

2020 Reinstein Set – Packet 9

Tossups

1. The poet Ebenezer Elliott wrote a book of hymns and a book of rhymes about these policies, which he hated. An organization that opposed these policies was part of the Manchester School and was started by John Bright and Richard Cobden. Henry Hunt spoke out against these policies in an event that turned into the Peterloo Massacre. David Ricardo opposed these laws, which no longer exist, based on his theory of comparative advantage. These laws were repealed by Robert Peel near the beginning of the Great Famine in Ireland. Name these tariffs and trade restrictions on food and grain in 19th-century Great Britain.

Answer: **Corn Laws** [prompt on **tariffs**]

2. One poem by this writer states “Weave the warp, and weave the woof, the winding sheet of Edward’s race.” In that poem, the English king is cursed by a character from Wales. In addition to that **Pindaric** [pin-DAR-ik] ode, another work by this poet states, “Full many a flower is born to blush unseen.” This person wrote that work after the death of Richard West. In that work, this poet stated “The paths of glory lead but to the grave,” and he ended it with a section called “The Epitaph”. Name this 18th-century English poet who used the line “The curfew tolls the knell of parting day” to begin his poem *Elegy Written in a Country Churchyard*.

Answer: Thomas **Gray**

3. In a painting this artist made of himself with his wife Isabella Brant, he wears orange hose and rests his left hand on his sword while he and his wife hold right hands. This painter placed a very old woman on the left of a painting in which a Biblical character sleeps on his wife’s lap while his hair is cut. This painter of *Honeysuckle Bower* and *Samson and Delilah* has several works in Cathedral of Our Lady in Antwerp, including a **triptych** [“TRIP-tick”] depicting the raising of the Cross. Name this early-17th-century Flemish painter of *The Descent from the Cross* and several works showing fleshy nudes.

Answer: Peter Paul **Rubens**

4. Animals in this phylum have a **labrum** [LAY-brum] that looks like an upper lip, and some animals in this phylum have appendages in front of their mouths called **chelicerae** [kuh-LISS-ur-ay]. Some animals in this phylum have dorsal **ocelli** [oh-SELL-“eye”], which are able to detect overhead light. The **Cambrian** [“CAME”-bree-un] explosion featured many **Marrella** [muh-RELL-uh] and **trilobites** [“TRY-low-bites”] from this phylum. Barnacles and krill belong to a mostly aquatic class of this phylum, the **crustaceans** [“crust”-AY-shunz]. This invertebrate phylum is characterized by exoskeletons, jointed legs, and segmented bodies. Name this largest animal phylum that includes spiders and insects.

Answer: **arthropods** or **arthropoda** [accept **euarthropoda** or **euarthropods**]

5. According to legend, this man and his wife **Padmavati** [pad-mah-VAH-tee] had a son **Kunala** [kuh-NAH-lah] who was blinded by this man’s other wife **Tishyaraksha** [tish-yah-RAK-shuh]. The monk **Upagupta** [oo-pah-GOOP-tah] is credited with overseeing this leader’s religious conversion, after which this leader inscribed religious messages on several pillars. The national emblem of India is based on a column this leader erected at **Sarnath** [sar-nahth] showing four lions. After conquering **Kalinga** [kuh-LIN-guh], this leader decided to focus on Buddhism rather than war. Name this third-century BCE leader who was the son of **Bindusara** [bin-doo-SAH-ruh] and grandson of Chandragupta Maurya.

Answer: **Ashoka** (the Great) [or **Ashoka** Maurya or Devanampriya Priyadarshi Samrat **Ashoka**]

6. In this sport, attacks from the back can be called “bics” or “pipes”. This sport is not soccer, but it has players called **liberos** [LI-buh-roes] who are defensive specialists and do not have to follow standard substitution rules. The only defensive statistic in this sport is digs, though blocking is also a statistical category. Clara Baer developed a variant on this sport called Newcomb that allows catching. This sport is usually played by six people on each side when it is indoors, though there are only two people per team in the competitive beach version. Name this sport in which the goal is to hit the ball over the net.

Answer: **volleyball**

7. One novel by this author is narrated by a survivor of the *Lady Vain*, which collided with another boat. In that novel, this author has the narrator, Edward Prendick, taken to a place inhabited by a doctor who is infamous for his **vivisection** [VIV-ih-“section”] experiments. In another novel by this author, the narrator saves Weena from drowning when nobody else will, and she puts two strange white flowers in his pocket. This author later describes Weena being lost in a forest fire in a fight against the Morlocks. Weena is an **Eloi** [EE-loy]. Name this English author of *The Island of Doctor Moreau* and *The Time Machine*.

Answer: H(erbert) G(eorge) **Wells**

8. A recent international effort with this person’s name in it used an **isotopically** [“ice-oh-topically”]-enriched silicon crystal and was supported by the National Institute of Standards and Technology. The number named for this person is divided by molar volume to get the Loschmidt constant. The law named for this person was supported by **Stanislao Cannizzaro** [STAN-iss-lau kahn-nee-ZAHR-oe]’s work, which explained experimental discrepancies by using dissociation. This person’s law was stated shortly after Gay-Lussac’s law, making it the last component of the ideal gas law. Name this scientist who determined the relationship between volume and number of molecules and who is the namesake of the number of atoms in a mole.

Answer: Amedeo **Avogadro** [or Lorenzo Romano Amedeo Carlo **Avogadro**, conte di Quaregna e Cerreto]

9. The second movement of this composer’s *Piano Quintet in E-flat Major* is labeled “In modo d’una marcia, Un poco largamente” and is a funeral march. That piece influenced Romantic composers to combine a piano with a standard string quartet. This composer’s first symphony has movements that were originally titled “Evening” and “Merry Playmates”. That first symphony, which—like this composer’s fourth symphony—was written in 1841, is nicknamed “Spring”. This composer’s work containing 20 short pieces set just before Lent is titled *Carnaval*. Name this German composer whose works were often performed by his wife Clara.

Answer: Robert **Schumann**

10. When one example of this phenomenon moves north of the Himalayas each June, a separate example starts up that impacts the Indian Ocean and India until September. This phenomenon exists around the **tropo-pause** [“TROPE-oh-pause”], and it has polar and subtropical varieties in addition to that tropical easterly one. A temporary slowing of this phenomenon was blamed for recent heat waves in Europe, and its increasing wobbliness in recent years was blamed for polar vortex cold spells. Name this wind that is often over 100 miles per hour and surrounds the Earth in a meandering shape.

Answer: **jet** stream

11. In a backstory in this novel, Richard is beaten by police and put on trial, leading to his suicide. Elizabeth never told Richard that she was pregnant. In this novel, Brother **Elisha** [eh-“LIE”-shuh] teaches the Intermediate classes at the Temple of the Fire Baptized. One of his students, who turns 14 when this novel begins, is the protagonist. That character is the son of Richard and Elizabeth and the stepson of a preacher named Gabriel. Name this semi-autobiographical novel about John Grimes, set in Harlem by James Baldwin.

Answer: ***Go Tell It on the Mountain***

12. According to the theory of relativity, when you add two vectors representing this quantity, you should divide by 1 plus the quantity product of the vector magnitudes divided by the speed of light squared. A current density vector is found by multiplying charge density times this vector. This quantity is crossed with magnetic field strength and multiplied by charge to give the force of a magnetic field. Name this quantity that equals the rate of change of position, whose own rate of change is acceleration, and whose magnitude is speed.

Answer: **velocity**

13. This person wrote “The educated person differs from the uneducated in almost everything he does” at the beginning of the book *The Technology of Teaching*. This person developed a device called a “Glider” with a spinning disk that was used to teach children. “A Technology of Behavior” was the first chapter in this person’s book, which states “We have not yet seen what man can make of man.” This person had the character T. E. Frazier expound his views in his novel *Walden Two*. Name this writer of *Beyond Freedom and Dignity* who promoted behaviorism and developed an operant conditioning chamber known as his “box”.

Answer: B(urrhus) F(rederic) **Skinner**

14. Shortly after this state increased vehicle license fees in 2003 and had an electricity crisis that drove up rates in 2001, it had a recall election that ended the political career of Governor Gray Davis. A person nicknamed “Governor Moonbeam” served two terms as this state’s governor twice, from 1975 to 1983 and from 2011 to 2019. Before becoming Chief Justice, Earl Warren was this state’s governor, and Ronald Reagan was this state’s governor before becoming president. In this state, Gray Davis was replaced as governor by Arnold Schwarzenegger. Name this state whose immediate past governor was Jerry Brown and whose current governor is Gavin Newsom.

Answer: California

15. The protagonist of this novel says “There’s no patriotism, that’s what it is. And no matriotism, either.” That statement is made in response to a character in this novel who tries to increase his lifespan by cultivating boredom, Dunbar. Another character in this novel mentions “The syndicate I’d like to form someday so that I can give you men the good food you deserve”. That character is Milo Minderbinder. This novel is set on the island of **Pianosa** [pee-ah-NOH-zah] during World War II and is about bombers such as Yossarian. Name this novel by Joseph Heller.

Answer: Catch-22

16. When the stopping-time parameter of the negative binomial distribution is an integer, it becomes the distribution named for this person. A line named for this person is formed by extending the opposite sides of a hexagon until they meet, and makes sense when the vertices of the hexagon are on a conic section. An arrangement of numbers named for this person contains the tetrahedral numbers, triangular numbers, and counting numbers along parallel diagonals. In that arrangement of numbers named for this person, each number equals the sum of the numbers just above it. Identify this namesake of a triangle of numbers that has 1’s going down the sides.

Answer: Blaise Pascal [accept Pascal distribution or Pascal’s theorem or Pascal’s triangle]

17. The energy stored in a capacitor equals this number times charge times the voltage across the capacitor. The focal length of a concave spherical mirror equals this number times the distance from the mirror to the center of curvature. The potential energy stored in a spring equals this number times the spring constant times the square of displacement. If there is constant acceleration, displacement divided by time equals this number times the sum of the initial and final velocities. Kinetic energy equals this number times mass times speed squared. Name this number between zero and 1.

Answer: 1/2 or 0.5

18. Some of the servants of this goddess were called **assinnu** [ah-SEE-noo] and dressed in women's clothes. This goddess could change a man into a woman, which she may have done to some of her followers called **kurgarru** [kur-GAR-roo]. Because this goddess oversaw war, which was viewed as masculine, she was sometimes pictured with a beard. This goddess's father gave her the Bull of Heaven, which she used in an unsuccessful attack against **Enkidu** [en-KEE-doo] and Gilgamesh. This goddess was forced to remove a piece of clothing each time she entered one of the seven gates to the underworld, eventually reaching her sister naked. Name this Akkadian and Sumerian goddess.

Answer: Ishtar [or Inanna; prompt on Astarte]

19. This place was the site of two battles that took place three weeks apart, the second of which was just after the British captured Forts Clinton and Montgomery and just before the burning of what was then a state capital at Kingston. That second battle in this location was **Bemis** [BEH-mis] Heights, which followed Freeman's Farm. After those battles, John Burgoyne surrendered to General Horatio Gates. Both battles in this location were fought well by Benedict Arnold, though he was relieved of his command anyway. Name this location that was the site of a major American victory in 1777 in New York.

Answer: Saratoga [prompt on New York before the end]

20. In one novel by this author, the Arc de Triomphe [tree-awmf] turns to sand and the Eiffel Tower is converted into a zoo. In that novel, this author wrote about Pollo Phoibee [POY-oh foh-EE-bee], who transforms into a brother of King Philip II, who this author refers to as “El Señor”. In another novel by this author, Regina is hanged by soldiers, and her lover ends up marrying Catalina and having an affair with Lilia. That man, who demanded 2 million dollars from two Americans interested in mining sulfur, is portrayed by this author on his deathbed. Name this Mexican author of *Terra Nostra* and *The Death of Artemio Cruz*.

Answer: Carlos **Fuentes** (Macías)

21. 2 raised to this power is the smallest power of 2 that is greater than 1 million. This number can combine to form a Pythagorean triple with 99 and 101, and it can also do so with 21 and 29. This is the number of vertices of a dodecahedron [doh-DEK-uh-HEE-drun]. A regular polygon with this many sides has internal angles that measure 162 degrees and central angles that measure 18 degrees. The Platonic solid with this many faces has triangular faces arranged so that each vertex of the solid is the vertex of five of the faces. That solid with this many faces is the Platonic solid with the most faces. Name this number of faces of an icosahedron [“eye”-KOH-suh-HEE-drun].

Answer: **20**

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Bonuses

1. Some of the techniques this author used are called “Camera Eye” and “Newsreel”.

A. Name this author of *Manhattan Transfer* and the *U.S.A.* trilogy.

Answer: John **Dos Passos** [prompt on **Passos**]

B. John Dos Passos had a falling out with this author of *For Whom the Bell Tolls* after the murder of **José Robles** [hoh-SAY ROH-blays] during the Spanish Civil War.

Answer: Ernest (Miller) **Hemingway**

C. Though Dos Passos is not mentioned by name in this Hemingway memoir, he is believed to be the “pilot fish” mentioned in it. The second chapter of this memoir is “Miss Stein Instructs”.

Answer: *A **Moveable Feast***

2. This country unified with England when its King James VI became James I of England.

A. Name this part of the United Kingdom whose rulers have included Macbeth and Robert the Bruce.

Answer: **Scotland** [accept **Alba**]

B. This person was the Guardian of Scotland until he was defeated at the Battle of Falkirk in 1298 while fighting for Scottish independence. He was later hanged, drawn, and quartered.

Answer: William **Wallace**

C. Four months before his victory at the Battle of Stirling Bridge, Wallace killed William Heselrig, who was the sheriff of this town.

Answer: **Lanarkshire**

3. This kingdom is between Archenland and Ettinsmoor.

A. Name this land created by Aslan the lion, who crowns the **Pevensie** [PEV-en-see] children.

Answer: **Narnia**

B. This author wrote *The Chronicles of Narnia*, including *The Lion, the Witch and the Wardrobe*.

Answer: C(live) S(taples) **Lewis**

C. This is the youngest Pevensie child. She is called “the Valiant” when she becomes a queen, and she heals Trumpkin.

Answer: **Lucy** Pevensie

4. This lake is the deepest lake in the world.

A. Name this lake that is north of Mongolia in Russia.

Answer: Lake **Baikal**

B. Like many crescent-shaped lakes, Baikal is a part of one of these geologic features found where plates are diverging. Give a two-word answer.

Answer: **rift valleys**

C. This name is shared by the **oblast** [OH-blahst] west of the lake, the major city north of the southern end of the lake, and the dam that caused the water level of the lake to rise. An oblast is a region of Russia.

Answer: **Irkutsk** [eer-KOOTSK]

5. Decimal representations of these numbers terminate or repeat.

A. Name these numbers that can all be expressed as an integer divided by an integer.

Answer: **rational** numbers or **rationals** [prompt on **Q**]

B. All rational numbers as well as some irrational numbers, are this type of number because they are solutions to a non-zero polynomial with integer coefficients.

Answer: **algebraic** numbers [accept **algebraics**]

C. Find the only value of x such that both x and e to the x are both algebraic.

Answer: $x = \underline{0}$

6. The 13th, 14th, and 15th amendments to the Constitution are collectively named for this period of time.

A. Name this era in which the United States debated how to re-unite with the Confederacy and adjust to the end of slavery.

Answer: **Reconstruction** Era

B. This 1864 bill required that 50% of a state's white males take a loyalty oath for the state to be re-admitted to the Union. It passed Congress but was pocket-vetoed by President Lincoln.

Answer: **Wade-Davis** Bill

C. The Wade-Davis Bill was a reaction to this more lenient plan by President Lincoln. This plan became official when Lincoln signed the Proclamation of Amnesty and Reconstruction in 1863.

Answer: **Ten Percent** Plan

7. The absolute value function is often defined this way.

A. Name this way of defining a function differently for different parts of the domain.

Answer: **piecewise** definition or **piecewise**-defined function [prompt on **hybrid** function]

B. This rule is used to approximate an integral by treating a function as a piecewise function, each piece of which is a quadratic.

Answer: **Simpson's** rule

C. Find the value of k if a *continuous* function is defined as kx plus 4 when x is less than 3, and $7x$ minus 2 when x is greater than or equal to 3.

Answer: $k = \underline{5}$

8. In this novel, Lestrade and Gregson are falsely given credit for figuring out who murdered Joseph Stangerson.

A. Name this novel that involves Lucy's wedding ring and the German word for "revenge" written on a wall.

Answer: *A **Study in Scarlet***

B. This detective is the person who actually figures out who the murderer is, as he does in many stories and novels by Arthur Conan Doyle.

Answer: **Sherlock Holmes** [accept either]

C. In this Sherlock Holmes novel, some characters believe in a supernatural black dog that terrorizes generations of a family.

Answer: *The **Hound of the Baskervilles***

9. On the Hertzsprung-Russell diagram, these stars are below and to the left of the main sequence.

A. Name these stars that are supported by electron pressure and have a mass similar to the Sun but are much smaller. More massive stars become neutron stars instead of these stars.

Answer: **white dwarf** stars or **white dwarfs** [prompt on **dwarf** stars or **dwarfs**]

B. When a white dwarf forms, it ionizes the other material that used to be in the star, forming this type of nebula.

Answer: **planetary** nebula or **emission** nebula

C. Planetary nebulas are technically this type of region because they have a lot of ionized hydrogen, though this type of region has become synonymous with diffuse nebulas.

Answer: **H II** ["H two"] region(s)

10. The name of this party means “China’s National People’s Party”, and they are sometimes called Nationalists.

A. Name this political party that was headed by Chiang Kai-shek and which ruled China before it ruled Taiwan.

Answer: **Kuomintang** [kwoh-min-tahng]

B. The Kuomintang was founded by this doctor who was briefly the Provisional President of the Republic of China during 1912.

Answer: **Sun** Yat-sen [prompt on **Yat-sen**]

C. Sun Yat-sen gained power when this emperor, who was six years old at the time, abdicated the throne.

Answer: **Puyi** [or the **Xuantong** Emperor]

11. The “countable” version of this concept is represented by the symbol “aleph-null”.

A. Name this concept which is not a number but is larger than any number.

Answer: **infinity** or **infinite** or **infinitude**

B. This statement claims that there is no set with a cardinality larger than aleph-null, but smaller than the cardinality of the set of real numbers.

Answer: **continuum hypothesis**

C. Evaluate the limit, as k approaches infinity, of the integral of 1 over x cubed, dx , as x goes from 1 to k .

Answer: **$\frac{1}{2}$** or **0.5**

12. This diverse group of organisms includes **algae** [AL-jee] and **protozoa** [proh-tuh-ZOH-uh].

A. Name these usually small organisms that live in or on water and drift with the current.

Answer: **plankton**

B. These single-celled algae have a cell wall of **silica** [SIL-ih-kuh] and, as a group, generate a significant amount of the world’s oxygen.

Answer: **diatoms** [“DIE”-uh-tahmz]

C. As opposed to plankton, these animals live on the bottoms of bodies of water. Their name reflects their ecological region.

Answer: **benthos** [accept **benthic** zone]

13. One example of this type of music is George Frideric Handel's *Messiah*.

A. Name this type of piece that is similar to an opera, but does not have staging.

Answer: **oratorio**(s)

B. This composer's *La damnation de Faust* was written as a dramatic legend. It has been performed as an opera, an oratorio, and something in between.

Answer: (Louis)-Hector **Berlioz** ["BARELY"-ohzz]

C. This 20th-century English composer wrote the oratorio *A Child of Our Time*.

Answer: Michael **Tippett**

14. Dmitri Mendeleev predicted properties of this element, calling it "eka-manganese" [EK-uh-MAN-guh-nee-z].

A. Identify this element whose name reflects the fact that most production of it is artificial, even though its atomic number is much lower than other elements with that property.

Answer: **technetium** [accept **Tc**]

B. Technetium was discovered using this type of particle accelerator that uses a spiral-shaped path and was invented by Ernest Lawrence.

Answer: **cyclotron**

C. Technetium was discovered in a sample that was primarily this metal. It and chromium are often added to stainless steel to prevent corrosion.

Answer: **molybdenum** [muh-LIB-deh-num] [accept **Mo**]

15. Hindus refer to this process as *dhyana* [dee-YAH-nuh] and sometimes practice it during yoga.

A. Name this process that can consist of developing mindfulness or the ceasing of thought.

Answer: **meditation** or **meditating**

B. Some meditation, such as transcendental meditation, involves repeating this type of word or sound either silently or out loud. The sound "om" can serve this purpose.

Answer: **mantra**(s)

C. This term taken from the Sanskrit word for "sitting" refers to body postures that are useful for meditation and yoga.

Answer: **asana**

16. In this play, **Hecuba** [HEK-yoo-bah] states “There is no end to my sickness, no term. One disaster comes to vie with another.”

A. Name this ancient play in which Hecuba is one of the title characters and is upset at Helen.

Answer: *The **Trojan Women*** [or **Troades**]

B. At the beginning of *The Trojan Women*, Poseidon and Athena are angry at the Greeks because of the treatment of this woman by Ajax the Lesser and **Agamemnon** [ag-uh-MEM-nahn]. This woman’s prophecies are true but not believed.

Answer: **Cassandra**

C. This playwright wrote *The Trojan Women*. He also wrote *Iphigenia* [if-uh-jen-“EYE”-uh] *in Aulis* and *Iphigenia in Tauris*.

Answer: **Euripides** [yoo-RIP-uh-deez]

17. This term is often applied to ornate European art and architecture from the 17th century.

A. Name this period of art. What used to be called the “late” part of this period is now called **Rococo** [ruh-KOH-koh].

Answer: **Baroque** period

B. This early Baroque artist painted the *Martyrdom of St. Matthew* and the *Calling of St. Matthew*.

Answer: (Michelangelo **Merisi** da) **Caravaggio** [accept either underlined name; do not accept or prompt on “Michelangelo”]

C. This Baroque architect who supported Louis XIV [14] designed the chapel of **Les Invalides** [lez awn-vah-lead] and played a major role in enlarging the Palace of **Versailles** [vair-“sigh”].

Answer: **Jules Hardouin-Mansart** [zhool ard-wan **mahn-sar**]

18. Mixtures involving this type of substance are called alloys.

A. Name these substances that generally are shiny and are good conductors of heat and electricity.

Answer: **metals** [or **metallic** substances]

B. Metals generally have this property, the ability to be pulled into a wire. This property is not the same as malleability.

Answer: **ductility** or being **ductile**

C. There is some controversy as to whether this element or gold is the most ductile. This metal is in several chemotherapy drugs that are designed to destroy DNA.

Answer: **platinum**

19. This U.S. president had spent several years as the Collector of the Port of New York.

A. Name this person who became president when James Garfield was assassinated.

Answer: Chester **Arthur**

B. Though Arthur was known for supporting the spoils system, he also supported the 1883 Civil Service Reform Act named for this Senator.

Answer: George **Pendleton** [accept the **Pendleton** Act]

C. President Arthur signed a bill prohibiting the use of this technology on public lands. This technology, which was fairly new at the time, was invented by Lucien Smith and Joseph Glidden.

Answer: **barbed wire** [prompt on **fences** or **fencing**]

20. Sheldon **Glashow** [**GLASH**-“ow”], Abdus Salam, and Steven Weinberg explained how to unify this force with electromagnetism.

A. Name this interaction that is responsible for radioactive decay.

Answer: **weak** nuclear force or interaction [accept electro**weak**]

B. These two letters are used for the **bosons** [**BOH**-zahnz] that mediate the weak interaction.

Answer: **W** and **Z** [either order]

C. This exchange of Z bosons was discovered at the Gargamelle bubble chamber at **CERN** [**sur**n] and helps explain the unification of the weak interaction and electromagnetism.

Answer: **neutral current**