2018 Reinstein Set – Packet 12

Tossups

1. In a short play by this author, the Admirer and Girl-Admirer anxiously await the arrival of the leader only to find out the leader has no head. In another play by this writer, a girl in a tutoring session has memorized her products, but a toothache distracts her from linguistics and the Professor stabs her. This playwright created a couple that realizes they met on a train from Manchester to London, the Martins, who host Mr. and Mrs. Smith, who claim that the title figure always styles her hair the same way. Name this absurdist playwright of *The Lesson* and *The Bald Soprano*.
Answer: Eugène **Ionesco** [or Eugen **Ionescu**]

2. These features are usually filled through the vadose [VAY-"dose"] zone. These features may be called "perched" if they sit above a low-permeability barrier. Storativity ["store"-uh-TIV-ih-tee] is a measurement of the properties of these features and may be calculated using a slug test. These areas may suffer from saltwater intrusion, especially if they are overpumped. Saturated areas of these features lie under the water table and can be accessed by drilling wells. Name these underground areas of stored water, one of which under the Great Plains is called the Ogallala [oh-guh-LAH-luh].
Answer: **aquifer**s

3. In advanced algebra, this word refers to a commutative ring in which the zero product property is true. In topology and complex analysis, this word means a connected open set. In studying functions, this term means a set that for the tangent and secant functions is all real numbers except odd multiples of one-half pi; in the same context, the sets denoted by this term are mapped to the image. For the logarithm function, the set designated by this term is every positive number. Give this term for the set of valid inputs to a function, in which context it is contrasted with the range.
Answer: **domain**(s) [accept integral **domain**]

4.   There is a temple dedicated to this god at Pushkar, where he killed the demon Vajranabha [vahj-rah-NAH-bah]. This god became obsessed with a woman he created named Shatarupa [shah-tah-ROO-pah], which is one reason why there are few temples honoring him. Depending on the source, this god was either born from a golden egg or from a lotus that came from Vishnu's navel. This god recites the Vedas [VAY-duz], and his four heads allow him to recite the four Vedas simultaneously. Name this god of creation that was in the Trimurti [try-MUR-tee] with Vishnu and Shiva.
Answer: **Brahma**

5. This author wrote about Kathy, Ruth, and Tommy at Hailsham boarding school. Kathy is a carer, which means that she is a clone who takes care of other clones. In another novel, one of this author's characters says "We treated each other decently over six months of shelling each other"; those words describing Herr Bremann during World War I were spoken by Lord Darlington and remembered by Darlington's butler Stevens. Name this Japanese-born British author who wrote *Never Let Me Go* and *The Remains of the Day*.

Answer: Kazuo **Ishiguro**

6. A little bit of mercury is combined with this element to form a Jones reductor. Either this element or magnesium can be used to create cobalt green. The genomes of higher organisms can be manipulated using the finger nuclease [nook-lee-"ace"] of this element. This element is combined with pyrithione [peer-ih-THY-ohn] as the active ingredient in some anti-dandruff shampoos. The oxide of this element is the main ingredient in calamine lotion, which is used to treat sunburn. This element is used to prevent rust in the galvanization of iron. Name this element that combines with copper to form brass.

Answer: **zinc** [accept **Zn**]

7. Part of this country's capital was taken over at the end of World War I by revolutionaries who wore aster flowers and killed its former Prime Minister István Tisza [EESHT-vahn TEE-za]. Operation Margarethe was the Nazi takeover of this country, whose Jews were deported by Adolf Eichmann despite Miklós Horthy's [MEEK-lohsh HOR-tee'z] attempts to protect them. János Kádár [YAH-nohsh KAH-dar] used Soviet help to run this country after the Soviets turned against Imre Nagy [IM-reh nahzh] in 1956. This country is now run by the Fidesz [FID-ess] Party led by Viktor Orbán [VEEK-tor OR-bahn]. Name this country whose form of government was once called "Goulash Communism".

Answer: (Republic of) **Hungary** [or **Magyarország** or **Magyar Köstársaság**]

8. One work by this artist is based on a Bob Grant and Bob Totten illustration but omits the background characters and has everything in primary colors. That work depicting a fishing incident is titled *Look Mickey*. Several of this artist's works depict women referencing an unseen character named Brad, including *Drowning Girl*. Another work by this artist shows a plane firing a weapon in its left panel and an explosion in its right panel. Name this artist who often used Ben-Day dots to give his works a comic book appearance, and who painted *Whaam!*

Answer: Roy (Fox) **Lichtenstein**

9. This particle's anti*particle was discovered in an experiment near the Savannah River Plant and was based on collisions with protons to form neutrons and positrons. An observatory in Sudbury, Canada named for these particles verified that their oscillations involving flavor changes were responsible for fewer of them being detected in earlier experiments. Because these particles are not affected by electromagnetism or the strong nuclear force, they go through almost everything. Name these extremely light particles that comprise three of the six types of lepton.
Answer: **neutrino**s

10. Much of the knowledge of this leader comes from the diary of Henry Francis Fynn and a biography by E. A. Ritter. One of this leader's first victories was the Battle of Gqokli [TOHK-lee] Hill, where he defeated the followers of Zwide [z'WID-eh], the Ndwandwe ["end-WAND"-weh]. This person aided the assassination of his half-brother Sigujana [sig-oo-JAN-ah] to gain power with the help of Dingiswayo [din-giss-WY-oh]. This leader is credited for developing the bull horn formation. This person lived in what is now South Africa in the early 19th century. Name this leader of the Zulus.
Answer: **Shaka** Zulu [or **Shaka** kaSenzangakhona; prompt on either non-underlined name]

11. The combination of this concept and the accelerator theory of investment are the basis of the Hansen-Samuelson economic model of the business cycle. The version of this quantity applied to taxes equals the opposite of the marginal propensity to consume divided by the marginal propensity to save, and the type of this quantity applied to spending equals the reciprocal of the marginal propensity to save. Keynesian ["CANE"-zee-un] economists often apply this concept to show that government spending has an outsized impact on aggregate demand. Give this term for a type of factor that equals a ratio between output and input.
Answer: **multiplier**

12. This country experienced the "coup d'état [koo deh-tah] of public opinion" in 1957, replacing President Gustavo Rojas Pinilla [goo-STAH-voh ROH-hahss pee-NEE-yah] with a military junta [HOON-tuh]. Rafael Núñez Moledo [rah-fah-EL NOON-yez moh-LAY-doh] led this country's La Regeneración [lah ray-hen-air-ah-see-OHN] movement, which established this country as a republic. When presidential candidate Jorge Eliécer Gaitán [HOR-hay el-ee-ESS-er "guy"-TAHN] was killed in 1948, this country experienced a violent ten-year period during which over 100,000 people were killed. In recent decades, this country has experienced violence between the National Liberation Army and FARC. Name this South American country that used to control Panama.
Answer: (Republic of) **Colombia** or (República de) **Colombia**

13. This character says "I talk of dreams, which are the children of an idle brain" after his friend says "Thou talk'st of nothing," which is prompted by this character's speech about the fairies' midwife Queen Mab. The next day, before saying "They have made worms' meat of me", this character says "A plague on both your houses!". Those words are spoken after this character is fatally injured by Tybalt [TIB-ult]. Name this character whose death is quickly avenged by his close friend in William Shakespeare's *Romeo and Juliet*.

Answer: **Mercutio** [mur-KYOO-shee-oh]

14. This person's autobiography, which was told to Antoine LeClaire and edited by J. B. Patterson, contradicts John Shaw's version of the Battle of the Sink Hole. This person fought against the United States after disputing the Treaty of St. Louis, and he called his group the British Band. This leader successfully fled the Battle of Wisconsin Heights, but his forces were slaughtered after he left the Battle of Bad Axe. Name this Sauk leader who in 1832 was the namesake of a war involving Winfield Scott, Jefferson Davis, and Abraham Lincoln.

Answer: **Black Hawk** [or **Black Sparrow Hawk** or **Makataimeshekiakiak**]

15. This author wrote a short story in which Mr. Waythorn, the third husband of Alice Varick, gets along with her ex-husbands, who are called "The Other Two". In a novel by this author, the narrator hires a man at the post office as his driver, calling him "the most striking man in Starkfield". In another novel by this author, the pregnancy of May Welland causes Newland Archer to abandon his affair with Countess Ellen Olenska. One of this author's title characters has a "smash-up" with Mattie Silver by steering a sled into a tree. Name this author of *The Age of Innocence* and *Ethan Frome*.

Answer: Edith (Newbold **Jones**) **Wharton** [accept either underlined name]

16. The potential energy field named for this person varies inversely with distance from a central point, and has a similar mathematical structure to a "barrier" named for this person that must be overcome for nuclear fusion. The constant named for this person equals one divided by the quantity 4 pi times the permittivity [pur-mih-TIV-ih-tee] of free space and is used in the inverse-square law named for him, which describes the force between two electric charges. Identify this French physicist whose namesake unit measures electric charge.

Answer: Charles-Augustin de **Coulomb** [sharl oh-goo-stan deh koo-lawm]

17. This person is the namesake of an award for "best journalistic effort by an individual with three years professional experience or less" given by The New York Press Club. As a young reporter for the *Pittsburgh Dispatch*, this person wrote *Six Months in Mexico*. This person then got a job at the *New York World* and went undercover at Blackwell's Island in a series of articles that led to more money being spent at the Department of Public Charities and Corrections. Two years later, this journalist went on a highly publicized world record-breaking trip. Name this woman who wrote *Ten Days in a Mad-House* and *Around the World in Seventy-Two Days*.
Answer: Nellie **Bly** [or Elizabeth Jane **Cochran**]

18. This event was blamed for the death of Roger Toothaker, who died in prison. Samuel Sewall believed that his relatives' deaths were God's retribution for his role in this event, and he offered a public apology. This event took place 30 years after a similar but smaller event involving the death of Elizabeth Kelly in Hartford, Connecticut. This event began when the daughter and niece of a reverend started having unexplained fits. Name this event in the late 1600s during which women were accused of using special powers in Massachusetts.
Answer: **Salem** **witch trial**s [prompt on partial answers; accept any reasonable answer containing both underlined portions]

19. Rafael Kubelik, a countryman of this composer, said that the trumpets opening the final movement of this composer's eighth symphony are a call to dance. Most of this composer's symphonic poems were inspired by Karel Jaromír Erben's ["Carl" YAR-oh-meer ER-ben'z] poems, including *The Water Goblin* and *The Noon Witch*. Adolf Heyduk's ["HI-duke's"] poems inspired this composer's *Gypsy Songs*, which include "Songs My Mother Taught Me". This composer's interest in American spiritual music influenced his last symphony. Name this Czech composer of *From the New World*.
Answer: Antonín (Leopold) **Dvořák** [ahn-toh-NEEN d'VOR-zhahk]

20. These chemicals were described by Peter Karlson and Martin Lüscher, but applying their ideas about these chemicals to mammals was criticized by Richard Doty. One of these chemicals is multistriatin ["multi"-STRY-uh-tin], which has been blamed for the spread of Dutch elm disease. These chemicals are sensed by the Jacobson's organ, which is also called the vomeronasal [VOH-mur-oh-"nasal"] organ. Queen bees use these chemicals to attract mates. Name these chemicals that animals release to cause a response by other animals of the same species, which is why these chemicals are sometimes described as "external hormones".
Answer: **pheromone**s ["FAIR-oh-moans"]

21. The calculation of this quantity is the most straightforward result of a triple integral of just a Jacobian [YAH-koh-bee-un]. For a parallelepiped ["parallel-uh-PIE"-ped], this quantity is found using a triple product. The derivative of this quantity with respect to radius gives the surface area of a sphere. The factor this value changes by during a transformation can be calculated by taking the determinant of a 3-by-3 matrix. For a cone or pyramid, this quantity equals one-third times height times base area. Name this measurement of the space taken up by a three-dimensional object.

Answer: __volume__

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Bonuses

1. This leader succeeded his father Sin-muballit [sin moo-BAHL-leet] in the 18th century BCE.

A. Name this ruler whose law code stated, among other things, "If a man has destroyed the eye of another man, they shall destroy his eye."

Answer: **Hammurabi** [or **Hammurapi**]

B. Hammurabi was a member of the first dynasty, the Amorites, of this Akkadian-speaking region.

Answer: **Babylon**ia

C. Over 100 years after Hammurabi ruled, his dynasty was ended when these people sacked Babylon. These people were led by Mursilis [MUR-suh-LEES], and Babylon was later run by the Kassites.

Answer: **Hittite**s

2. This psychologist wrote *Moral Disengagement* and worked with Dorothea and Sheila Ross.

A. Name this American psychologist who conducted an experiment in which children watched adults play with a toy that stands back up after it is knocked down, called a "Bobo doll".

Answer: Albert **Bandura**

B. Bandura developed this theory of psychology that included vicarious reinforcement based on observations of other people's actions.

Answer: **social learning** or **social cognitive** theory

C. Bandura promoted social learning and cognitive psychology at a time when this school of psychology was dominant. This school of psychology focused on operant conditioning and was supported by B. F. Skinner.

Answer: **behaviorism** or **behaviorist** school

3. Bill Clinton promised to "end" this system "as we have come to know it", leading to the Personal Responsibility and Work Opportunity Act, which was generally known as a reform of this type of system.

A. Give this general term for government aid to poor people.

Answer: **welfare**

B. The Personal Responsibility and Work Opportunity Act was pushed heavily by this Speaker of the House during the 1990s. He tried to run for president in 2012.

Answer: Newt(on Leroy) **Gingrich** [or Newton Leroy **McPherson**]

C. The Personal Responsibility and Work Opportunity Act created this welfare program to replace Aid to Families with Dependent Children.

Answer: **TANF** or **Temporary Assistance for Needy Families**

4. This adjective describes alkanes [aal-"canes"] and alkyl [aal-kill] groups.

A. Give this term for hydrocarbons that have as many hydrogen atoms as possible given their number of carbon atoms.

Answer: **saturate**d hydrocarbons [accept **saturation**]

B. This group is the simplest alkyl group. Its chemical formula is CH_3.

Answer: **methyl** group

C. Find the number of hydrogen atoms in a molecule of hexane, a saturated hydrocarbon with six carbon atoms.

Answer: **14**

5. The composer of *A Waltz Dream* and *The Chocolate Soldier* dropped the last letter from his last name to make it clear that he did not belong to this family.

A. Name this 19th-century Austrian family whose members wrote the Radetzky March and a lot of waltzes.

Answer: **Strauss** family or **Strauss**es or Johann **Strauss**

B. In this Johann Strauss the Younger operetta one of the characters embarrasses himself while wearing a bat costume.

Answer: *Die **Fledermaus*** [dee FLAY-dur-"mouse"]

C. Johann Strauss the Elder started out working for this composer of "Die Romantiker" who popularized the waltz, but they eventually became rivals.

Answer: Joseph **Lanner**

6. After this war, Napoleon III was held as a prisoner, and after that he moved to England.

A. Name this 1870-to-1871 war whose winning side's Minister President was Otto von Bismarck.

Answer: **Franco-Prussian** War [or **Franco-German** War]

B. France declared war after Bismarck edited and released this message.

Answer: **Ems** Dispatch or **Ems** Telegram

C. Napoleon III was captured at this battle along with Marshal Patrice de MacMahon, who was injured.

Answer: Battle of **Sedan** [seh-daw]

7. Introductory computer science students often learn about different methods to sort lists.

A. This term is used for such methods. They are formalized steps to solve problems.

Answer: **algorithm**s

B. This type of algorithm always makes the locally optimal decision at each time it has to make a decision, but might end up with an overall solution that isn't optimal.

Answer: **greedy** algorithm

C. This greedy algorithm is used to find a minimum spanning tree. It is similar to Dijkstra's ["DIKE"-struh's] algorithm, which finds shortest paths.

Answer: **Prim**'s algorithm [or **DJP** or **Jarnik**'s algorithm]

8. This painting is the winter component of a cycle of paintings set at different times of year.

A. Name this 1565 painting of people walking, with their dogs behind them, towards a town where a lot of people are skating.

Answer: *The **Hunters in the Snow*** [or ***Jagers in de Sneeuw*** or *The **Return of the Hunters***]

B. This painter of *The Tower of Babel* created *The Hunters in the Snow*. His son was also a notable painter.

Answer: Pieter **Bruegel** [BROO-gul] the Elder [or Peasant **Bruegel**]

C. Pieter Brueghel the *Younger* made a series of paintings of this person as an adult. This person as a young child is often painted next to Baby Jesus, such as in Leonardo's *Virgin of the Rocks*.

Answer: **John the Baptist** [prompt on **John**]

9. The internal angles of this polygon each measure 135°.

A. Name this polygon whose central angles each measure 45°.

Answer: regular **octagon** [prompt on regular **8-gon**]

B. Find the number of diagonals of a convex octagon.

Answer: **20** diagonals

C. The diagonals of a given regular octagon have three different lengths. How many of the twenty diagonals are the longest of those three lengths?

Answer: **four** of the diagonals

10. This man gives a so-called "sermon" in which he rejects a woman's advances because marriage would bore him.

A. Identify this title character of a verse novel who kills Vladimir Lensky in a duel. As a young man, he was pursued by Tatyana, but later he pursues her.

Answer: **Eugene Onegin** [accept either]

B. This Russian poet wrote *Eugene Onegin*.

Answer: Alexander **Pushkin**

C. Pushkin adapted a fairy tale into this story about a prince who lives far from home and is turned into a series of insects, which allows him to harm his mother's sisters.

Answer: "The Tale of **Tsar Saltan**" [or "Skazka o **Tsaryeh Saltanyeh**"]

11. This Norse god used an object that was very similar to the Ukonvasara [OO-kun-VAH-sah-rah] from Finnish mythology.

A. Name this son of Odin, the god of thunder.

Answer: **Thor**

B. This is the name of Thor's hammer.

Answer: **Mjöllnir** [mee-YOHL-neer]

C. In one poem, Thor borrows a cloak made of these objects so that he can disguise himself as the goddess Freyja [FRAY-uh].

Answer: falcon **feather**s

12. In this work, a group of dirty, unruly children is collectively called "powhitetrash" [poh-"white-trash"].

A. Identify this work of autobiographical fiction in which the narrator, Maya, tells of the racism of Stamps, Arkansas and being sexually abused by her mother's boyfriend in St. Louis.

Answer: *I Know Why the Caged Bird Sings*

B. *I Know Why the Caged Bird Sings* takes its title from a line in this writer's poem "Sympathy". This poet wrote of the "debt we pay to human guile" in "We Wear The Mask".

Answer: Paul Laurence **Dunbar**

C. This poet, who aspired to be the "lady Paul Laurence Dunbar", wrote of seven pool players who "shoot straight", and "sing sin" in "We Real Cool", part of her collection *The Bean Eaters*.

Answer: Gwendolyn (Elizabeth) **Brooks**

13. This organization's headquarters is on the border of France and Switzerland.

A. Name this group whose Large Hadron [HAYD-rahn] Collider isolated the Higgs boson [BOH-zahn].

Answer: **CERN** [or **European Organization for Nuclear Research** or **Conseil Européen pour la Recherche Nucléaire**]

B. This engineer, who started working at CERN in 1989, is credited for inventing the World Wide Web with Robert Cailliau [kyl-yao].

Answer: (SIr) Tim(othy John) **Berners-Lee**

C. CERN produced anti-hydrogen, which scientists hope will help solve this problem about why there is more matter than antimatter.

Answer: baryon ["BARE"-ee-ahn] **asymmetry** [or matter **asymmetry**]

14. This novel's protagonist buys an expensive jacket for Hortense Briggs, but she spurns him.

A. Name this novel in which Clyde Griffiths moves from Kansas City to New York, where he kills Roberta Alden while boating on a lake.

Answer: *An **American Tragedy***

B. This author wrote *An American Tragedy*.

Answer: Theodore (Herman Albert) **Dreiser**

C. Theodore Dreiser is imagined as a boy intently watching a crawfish in one entry of this collection. This collection also contains the poems "Trainor, the Druggist" and "The Hill".

Answer: ***Spoon River Anthology***

15. Rennin is a protein of this type used in cheese production.

A. Give this term for a protein-based catalyst.

Answer: **enzyme**s

B. John Howard Northrop first isolated this enzyme that breaks down proteins in the stomach. This enzyme works with chymotrypsin [ky-moh-TRIP-sin] and trypsin [TRIP-sin].

Answer: **pepsin**

C. This enzyme breaks down peptidoglycans [PEP-tih-doh-GLY-kanz]. It exists in tears and saliva, and it protects from infections by killing bacteria.

Answer: **lysozyme** ["LICE"-oh-zyme]

16. This novel is considered a thinly-veiled critique of the dictator Manuel Cabrera.

A. Identify this novel in which Angel Face is tasked with framing a general for the murder of Colonel Sonriente [sohn-ree-EN-tay].

Answer: El ***Señor Presidente*** [el sen-YOR preh-see-DEN-tay]

B. *El Señor Presidente* is a novel by this Guatemalan Nobel winner. He also wrote *The Banana Trilogy*.

Answer: Miguel (Ángel) **Asturias** (Rosales)

C. This Colombian author wrote about the Venezuelan dictator Marcos Jiménez in *The Autumn of the Patriarch* and about the Buendía family in *One Hundred Years of Solitude*.

Answer: Gabriel (José de la Concordia) **García Márquez** [prompt on partial last name]

17. Part of the membrane around this organelle is shared with part of the membrane around the endoplasmic reticulum [EN-doh-PLAZ-mik reh-TIK-yoo-lum].

A. Name this organelle that regulates the cell and contains its genetic material.

Answer: cell **nucleus** [or **nuclei**]

B. These proteins found in nuclei combine with DNA to form nucleosomes [NOOK-lee-oh-sohmz].

Answer: **histone**s ["HISS-tones"]

C. DNA methylation [meh-il-AY-shun], histone modification, and gene silencing are studied in this branch of genetics focused on heritable phenotype ["FEE-no-type"] changes that are not related to the DNA sequence.

Answer: **epigenetics**

18. Suppose the probability that event *A* occurs is 0.3, the probability that event *B* occurs is 0.4, and the probability that both *A* and *B* occur is 0.1.

A. Find the probability that event *A* does *not* occur.

Answer: 0**.7** or **7/10** or **70%**

B. Find the probability that event *A* occurs *or* event *B* occurs. That's the inclusive or.

Answer: 0**.6** or **3/5** or **60%**

C. If you know that event *B* occurs, what is the probability that event *A* occurs?

Answer: 0**.25** or **1/4** or **25%**

19. This novel published in 1978 is about a playwright and director who buys a house called Shruff End and moves there to write his memoir.

A. Name this novel in which Charles Arrowby becomes obsessed with Mary Hartley Fitch, who had long ago been his girlfriend.

Answer: ***The Sea, the Sea***

B. This author wrote *The Sea, the Sea*.

Answer: Iris **Murdoch**

C. Lizzie, one of the characters in *The Sea, the Sea*, always wanted to perform as this male character who is often portrayed by women because their voices are more appropriate for a boy who never grows up.

Answer: **Peter Pan** [prompt on partial answers]

20. All experimental evidence confirms that the inertial and gravitational forms of this quantity are equal.

A. Name this quantity measured in kilograms.

Answer: **mass**

B. This unit, equal to about 14.6 kilograms, is used to measure mass in the British Imperial measurement system.

Answer: **slug**

C. Two-body problems can be treated as one-body problems using this effective amount of mass, which is calculated as the product of two masses divided by their sum.

Answer: **reduced** mass

21. Answer the following about sleep:

A. Since the processes that occur during sleep largely involve building up tissue, they are classified as this kind of process. This term is contrasted with "catabolic" [KAT-uh-BAH-lik].

Answer: **anabolic** [AN-uh-BAH-lik] processes

B. This condition is the interruption of breathing during sleep. It is often accompanied by snoring.

Answer: sleep **apnea** [AP-nee-uh]

C. This gland releases melatonin [mel-uh-TOH-nin], a hormone that regulates sleep.

Answer: **pineal** [py-NEE-ul] gland [or **conarium** or **epiphysis** cerebri]