

## 2023 Reinstein Set – Packet 9

### Tossups

1. The speed named for this scientist equals the speed of an electron that contributes to the electrical conductivity of a metal. The energy named for this person is the range of energy levels in a set of particles at absolute zero. This person and Paul Dirac [dih-RAK] are the namesakes of the statistics of systems affected by the Pauli exclusion principle, and the particles affected by the Pauli exclusion principle because they do not have integer spins are named after this person. Name this Italian–American physicist who created the first nuclear reactor.

Answer: Enrico **Fermi**

2. In a story by this writer, Dan says to a woman “What’s to be afraid of, lass? Come and kiss me.” When that woman bites Dan and he bleeds, this author describes Billy Fish catching Dan and priests saying “Neither god nor devil but a man!”. In another story by this writer, Taffy’s picture is misinterpreted by her parents, though the story ends happily with a stranger joining the Tribe of Tegumai [TEG-uh-my]. That story, “How the First Letter Was Written”, is in a book by this author that begins with “How the Whale Got His Throat”. This author also wrote a series of stories about the “man-cub” Mowgli. Name this author of “The Man Who Would Be King”, *Just So Stories*, and *The Jungle Book*.

Answer: (Joseph) Rudyard **Kipling**

3. Infections caused by this disease are sometimes treated with Entecavir [en-TEK-uh-veer], which is known as Baraclude [“BEAR”-uh-klood]. The CDC recommends giving the vaccine for this disease to newborns in their first 24 hours. About half of the people who have this disease in the U.S. have Asian heritage. This disease often spreads the same way as AIDS, and people who are HIV-positive are told to screen for this disease. Though this disease often does not lead to serious symptoms, it can cause cirrhosis [sih-ROH-siss] or liver cancer. Name this sexually transmitted inflammation of the liver.

Answer: **hepatitis B**

4. One work attributed to this poet by **Arsenius Apostolius** [ar-SEN-ee-uss ah-poh-STOH-lee-uss] states “The time is passing, but I sleep alone.” Another poem attributed to this writer states “But you’re always chattering that **Kharaxos** [KAH-ruh-kohss] comes, his ship with fully stuffed hold.” That poem by this writer is often called the “Brothers Poem” because it names Kharaxos and **Larichos** [LAH-ree-kohss], and the other poem is called “Midnight Poem”. Another poem by this writer refers to its subject as “subtle of soul and deathless”. That poem has four-line stanzas with a short fourth line. Name this ancient poet of “Ode to **Aphrodite** [af-roh-DY-tee]” who was from the island of Lesbos.

Answer: **Sappho** [SAFF-oh]

5. In this composer’s aria “Sì, ritrovarla io giuro [yoh JOO-roh]”, Don Ramiro vows to find a matching bracelet. In that opera, Angelina sings an aria that had been sung by **Rosina** [roh-ZEE-nah] in an earlier opera by this composer. The last opera completed by this composer has an overture that includes the sections “**Ranz des Vaches** [rahnz day vahsh]” and “March of the Swiss Soldiers”. In another opera by this composer, the main character makes fun of all the requests made of him by singing “Largo al factotum della città [CHEET-tah]”. This composer based that opera on the same set of books as inspired Mozart’s *The Marriage of Figaro*. Name this composer of *La Cenerentola* [cheh-nuh-REN-toh-lah], *William Tell*, and *The Barber of Seville*.

Answer: **Gioachino (Antonio) Rossini** [joh-ah-KEE-noh rohss-SEE-nee]

6. In reaction to England controlling a city in this colony, this American colony declared independence from the king two months before the Declaration of Independence, which was signed by this state’s former governor Stephen Hopkins. This colony is where Abraham Whipple attacked the British HMS *Gaspee* [gas-pay] in 1772. This colony was started by the person who also started the first Baptist church in America, which he did after being banished from another colony for sedition and heresy. Name this small colony started by Roger Williams and others who were banished from Massachusetts Bay Colony, which was north of this colony.

Answer: (Colony of) **Rhode Island** (and Providence Plantations)

7. In this work, Archbishop Turpin convinces the protagonist to take a necessary action after Oliver's arguments are unsuccessful. The second stanza of this work begins "The King Marsile [mahr-seel] abides in Sarraguce [sar-uh-gooss]." The villain in this work is the protagonist's stepfather Ganelon, who is eventually pulled apart by four horses. This work's protagonist bursts his temples and dies while summoning his uncle and leader by blowing his horn. Name this oldest surviving major work of French literature that is set at the Battle of Roncevaux [rons-vo] Pass during the reign of Charlemagne.

Answer: *The **Song of Roland*** [or *La **Chanson de Roland***]

8. One species in this phylum protects itself by releasing holothurin [hah-loh-THUR-in] toxins. Animals in this phylum and Hemichordata [heh-mee-kor-DAH-tuh] are the closest living relatives of Chordata [kor-DAH-tuh]. Some species in this phylum have feather-like arms and are within the crinoid ["CRY"-noyd] class. While that class has holdfast stems, other members of this phylum can burrow, swim, or walk, with the walking sometimes being done by the asteroid class. These animals have a spiny covering and tube feet. These animals exhibit radial symmetry that is often outward in five directions. Name this phylum that includes sea urchins, sand dollars, and starfish.

Answer: **Echinodermata** [eh-KY-noh-durm-AT-uh] or **echinoderms** [eh-KY-noh-durmz]

9. Depictions of this goddess evolved to the point where she was the mother of Harpocrates [har-PAH-kruh-teez] and the wife of Serapis [seh-RAY-pus]. This goddess was sometimes combined with the goddess Sopdet, who represented the star Sirius. Though this goddess usually helped her son, during a conflict he beheaded her, and her head was replaced by a cow's head before they were reconciled. This goddess worked with other immortals to piece together her dismembered husband, which allowed her to become pregnant. There are many images and sculptures of this goddess with her infant son Horus. Name this sister of Nephthys [NEFF-thiss], Seth, and Osiris [oh-"SIGH"-riss] in Egyptian mythology.

Answer: **Isis** ["EYE"-siss]

10. After this group was defeated, the leader of their country was required to express regrets for the death of Clemens von Ketteler and was forced to make payments totaling hundreds of millions of dollars to 14 countries. This group was supported by the Tiger and Divine Corps, which was set up by Prince Duan. This group believed that they could train themselves to be bulletproof. Before this group was defeated by the Eight-Nation Alliance, this group gained the support of Empress Dowager Cixi [see-chee]. Name this group that opposed foreigners in China and led a rebellion from 1899 to 1901.

Answer: **Boxers** [accept **Yihequan** or **Yihetuan** or **Righteous and Harmonious Fists** or **Militia United in Righteousness** or **National Righteousness Group** or **League of Harmony and Justice** or **Plum Blossom Fists**]

11. In one novel, this author describes Lee Sarason as a “satanic secretary”. This author described Sarason and General Dewey Haik taking over the United States in successive coups in a novel in which the journalist Doremus Jessup describes abuses of power. In another novel by this author, Professor Pumphrey and Vergil Gunch tease the title character by pretending he is a millionaire. That teasing takes place shortly after this author’s title character learns that Paul has shot his wife Zilla. Those events take place in the town of Zenith. Name this American author of *It Can’t Happen Here* and *Babbitt*.

Answer: (Harry) Sinclair **Lewis**

12. The fourth part of this Constitutional amendment states “The validity of the public debt of the United States...shall not be questioned.” The *Slaughter-House Cases* weakened this amendment’s Privileges or Immunities Clause. The desegregation of schools under the *Brown v. Board of Education* decision was supported by this amendment’s Equal Protection Clause. This amendment’s Citizenship Clause overruled the *Dred Scott* decision. Name this second of the three Reconstruction Amendments.

Answer: **14**th Amendment

13. The so-called “poisoning” of these substances generally occurs when they are coated with a substance such as sulfur or lead. The Lindlar example of this substance is purposely poisoned to make it less active, while the Ziegler [ZIG-lur]–Natta example becomes poisoned by water and oxygen, making it more difficult to polymerize [puh-LIM-ur-“eyes”] alkenes. These substances often play a role in forming chemical intermediates, and these substances are then regenerated when the intermediate reacts. Proteins that play this role are called enzymes. Name these substances that increase the rate of a reaction without being consumed.

Answer: **catalysts**

14. This person, who was not president, issued General Order Number 38, which made some war criticism illegal and led to the arrest of former congressman Clement Vallandigham. After the Civil War, this person was elected governor of Rhode Island and then U.S. senator. During the Civil War, this person had some troops removed from his command before the Battle of Antietam [an-TEE-tum], though a bridge where fighting took place is now named for him. After the battle, this person was given command of the Army of the Potomac when George McClellan was removed from command, but this person was unsuccessful at Fredericksburg. Name this major general with famous facial hair.

Answer: Ambrose **Burnside**

15. This type of number is outputted by “ $n$  squared plus  $n$  plus 41” for the first 39 positive integers, but not for  $n$  equals 40. That quadratic is used to explain the appearance of the Ulam spiral, which is a graphical depiction of these numbers. “Twin” examples of these numbers have a difference of 2. The fundamental theorem of arithmetic states that every integer greater than 1 can be written uniquely as a product of these numbers. Name these numbers whose only positive factors are 1 and themselves, making them not composite.

Answer: **prime** numbers or **primes**

16. There is no evidence showing how this person got from Spain to England after he was captured and then sold by Thomas Hunt. This person then returned home while working with Thomas Dermer. This person grew up among Pawtuxet people, but he lived with **Wampanoag** [wahm-puh-NOH-ag] people after disease wiped out the people he grew up with. This person befriended **Samoset** [SAM-oh-set]. This person helped **Massasoit** [mass-uh-SOH-it] communicate with Edward Winslow, who worked with William Bradford, who was the governor of Plymouth Colony. Name this Native American who helped the Pilgrims who came on the *Mayflower*.

Answer: **Squanto** [or **Tisquantum**]

17. The way that a singularity within this phenomenon disappears led David Mermin to spend years popularizing the use of the word “boojum”. The Hess–Fairbank effect of this phenomenon describes the way it ignores a spinning bucket. This phenomenon exhibits film creep, which is sometimes named for Bernard Rollin, and it also exhibits extremely high conductivity. That creep allows materials to flow over obstacles when exhibiting this phenomenon. The most common example of this phenomenon is in extremely cold helium. Name this phenomenon in which flow does not cause a loss of kinetic energy because there is no viscosity.

Answer: **superfluidity**

18. Several works by this artist have some variation of the word “Aopkhes” [AY-ahp-kus] written on them, which is a word without a known meaning. Two such works are this artist’s *Cabeza* [kuh-BAY-zuh] and *Versus Medici*. Another work by this artist has words crossed out because he claimed that doing so made people want to read those words. One such work, which this artist made in Los Angeles to bring attention to certain film roles, is *Hollywood Africans*. Several works by this artist show heads or skulls. This artist and Al Diaz were known as “SAMO” [SAY-moh] when they worked in New York City during the 1970s and ’80s. Name this American graffiti artist.

Answer: **Jean-Michel Basquiat** [zhahn mee-shell bah-skee-ah]

19. Some fans were disappointed because this movie did not include an Elena Fisher character. Possibly inspired by an Indiana Jones quote, one of the characters in this movie asks Chloe “Why does it always have to be nuns?”. One of the characters in this movie is in Barcelona when he says “I’m literally in a Papa John’s right now.” The villains in this movie are played by Tati Gabrielle [TAH-tee GAH-bree-el] and Antonio Banderas. This movie is about an attempt by Nathan Drake and Sully to find Ferdinand Magellan’s treasure. Name this 2022 movie starring Tom Holland and Mark Wahlberg that is based on a Naughty Dog video game franchise.

Answer: *Uncharted*

20. When this leader was not supported by the church, he had Bishop José Santiago Rodríguez Zorrilla [zoh-REE-yah] deported. This person’s resignation as Supreme Director is considered the end of his country’s Patria Nueva period. Before that period, this person led rebel forces that were badly defeated by Spanish forces led by Mariano Osorio at the Disaster of Rancagua [rahn-KAH-gwah]. This person was more successful when he fought with José de San Martín, forming the Army of the Andes and winning the Battle of Chacabuco [chah-kah-BOO-koh]. Name this leader who fought for Chilean independence and had some Irish ancestry.

Answer: Bernardo *O’Higgins* (Riquelme)

21. This polyhedron has 11 nets, one of which looks like a capital T and another of which looks like a Christian cross. Extending this solid by one dimension creates a tesseract. This solid is the dual of an octahedron, which means the number of faces of this solid equals the number of vertices of an octahedron and vice versa. This solid is a regular hexahedron [“hex”-uh-HEE-drun], and it is the Platonic solid with 12 edges, 8 vertices, and 6 faces. The surface area of this solid is 6 times a side length squared. Name this solid whose faces are all squares.

Answer: *cube*(s)

## 2023 Reinstein Set – Packet 9

### Bonuses

1. This character’s favorite steed, Daredevil, was “a creature, like himself, full of mettle and mischief”.

A. Identify this character whose real name is Abraham Van Brunt.

Answer: **Brom Bones** [accept either]

B. Brom Bones might be the Headless Horseman in this story.

Answer: “The **Legend of Sleepy Hollow**”

C. This author wrote “The Legend of Sleepy Hollow” and “Rip Van Winkle”. He sometimes used the pen name “Geoffrey Crayon”.

Answer: Washington **Irving**

2. This value equals half of the difference between the maximum and minimum values of a periodic function such as sine or cosine.

A. Name this quantity equivalent to a vertical stretch of a base function.

Answer: **amplitude**

B. This word is often placed before the word “shift” to describe the horizontal shift of a trigonometric function.

Answer: **phase** shift

C. Find the minimum value of the function “ $y$  equals 6 plus 9 times the sine of  $x$ ”.

Answer: **-3** [do not prompt on “3”]

3. This epic begins “Arms, and the man I sing.”

A. Name this Latin epic poem, significant parts of which consists of a hero describing his adventures to **Dido** [DIE-doe].

Answer: (The) **Aeneid** [uh-NEE-id]

B. This poet wrote the *Aeneid*, the *Eclogues*, and the *Georgics*.

Answer: **Virgil** [or Publius **Vergilius** Maro]

C. One of the best known English translations of *The Aeneid* is by this 17th-century poet who wrote *The Hind and the Panther*.

Answer: John **Dryden**



4. Though definitions vary, these elements basically make up the *d*-block of the periodic table. They are generally less reactive than other metals.

A. Name these elements that include chromium and titanium.

Answer: **transition** metals [accept **transition** elements]

B. This transition metal is the densest element, though it is only slightly denser than **iridium** [ih-RID-ee-um].

Answer: **osmium** [accept **Os**]

C. Instead of being classified as transition metals, scandium, **yttrium** [YIT-ree-um], and **lutetium** [loo-TEE-shee-um] are often grouped with the lanthanides to form this set of elements that for the most part are very similar to each other.

Answer: **rare-earth** elements [accept **rare-earth** metals or **rare-earth** oxides]

5. This intellectual period in Europe is also sometimes called the Age of Reason.

A. Name this intellectual period that supported scientific progress and secular philosophy.

Answer: Age of **Enlightenment**

B. Enlightenment thinkers often praised this English writer of *Novum Organum* and *The New Atlantis* for his contributions to the scientific method.

Answer: Francis **Bacon**

C. This French philosopher is sometimes called the “last witness” of the Age of Enlightenment. He wrote *Sketch for a Historical Picture of the Progress of the Human Mind* in addition to a book on majority decisions.

Answer: (Marie Jean Antoine Nicolas de **Caritat**), Marquis of **Condorcet** [kawn-dor-say] [accept either underlined name; accept Marquis de **Condorcet**]

6. This sequence is an example of a **Lucas** [loo-kah] sequence.

A. Name this sequence that begins 1, 1, 2, 3, 5, 8, 13, and so on.

Answer: **Fibonacci** [fee-buh-NAH-chee] sequence [accept **Fibonacci** numbers]

B. If this arrangement of numbers is left-justified, then its lower-left to upper-right diagonals add up to Fibonacci numbers. The entries in this arrangement of numbers are the number of combinations of  $n$  items taken  $r$  at a time.

Answer: **Pascal's triangle** [accept **Yanghui triangle**]

C. What is the Fibonacci number between 34 and 89?

Answer: **55**

7. The Christian practice of Communion is based on the story of the Last Supper.

A. At the Last Supper, Jesus predicted that one of the apostles would betray him. Which apostle, who is accused by name in two of the Gospels, was he talking about?

Answer: **Judas Iscariot** [accept either]

B. Also at the Last Supper, Jesus predicts that Peter will deny him three times before what happens?

Answer: a **rooster crows** (twice) [accept **cock** in place of **rooster**; accept verb forms of **crow**]

C. In the Book of John, which apostle asks Jesus to show them the Father? In the Book of Acts, an evangelist with the same name as this apostle baptizes an Ethiopian **eunuch** [YOO-nuk].

Answer: **Philip**

8. The protagonist of this novel orders his sister Dunya to not marry **Luzhin** [LOO-zhin], and she eventually decides she should not.

A. Name this novel about **Raskolnikov** [rass-KAWL-nih-kawff], who kills two women.

Answer: ***Crime and Punishment*** [or ***Prestupleniye i nakazaniye***]

B. This author wrote *Crime and Punishment* and *The Brothers Karamazov*.

Answer: **Fyodor (Mikhailovich) Dostoevsky** [F'YOH-dur dah-stuh-YEFF-skee]

C. In *Crime and Punishment*, what job is held by **Nikodim Fomich** [NEE-kuh-deem FOH-mich]? He sometimes has to calm his colleague Ilya Petrovich.

Answer: chief of **police** [accept superintendent of **police** or **police** officer or **law enforcement**]

9. This quantity equals the derivative of velocity with respect to time.

A. Name this quantity that, according to Newton's second law, equals net force divided by mass when mass is constant.

Answer: **acceleration**

B. This 14-letter word describes the feeling experienced by a person when their acceleration matches the strength of the gravitational field they are in, because nothing is holding them up.

Answer: **weightlessness**

C. This adjective describes acceleration in the direction of motion, as opposed to normal or centripetal acceleration, which is perpendicular to the direction of motion.

Answer: **tangential** acceleration

10. A 12-pointed star was placed on top of this building's Virgin Mary tower in late 2021.

A. Name this building located about three miles southeast of **Parc Güell** [park gway].

Answer: (Basílica i Temple Expiatori de la) **Sagrada Família**

B. This architect took over the design of the building in 1883 when Francisco de Paula del Villar quit.

Answer: Antoni **Gaudí** (i Cornet)

C. Gaudí also designed the Casa **Batló** [baht-YOH] in Barcelona, which is often called by this nickname.

Answer: House of **Bones** [accept Casa dels **Ossos** or House of the **Dragon** or Casa del **Drac**]

11. Answer the following about anti-draft protests in the U.S.:

A. This city was the site of a massive riot in 1863 that turned into a race riot, including the looting of the Colored Orphan Asylum on Fifth Avenue near 42nd Street.

Answer: **New York** City, New York [accept **NYC**]

B. This woman and Alexander Berkman were sentenced to prison in 1917 for organizing the No Conscription League. She was later deported to her home country, Russia.

Answer: Emma **Goldman**

C. In 1966, this person burned his draft card. Despite the First Amendment, the Supreme Court upheld this person's conviction in 1968.

Answer: David Paul **O'Brien**

12. This novel is narrated in part by Dr. David Livesey, who works with Squire John Trelawney and Captain Alexander Smollett.

A. Name this novel that is mostly narrated by Jim Hawkins, who meets Billy Bones.

Answer: **Treasure Island**

B. This author wrote *Treasure Island* and *Strange Case of Dr. Jekyll and Mr. Hyde*.

Answer: Robert Louis **Stevenson**

C. This pirate kills O'Brien but is later killed by Jim Hawkins.

Answer: **Israel Hands** [accept either]

13. The derivative of a function gives this property for a tangent line to the graph of the function.

A. Name this value often described as “rise over run”.

Answer: slope

B. This value is positive when the slope of a least-squares regression line is positive, and it is negative when the slope of a least-squares regression line is negative. The Pearson product-moment version of this value is often represented by a lowercase  $r$ .

Answer: correlation coefficient [prompt on partial answer]

C. Find the average slope of the graph of “ $y$  equals  $x$  squared” between  $x$  equals 1 and  $x$  equals 4.

Answer: 5

14. In this novel, King Henry VIII [8] tries to have the Duke of Norfolk executed, but he cannot do so because he cannot find the Great Seal of England.

A. Name this novel about Henry’s son Edward Tudor and Tom Canty.

Answer: *The Prince and the Pauper*

B. *The Prince and the Pauper* was written by this author of *The Adventures of Tom Sawyer*.

Answer: Mark Twain [or Samuel (Langhorne) Clemens]

C. Twain also wrote about switched identities in this novel in which Tom Driscoll and Chambers are switched in their cribs. The title character of this novel collects fingerprints.

Answer: *Pudd’nhead Wilson*

15. These molecules are classified as homonuclear [HOH-moh-NOO-klee-ur] or heteronuclear.

A. Give this term for molecules that consist of two atoms. Many elemental gases, but not noble gases, commonly occur as this type of molecule.

Answer: diatomic [“die-atomic”] molecules

B. This halogen is a liquid at room temperature, but with a little bit of heat, it becomes a diatomic gas.

Answer: bromine [accept Br]

C. This element, similar to tungsten, sometimes forms diatomic molecules with sextuple bonds. This element is used to harden steel and is a catalyst in nitrogen fixation.

Answer: molybdenum [prompt on Mo]

16. United Nations Sustainable Development Goal 1 is to not have this condition.

A. Name this state of being extremely poor so that somebody cannot satisfy their basic needs.

Answer: **poverty** [accept **impoverishment** or being **impoverished**]

B. This concept with a three-word name has been promoted as a possible end to poverty. Under this policy, everybody is given a regular amount of money.

Answer: **universal basic income** [accept **UBI**]

C. This person won the Nobel Peace Prize in 2006 for starting **Grameen** [**GRA-meen**] Bank in Bangladesh, which provides financial credit to help people escape poverty.

Answer: Muhammad **Yunus**

17. This policy is summarized by the statement “The American continents...are henceforth not to be considered as subjects for future colonization by any European powers.”

A. Identify this policy named for the president who stated it in 1823.

Answer: **Monroe Doctrine**

B. The Monroe Doctrine was developed by this secretary of state.

Answer: John **Quincy Adams** [prompt on **Adams**; do not accept or prompt on “John Adams” or “J. Adams”]

C. This secretary of state under Grover Cleveland extended the Monroe Doctrine, saying that the United States was “practically sovereign” over the Americas.

Answer: Richard **Olney**

18. This plasma region is clearly visible during a total solar eclipse.

A. Name this outer region of the Sun’s atmosphere, though it is not as far out as the **heliosphere** [**HEE-lee-oh-“sphere”**].

Answer: (stellar) **corona**

B. This red region of the Sun’s atmosphere is between the **photosphere** [“photo-sphere”] and the corona.

Answer: **chromosphere** [“chrome-oh-sphere”]

C. These waves, named after a Swedish scientist, may explain why the corona is hotter than the Sun. These waves are caused by interactions between magnetic fields and charged particles.

Answer: **Alfvén** waves

19. This symphony repeatedly has six staccato eighth notes followed by a quarter note.

A. Give the common nickname of this symphony, which comes from a sudden fortissimo chord near the beginning of the second movement.

Answer: “**Surprise**” Symphony [prompt on Symphony No. **94**; accept answers that also include, but do not otherwise reveal, (Franz) Joseph Haydn]

B. This composer wrote the “Surprise” Symphony as well as the “Farewell” and “Palindrome” symphonies.

Answer: (Franz) Joseph **Haydn**

C. Haydn wrote over 100 pieces involving this instrument. It has six or seven strings that can be bowed and additional strings that can be plucked by the left hand.

Answer: **baryton**

20. This process is sometimes called budding, but budding also is a method of asexual reproduction.

A. Name this joining together of plant parts so that the bottom part of the new plant is the rootstock.

Answer: **grafting** [accept **inosculation**]

B. Successful grafting means joining together this tissue between the **xylem** [**ZY-lem**] and **phloem** [**FLOH-em**].

Answer: (vascular) **cambium**

C. Grafting is done to decrease the amount of the bacterial, **fusarium** [**fyoo-ZAR-ee-um**], or **verticillium** [**vur-tuh-SIL-lee-um**] type of this disease.

Answer: **wilts** [accept **wilting**]