

## 2022 Reinstein Set – Packet 9

### Tossups

1. This person's wife started the largest non-profit children's literacy organization in the United States, Reading Is Fundamental. In the preface to this person's memoir *In Retrospect*, he wrote "Yet we were wrong, terribly wrong." Before being a cabinet member, this person was the president of Ford Motors, and afterward, he was the president of the World Bank. As a cabinet member, this person developed the policy of mutual assured destruction by developing a second-strike capability in the case of nuclear warfare. Name this U.S. Secretary of Defense during the Vietnam War during the presidencies of John F. Kennedy and Lyndon B. Johnson.

Answer: Robert (Strange) **McNamara**

2. Because this ion is made of both of the elements used to harden iron or steel, it is used for case-hardening. Though carbon monoxide is typically the biggest problem when inhaling smoke fumes, this ion is a major problem if the smoke is from burning nylon or wool. This ion inhibits **cytochrome c oxidase** ["SIGH-toe-chrome C OX-id-ace"], which means that this ion prevents the production of ATP. The simplest acid with this ion is made by the **Andrussov** [AN-droo-soh] process, which uses methane, ammonia, and oxygen. This ion has the same chemical formula as the **nitrile** [NY-"trial"] group. Name this poisonous ion that contains one atom each of carbon and nitrogen.

Answer: **cyanide** [accept **cyano**; before "carbon", accept **CN<sup>-</sup>** ["**C N minus**"] or **CN<sup>1-</sup>** ["**C N one minus**"] or **CN<sup>-1</sup>** ["**C N minus one**"]; prompt on **CN**]

3. In one novel by this author, the narrator is surprised to get a call from Elliott Templeton when in Chicago. This author began that novel with the line "I have never begun a novel with more misgiving." That novel is about World War I pilot Larry Darrell. This author's best-known protagonist, like this author himself, was an orphan who became a doctor. That protagonist eventually marries Sally Athelny and takes a job in **Dorsetshire** [DOR-set-shur]. In the same book, this author wrote about the suicide of Fanny Price. Name this author of *The Razor's Edge* whose character Philip Carey is born with a club foot in *Of Human Bondage*.

Answer: W(illiam) Somerset **Maugham** [mawm]

4. The early history of this group of people is described in the *Sharafnama* [shuh-ruf-NAH-muh]. In 1946, these people controlled the Republic of Mahabad [muh-HAH-bahd]. A group using guerrilla tactics to fight for the independence of this group was started in 1978 by Abdullah Öcalan [OH-juh-lahn], who has been a prisoner since 1999. Recent efforts to gain independence for these people have been near the city of Kirkuk [keer-KOOK]. In 1988, the Halabja [huh-LAHB-juh] Massacre of these people took place using mustard gas in Iraq. Name this ethnic group that lives in a region that includes parts of Iraq, Iran, Syria, and Turkey.

Answer: **Kurds** or the **Kurdish** people [accept **Kurdistan**]

5. Early examples of this technology, such as Audrey by Bell Laboratories and Shoebox by IBM, were developed in the mid-20th century. According to recent rumors, Facebook's attempts at this technology are codenamed Aloha. One of the products whose primary feature is this technology is the Nuance Ten, which also uses artificial intelligence, neural networks, and deep learning. This technology is often paired with natural-language understanding. Amazon's Alexa and Apple's Siri rely on this technology. Name this key aspect of hands-free computing that allows users to talk to devices.

Answer: (automatic) **speech recognition** or (computer) **speech recognition** or **speech to text** or **voice transcription** or **STT** or **ASR** [prompt on **voice recognition**]

6. This economist was the subject of a 2016 book by Alison Bashford and Joyce Chaplin that explains how he moved towards an analysis of the impact of the New World and away from a critique of utopianism. This economist was critical of Say's Law and David Ricardo in his book *Principles of Political Economy*. This economist's 1798 work *An Essay on the Principle of Population* made pessimistic projections. Name this English economist whose so-called "trap" is based on the idea that standards of living cannot rise because increases in goods cause increases in population.

Answer: Thomas (Robert) **Malthus**

7. A character in this novel claims that you can remember who discovered America by thinking about cucumbers. That character and her sister are praised by the teacher Miss Beasley. The protagonist of this novel gives birth to Olivia and Adam when she is very young, and her children are sold to Corrine and Reverend Samuel. Later in this novel, the protagonist finds letters that had been written over several decades by her sister Nettie. This novel consists of letters written to God by a woman who is treated horribly by her father and husband. Name this novel about **Celie** [SEE-lee] by Alice Walker.

Answer: *The **Color Purple***

8. Proteins whose names indicate that they are similar to this one have a repeating amino acid pattern of **glycine** [GLIE-seen] followed by two different amino acids. To be stable, this protein requires **hydroxy-proline** [“hide-ROCKS”-ee-PROH-leen] and **proline** [PROH-leen], which are added to this protein in the presence of vitamin C. Defects in this protein cause Alport syndrome and Ehlers-Danlos syndrome. This protein is the most abundant protein in humans. Combining this **sclero-protein** [SKLAIR-oh-“protein”] with boiling water creates gelatin. This protein has a triple-helix structure. Name this protein that is a central component of ligaments and cartilage.

Answer: **collagen**

9. This composer’s friendship with the performer Jules-Bernard **Laserre** [lah-ser] led to a few of his pieces being written for cello, including a four-minute piece that is often performed for encores, the *Allegro appassionato*. In another piece by this composer, the violinist sometimes tunes the E string to E-flat to make it easier to play a **tritone** [“TRY-tone”]. This composer started that piece with the harp playing the same note 12 times, and he made heavy use of xylophones to portray skeletons. Name this French composer who used Halloween as the setting for his *Danse macabre*.

Answer: (Charles-)Camille **Saint-Saëns** [san sawn]

10. A point named for this concept can also be called a cluster point or accumulation point and is used in one topological definition of closedness. A metric space is called complete if, for every **Cauchy** [koh-shee] sequence in the space, this concept exists and is in the space. The squeeze theorem helps prove this concept by comparing one function to two other functions. A function is continuous where this concept exists and equals the function’s output, and like continuity, this concept is commonly defined using the symbols “delta” and “epsilon”. Name this concept in which a function approaches—but might not reach—a value.

Answer: **limit**(s) [accept **limit** points]

11. A probe that studied this region from 2012 to 2019 found a surprisingly high number of electro-static double-layer plasma waves and determined that in addition to this region's two primary subregions, there are transient subregions. This region was discovered using data from Explorer I [1], which was the first U.S. satellite. This region has an inner and an outer part, each of which contains particles traveling between the Earth's poles. In the inner part of this region, the particles are mostly protons, while the outer part is more varied. This region is part of Earth's **magneto-sphere** [mag-NEE-toh-"sphere"]. Name this region of charged particles that is named after its discoverer.

Answer: **Van Allen** (radiation) belts [prompt on **magnetosphere** before it is mentioned]

12. In one novel by this author, Father Vaughan is described as a privileged person of a good family. This author later reveals that the priest is Sir Frederick in disguise, which means he is the father of Diana Vernon, who was tutored by Frank **Osbaldistone** [ahz-BAHL-duh-"stone"]. In another novel by this author, the title character is healed by a Jewish woman named Rebecca, who is the daughter of Isaac of York. At the end of that novel, Rebecca leaves England, and the title character marries Rowena. Name this early-19th-century author of *Rob Roy* and *Ivanhoe*.

Answer: Sir Walter **Scott**(, 1st Baronet)

13. Three months before this battle, a prisoner exchange freed John Sullivan, who during this battle prevented escapes by controlling a bridge over the **Assunpink** [ASS-un-"pink"] Creek. One side in this battle was led by **Johann** [YOH-hahn] Rall, who died the next day from his wounds. This battle changed the momentum of the war, reversing the results of the Battles of Fort Lee and Fort Washington a month earlier. This battle took place the day after Christmas. George Washington crossed the Delaware to get to this battle. Name this battle where forces under Washington defeated Hessians in New Jersey.

Answer: Battle of **Trenton**

14. One sculpture by this artist was originally on display at the **Salon des Indépendants** [sal-awn dez an-deh-pen-dawnt] in Paris, but it was removed because some viewers found it obscene. This artist complained that the sculpture was an abstract depiction of Princess Marie Bonaparte. This sculptor of *Princess X* made a series of abstract sculptures that the United States insisted should be taxed because they did not qualify as art. In those sculptures, this artist depicted the flight of an animal while giving minimal attention to the animal itself. Name this Romanian sculptor who created *Bird in Space*.

Answer: **Constantin Brâncuși** [kohn-stahn-TEEN brin-KOOSH]

15. This woman and her husband were turned into lions after profaning one of the gods. The sons of **Thestios** [THESS-tee-ohss], who were named **Toxeus** [TAHK-see-us] and **Plexippus** [PLEK-sih-puss], were killed after they took a prize from this woman, but **Althaea** [al-THEE-uh] then killed the man who killed them by burning a log. This woman killed **Hylaeus** [“hi”-LAY-us] and **Rhoecus** [ROY-kuss] when those two centaurs tried to attack her. Before **Meleager** [mel-ee-AY-gur] killed the **Calydonian** [kal-uh-DOH-nee-un] Boar, this woman injured it. As an infant, this woman was suckled by a bear. Name this woman who promised to marry any man who could beat her in a race, and who lost a race because she was distracted by three golden apples.

Answer: **Atalanta**

16. Some organisms in this phylum are eaten by **nudibranchs** [NOO-dih-branks], who then are protected by maturing structures from this phylum. Some organisms in this phylum have skeleton-like structures made primarily from water, called **mesoglea** [meh-zoh-GLEE-uh]. The moving animals in this phylum are classified as medusas, while the stationary examples are **polyps** [PAH-lips]. This phylum is named for cells that are capable of delivering a toxin by stinging other organisms. Some animals from this phylum are responsible for the creation of coral reefs. Name this animal phylum that includes sea **anemones** [uh-NEH-muh-nees] and jellyfish.

Answer: **Cnidarians** [ny-DAIR-ee-unz] [accept coelenterates or coelenterata]

17. A character in this novel kisses **Fenechka** [feh-NECH-kuh], leading to a duel and the same character leaving Marino. This novel begins with Nikolai and his servant Peter waiting for Nikolai’s son. Two of the main characters in this novel were recently students at St. Petersburg University. Characters in this novel debate whether a certain point of view consists of either thinking critically or not respecting anything. In this novel, **Arkady** [ar-KAH-dee] states that **Bazarov** [bah-ZAHR-awff] is a **nihilist** [NY-uh-list]. Name this Russian novel written by Ivan **Turgenev** [tur-“GAIN”-yeff].

Answer: **Fathers and Sons** [or Otsy i Deti]

18. In a 1920 speech, Albert Einstein replaced the adjective that usually goes in front of this word with the adjective “gravitational”. In order to study this substance, **Georges Sagnac** [zhorz h sanh-yahk] demonstrated the Sagnac effect. Lorentz transformations were originally put forth to describe properties of this material, though ironically they are now used to support an alternative theory, special relativity. This substance was *not* found in the **Michelson** [“Michael-sun”]–Morley experiment, which found that light traveled at the same speed in all directions. Name this medium that supposedly propagated light.

Answer: luminiferous **ether** [or **æther**]

19. This leader was blamed for the attempted assassination of Bernardo **Leighton** [LAY-tun] in Rome. This leader was replaced by **Patricio Aylwin** [puh-TREE-see-oh EL-ween] in 1990. In 1998, this person was indicted by a judge in Spain and then was arrested in London. When he died in 2006, this person was on trial for the abduction and murder of over 100 dissidents during Operation Colombo. This leader made free-market economic reforms based on advice from a team dubbed the “Chicago Boys”. This leader came to power in a 1973 coup backed by the United States that removed Salvador **Allende** [“eye”-EN-day]. Name this leader of Chile.

Answer: Augusto **Pinochet** [pee-noh-shay] (Ugarte)

20. In a novel by this author, the narrator opens a window to let in the protagonist from a fire escape. This author then has the protagonist say “If there’s one thing that I loathe, it’s men who bite”, and she asks the narrator if she can call him Fred. In that novel, this author wrote about a relationship between Mag Wildwood and **José Ybarra-Jaegar** [hoh-ZAY ee-BAR-ah YAY-gar]. A book by this writer is set in Holcomb, Kansas, and ended up being largely about Richard Hickock and Perry Smith. Name this author who wrote about the murder of the Clutter family in *In Cold Blood* and about Holly Golightly in *Breakfast at Tiffany’s*.

Answer: Truman (Garcia) **Capote** [or Truman Streckfus **Persons**]

21. The fractal named for Helge von Koch [hell-guh vohn “coke”] is built by starting with this shape and repeatedly adding these shapes to the middle of the sides. The Sierpiński [sir-PIN-skee] sieve is a fractal built by starting with this shape and repeatedly removing these shapes from the middle. The area of this shape can be found by multiplying  $1/2$  times the magnitude of a cross product if two of its sides are treated as vectors. The “ambiguous case” is a situation in which there are two possible versions of this shape. Methods to prove that two of these shapes are congruent to each other include “side-side-side” and “side-angle-side”. Name this shape with three sides.

Answer: **triangle** [before “ambiguous case”, accept equilateral **triangles** or equiangular **triangles** or regular **triangles**]

## 2022 Reinstein Set – Packet 9

### Bonuses

1. In this novel, several dogs are shot during an attack on Lucy's farm.

A. Name this novel about Lucy's father David Lurie, who used to be a professor of Romantic poetry.

Answer: *Disgrace*

B. When Cape Technical University shut down its Classics and Modern Languages Department, Lurie often taught classes in this subject.

Answer: **communications** or **communication** skills

C. This South African author wrote *Disgrace* as well as *Life & Times of Michael K*.

Answer: J(ohn) M(axwell) **Coetzee** [**kuut-SEE-uh**]

2. This is the most widely practiced denomination of Islam.

A. Name this denomination that broke with Shi'a Islam over who should succeed Muhammad.

Answer: **Sunni** Islam [or **Sunnism**]

B. This movement within Sunni Islam is named after an 18th-century religious leader and has close ties to the Saudi royal family.

Answer: **Wahhabism**

C. Muhammad ibn Abdal Wahab wrote a book named for this Arabic term, which means the oneness of God.

Answer: **tawhid**

3. This act criminalized making false statements critical of the federal government.

A. Name this act signed by President John Adams the same year he signed the Alien Friends Act, Alien Enemy Act, and Naturalization Act.

Answer: **Sedition** Act

B. Thomas Jefferson and James Madison wrote these responses stating that the Alien and Sedition Acts were illegal. These responses are named for the states that passed them.

Answer: **Kentucky** and **Virginia** Resolutions [either order; prompt on **Kentucky** or **Virginia** alone]

C. The harshest sentence under the Sedition Act was given to David Brown by this Supreme Court associate justice who was later impeached by the House but acquitted by the Senate.

Answer: Samuel **Chase**

4. The S.I. unit of capacitance is a shortened version of this person's name.

A. Name this scientist whose law of induction states that electromotive force equals the opposite of the derivative of magnetic flux with respect to time.

Answer: Michael **Faraday** [accept **Faraday's** law; prompt on **farad**]

B. The negative sign in Faraday's law—indicating that the inductive force opposes the voltage—is credited to this person and is sometimes treated as a separate law named for him.

Answer: Emil **Lenz** [**lents**] [accept **Lenz's** law]

C. The Maxwell–Faraday equation says that the opposite of the derivative of magnetic field with respect to time equals this calculus operation applied to the electric field.

Answer: **curl**

5. This play ends with the lines “Give me your hands, if we be friends, and Robin shall restore amends.”

A. Name this play by William Shakespeare in which Puck speaks after a group wedding that includes Theseus and **Hippolyta** [**hih-PAH-lih-tuh**].

Answer: *A **Midsummer Night's Dream***

B. This character is the king of the fairies in *A Midsummer Night's Dream*.

Answer: **Oberon** [**OH-bur-ahn**]

C. Finish the line spoken by Puck that begins “Lord, what fools...”

Answer: “Lord, what fools **these mortals be!**”

6. Any three points determine a plane, unless the points have this property.

A. Name this property that exists for points in a plane if the slopes between any pair of them are equal.

Answer: **co-linearity** or being **co-linear** [prompt on answers referring to lying on a **line**]

B. A theorem named for this person states that extensions of opposite sides of a hexagon meet at collinear points if the hexagon vertices are on a conic section.

Answer: Blaise **Pascal** [accept **Pascal's** theorem]

C. Find the  $y$ -coordinate of a point if its  $x$ -coordinate is 10 and the point is collinear with the point “zero comma 5” and the point “2 comma 9”.

Answer: **25** [accept **(10, 25)**]

7. This phenomenon occurs below the Curie temperature.

A. Name this type of magnetism that occurs in iron, cobalt, and nickel.

Answer: **ferromagnetism**

B. Ferromagnets exhibit this dependence on prior conditions rather than only present conditions, exemplified by the fact that a ferromagnet remains magnetic after an external magnetic field is removed.

Answer: **hysteresis**

C. This element has a Curie temperature of 19 kelvins, but it is combined with iron and boron to make a strong permanent magnet that is often used to produce sounds and vibrations in cell phones.

Answer: **neodymium** [**nee-oh-“DIE”-mee-um**] [accept **Nd**]

8. In this novel, George Hurstwood steals money from Fitzgerald and Moy's in Chicago; then he moves to New York City and changes his name to “George Wheeler”.

A. Name this novel in which the title character performs in the play *Under the Gaslight*.

Answer: ***Sister Carrie***

B. *Sister Carrie* was written by this naturalist author of *An American Tragedy*.

Answer: Theodore (Herman Albert) **Dreiser** [**“DRY”-zur**]

C. Theodore Dreiser tried to get this other naturalist author to write a review of *Sister Carrie*, but this author did not do so because he disliked the book. Dreiser wrote an article about this author of *The Rise of Silas Lapham*.

Answer: William Dean **Howells**

9. The atomic bomb dropped on Hiroshima used uranium, but the bomb dropped on Nagasaki used this element.

A. Identify this element named after an object that was considered to be a planet at the time.

Answer: **plutonium** [accept **Pu**]

B. This person and Edwin McMillan shared a Nobel Prize for discovering plutonium and other **transuranic** [**“trans”-yur-AN-ik**] elements.

Answer: Glenn T(heodore) **Seaborg**

C. Plutonium is often used in these reactors that create **fissile** [**FISS-“isle”**] material faster than they use it.

Answer: **breeder** reactors

10. This poem states “But at my back I always hear time’s winged chariot hurrying near.”

A. Name this poem that begins “Had we but world enough and time.”

Answer: “To His Coy Mistress”

B. This English poet wrote “To His Coy Mistress” and “Flecknoe”.

Answer: Andrew Marvell

C. The poem “To His Coy Mistress” states that this location is “a fine and private place”. The poem adds “But none, I think, do there embrace.” Use the same term that the poem uses.

Answer: the grave

11. For this type of probability, a vertical bar is written between two events.

A. Name this measure of the probability of one event given that another event has occurred.

Answer: conditional probability [or conditioned probability]

B. This theorem states that the probability of  $A$  given  $B$  equals the probability of  $B$  given  $A$ , times the probability of  $A$ , divided by the probability of  $B$ .

Answer: Bayes’ theorem

C. If two standard dice are rolled and the first die is a 5, what is the probability that the sum of the dice is 10?

Answer: 1/6 [or 1 in 6; accept 0.16 repeating with any reasonable number of 6’s stated]

12. This painter’s fresco *The Last Judgment* covers the altar wall of the Sistine [SISS-teen] Chapel.

A. Name this artist who also painted the Sistine Chapel’s ceiling.

Answer: Michelangelo (di Lodovico) Buonarroti (Simoni) [accept either underlined name]

B. This panel on the Sistine Chapel ceiling shows God almost touching a man’s hand.

Answer: *The Creation of Adam* [or *Creazione di Adamo*]

C. The Vatican also contains this 18th- and 19th-century sculptor’s *Monument to the Royal Stuarts* and his *Perseus Triumphant*.

Answer: Antonio Canova

**13.** This person has the fourth-most time served in the U.S. Cabinet, which she belonged to from 1933 to 1945.

A. Name the first female cabinet member.

Answer: Frances **Perkins** [or Fannie Coralie **Perkins**]

B. Frances Perkins held this position, which recently has been held by Eugene **Scalia** [skuh-LEE-uh] and Marty Walsh.

Answer: Secretary of **Labor**

C. After the National Industrial Recovery Act was declared unconstitutional, Perkins oversaw the implementation of this 1938 law that established a federal minimum wage.

Answer: **Fair Labor Standards** Act of 1938 or **FLSA**

**14.** Tay-Sachs and Gaucher disease are caused by problems with this organelle.

A. Name this organelle that contains enzymes.

Answer: **lysosome(s)** [**LIE**”-soh-sohm]

B. This other organelle is similar to a lysosome but has more **catalase** [“CAT-uh-lace”] to break down a specific chemical.

Answer: **peroxisome(s)** [puh-“**ROCK**”-sih-sohmz]

C. The **lysosomal** [“lice”-oh-SOH-mull] disease **mannosidosis** [muh-NOH-sih-DOH-siss] leads to a build-up of this type of sugar that is made of a few **saccharides** [“SACK-uh-rides”]—more than two, but not many more.

Answer: **oligosaccharides** [**OH-lih-goh**-“sack-uh-rides”]

**15.** This name for the **Qing** [cheeng] dynasty came from the clan that started it.

A. Give this name that is the shortened name of a region of China and also the name of a haircut that the Qing dynasty required.

Answer: **Manchu**

B. The Qing dynasty survived this enormous rebellion that was started in 1850 by a person who claimed to be the younger brother of Jesus.

Answer: **Taiping** (Heavenly Kingdom) Rebellion

C. The Qing dynasty ended in 1912, though their last emperor—Puyi—became the puppet ruler of **Manchukuo** [man-choo-kwoh] after this 1931 incident in which a bomb went off near a railway controlled by Japan.

Answer: **Mukden** incident

16. James Gleick [rhymes with “bike”] wrote a book about the development of this branch of mathematics.

A. Name this study of dynamical systems that are very sensitive to initial conditions.

Answer: **chaos** theory

B. Chaos theory is often explained using this “effect” in which an insect flaps its wings, eventually leading to a tornado.

Answer: **butterfly** effect

C. Chaos theory and the butterfly effect are based on the work of this mathematician and meteorologist, whose namesake system has a solution called his namesake “attractor”.

Answer: Edward (Norton) **Lorenz**

17. The First Transcontinental Railroad was completed near the town of Promontory in this state.

A. Name this U.S. state that contains Great Salt Lake.

Answer: **Utah**

B. This national park in Utah is near Moab and is named for the shape of its rock formations.

Answer: **Arches** National Park

C. This mountain range, in the north part of Utah, is part of the Rockies and includes Mount **Nebo** [NEE-boh] and the **Timpanogos** [tim-uh-NOE-gus] Cave National Monument.

Answer: **Wasatch** Range or **Wasatch** Mountains

18. The Houses of Lancaster and York were both branches of this royal house, which came from the house of **Anjou** [AN-joo].

A. Name this royal house that ruled England from 1154 to 1485.

Answer: House of **Plantagenet** [plan-TAJ-ih-nut] or **Plantagenet** dynasty or **Plantagenets**

B. The last Plantagenet monarch is generally considered to be this member of the House of York who died at the Battle of Bosworth Field.

Answer: **Richard III** [prompt on **Richard**]

C. The House of Lancaster descended from this son of Edward III and father of Henry IV.

Answer: **John of Gaunt** [prompt on **John**]

19. Glenn Miller mainly played this instrument.

A. Name this brass instrument with a slide.

Answer: (slide) **trombone**

B. This other trombonist often teamed up with Kai **Winding** [WIN-deeng]. Their pairing was called “Jay and Kai”.

Answer: (James Louis) “J.J.” **Johnson**

C. Glenn Miller often performed this song whose lyrics begin “I stand at your gate” and end “We can stay, till break of day.”

Answer: “**Moonlight Serenade**”

20. This diagram is a plot of luminosity versus temperature.

A. Name this diagram used to classify stars.

Answer: **Hertzsprung–Russell** diagram [accept **H–R** diagram]

B. This two-word phrase can be used to label the  $y$ -axis of the Hertzsprung-Russell diagram rather than luminosity.

Answer: **absolute magnitudes**

C. Another famous diagram in astronomy is Edwin Hubble’s galaxy sequence, which is nicknamed after this object due to its shape.

Answer: **tuning fork** [accept **tuning-fork** diagram; prompt on **fork**]