

Answer: **Marquette**, Michigan

17. This period lasted from 1920 to 1933.

A. Name this time when the federal government banned alcoholic beverages.

Answer: **Prohibition**

B. This constitutional amendment prohibited "the manufacture, sale, or transportation of intoxicating liquors".

Answer: **18**th Amendment

C. Wayne Wheeler led this organization that supported Prohibition. This group first demonstrated its power by defeating Ohio Governor Myron Herrick.

Answer: **Anti-Saloon League** [or **ASL**]

18. In SI units, this law uses a constant equal to approximately 9 times 10 to the 9th power.

A. Name this inverse-square law that gives the force caused by static electric charges.

Answer: **Coulomb**'s law

B. Electric measurements are often made inside this type of container covered with conducting material. Inside this type of container, the electric field is zero.

Answer: **Faraday**('s) **cage** [accept **Faraday**('s) **shield**]

C. This constant, used to measure some electromagnetic interactions, equals Coulomb's constant times elementary charge squared divided by the quantity h-bar times c. It is approximately 1 over 137.

Answer: **fine-structure** constant [or **Sommerfeld**'s constant]

19. The length of this segment equals the circumradius of a polygon times the cosine of the quantity "pi over the number of sides".

A. Name this segment from the center of a regular polygon to the midpoint of one of the sides.

Answer: **apothem** [AP-uh-thum]

B. Find the length of the apothem of a regular hexagon whose sides are each 6 units long.

Answer: **3** times the square **root** of **3** (units) [accept **3 radical 3** (units)]

C. To the nearest thousandth, find the area of a 22-sided polygon with a perimeter of 1. Its apothem length is approximately 0.158.

Answer: 0**.079** (units squared or square units)

20. Bars and torrs are units for this physical quantity.

A. Name this quantity defined as force per unit area.

Answer: **pressure**

B. This rule states that in incompressible fluid flow, the total pressure, plus the quantity density times gravitational field strength times height, is constant.

Answer: **Bernoulli**'s [bair-NOO-lee'z] principle

C. This set of equations that use continuity, momentum, and energy are more versatile than Bernoulli's principle. There is a million-dollar prize available to anyone who proves that they have well-behaved solutions.

Answer: **Navier-Stokes** [nahv-yay "stokes"] equations

14