

2022 Reinstein Set – Packet 12

Tossups

1. This leader allowed attacks against Acholi [ah-KOH-lee] and Lango [LAHN-goh] ethnic groups, including massacres against army members who belonged to those groups, after an attempted invasion by exiles. This leader attracted international criticism after allowing a French plane to be hijacked and the Jewish passengers to be held hostage. He also expelled all Asians from his country. This person gained power by launching a military coup in 1971 against Milton Obote [oh-BOH-tay]. He eventually fled to Saudi Arabia after his country was invaded by Tanzania [tan-zuh-NEE-uh]. Name this leader of Uganda.

Answer: Idi **Amin** (Dada Oumee) [EE-dee **ah-MEEN**]

2. This geologic period began shortly after the breakup of Pannotia [pan-OH-shuh], which is also called Greater Gondwana. The *Marrella*, which was an early arthropod, is found in fossils from this period. This period included the End-Botomian [bah-TOH-mee-un] and Dresbachian [drez-BAHK-ee-un] extinction events, and another extinction event ended this period and began the Ordovician [or-doh-VISH-un] Period. A major source of information about this period are fossils from the Sirius Passet, Maotianshan [MOW-shin-shan] Shales, and Burgess Shale. Name this first period of the Paleozoic Era which had a great diversification in animals in its namesake “explosion”.

Answer: **Cambrian** Period

3. This country’s Silvio Pettirossi [pet-tee-ROH-see] International Airport is located in its former capital city, Luque [LOO-kay]. This country contains most of the Pilcomayo [peel-koh-“MY”-oh] River, which is a tributary of the river that shares its name with this country. This country’s eastern border is the site of the second-most powerful dam in the world, the Itaipu [ee-“TIE”-poo] Dam, which is very close to this country’s second-most populous city, Ciudad del Este [see-yoo-DAHD del ESS-tay]. The western half of this country is part of the Gran Chaco. Name this country between Argentina, Bolivia, and Brazil whose capital is Asunción [ah-soon-see-OHN].

Answer: (Republic of) **Paraguay** or (República del) **Paraguay**

4. A project to detect these particles consists of a one-cubic-kilometer observatory under the South Pole called “IceCube”. During the past decade, that observatory found that a gamma-ray flare from a **blazar** [BLAY-zahr] is a source of these particles. During electron capture, a neutron and one of these particles are created. The 2015 Physics Nobel Prize was given to the Super-**Kamiokande** [KAH-mee-oh-KAN-day] and Sudbury Observatories for proving that these particles have mass and can change their **leptonic** [lep-TAH-nik] flavor. These particles come in three leptonic flavors, making them three of the six types of lepton. Name these particles that correspond to electrons, **muons** [“MEW”-ahnz], and taus.

Answer: **neutrinos** [prompt on **leptons**]

5. In one novel by this author, it is believed that a woman did not get married because she has a large birthmark. This author described that woman, **Chikako Kurimoto** [chee-kah-koh kur-ee-moh-toh], as a tea ceremony master who is encouraging a marriage between Yukiko Inamura and **Kikuji** [kee-koo-jee]. In another novel by this writer, a major character refers to his study of ballet as “research”, though it is actually fantasy, as the character has never seen a ballet. That man, Shimamura, has a relationship with Komako, who is a geisha in a hot spring town. Name this Japanese author of *Thousand Cranes* and *Snow Country*.

Answer: Yasunari **Kawabata** [accept names in either order]

6. This musician often began concerts with the song “When It’s Sleepy Time Down South” even though it was controversial to African-American audiences. This musician added tuba player Pete Briggs and drummer Baby Dodds to his band in 1927, turning his Hot Five into his Hot Seven. That group recorded “Potato Head Blues”. This person played the bandleader in the film version of *Hello, Dolly!* after he had a popular version of the title song. Another popular song by this person begins with the lyrics “I see trees of green, red roses too.” Name this trumpeter who recorded “What a Wonderful World” and was nicknamed “Satchmo”.

Answer: Louis (Daniel) **Armstrong**

7. This king's Lord High Treasurer of the Exchequer, Richard FitzNeal, wrote *Dialogus de Scaccario*, which is the earliest administrative handbook in English history. Because this king wore a short robe, he was nicknamed "Curtmantle". Clergy could be tried in royal courts after this king passed the Constitutions of Clarendon. This king was the second husband of Eleanor of Aquitaine, and the father of Richard I and John. According to legend, resistance to this king by the clergy led him to ask "Will no one rid me of this turbulent priest?". Name this king whose followers then murdered the Archbishop of Canterbury, Thomas Becket.

Answer: **Henry II** [accept **Henry FitzEmpress** or **Henry Plantagenet**; accept **Henry Curtmantle** before "Curtmantle"; prompt on **Henry**]

8. One person in this novel remembers that during her childhood she was told that her mother was a ghost, which meant that her mother should not be talked about. Another person in this novel is told by her father that her mother died because of a new idea inside the mother's head. One woman in this novel worries about telling her mother that she is engaged to Rich Schields because the woman is considered to be a rabbit and the mother is considered to be a horse. This novel, set in San Francisco, is about four women born in China and their daughters. Name this novel about people who play mah jong that was written by Amy Tan.

Answer: *The **Joy Luck Club***

9. For molecules that exhibit this property, it is appropriate to apply the Cahn-Ingold-Prelog sequence rules, starting with identifying centers and double bonds. The only **proteinogenic** ["protein"-oh-JEN-ik] amino acid *without* this property is **lysine** ["LIE-seen"]; the other amino acids have this property centered around a carbon atom adjacent to the **carboxyl** ["car-BOX-ill"] group. The inclusion of **phenyl-alanine** [fee-null-AL-uh-neen] and aspartic acid are the reason that aspartame has this property. The centers of molecules with this property can be called stereo-centers. Name this property of molecules or ions that exist in mirror-image stereo-isomers called **enantiomers** [eh-NAN-tee-oh-murz].

Answer: **chirality** [KY-rull or ky-RAL-ih-tee] [prompt on **stereo-isomerism** or **enantiomerism** [en-AN-tee-oh-mur-izm]; do not accept or prompt on "isomer(s)" or "isomer(ism)"]

10. This Supreme Court justice wrote “We do not count heads before enforcing the First Amendment” in a concurrence with the *McCreary County v. ACLU* decision. This person replaced Potter Stewart on the Supreme Court and was replaced by Samuel Alito [uh-LEE-toh]. This person was the first associate justice appointed by President Ronald Reagan. In 1992, meetings between Anthony Kennedy, David Souter [SOO-tur], and this justice preserved the earlier *Roe v. Wade* ruling. In retirement, this person raised awareness for Alzheimer’s disease after her husband suffered from it. Name this first female Supreme Court justice.

Answer: Sandra Day O’Connor [accept either underlined name]

11. In a letter in this novel, the title character asks his wife “You remember the girl student who shot at the public prosecutor on that terrible night of your mother’s death?”. This novel portrays the affair between its title character and that woman, who eventually abandons their daughter and ends up in one of Joseph Stalin’s gulags. This novel’s author won the Nobel Prize for writing it, but he declined the prize because he would not have been allowed back in the Soviet Union. Name this novel in which the title character falls in love with Lara, written by Boris Pasternak.

Answer: Doctor Zhivago

12. Hybridomas [“hi”-brih-DOH-muhz] are used to produce a large number of these proteins that are identical to each other. The onset of Kawasaki disease is treated with aspirin and intravenous injections of these proteins. The fragment crystallizable regions of these proteins are at their tail end and form the base of their ‘Y’ shape. The *fab* regions of these proteins bind to epitopes [EP-i-tohps]. In mammals, these proteins are classified as A, D, E, G, or M. The D type of these proteins activate basophils [BAZ-oh-filz] and mast cells. These substances are secreted by B lymphocyte [LIM-foh-“site”] cells. Name these proteins that attach to antigens and remove them.

Answer: immunoglobulins or antibody/ies [prompt on Ig or Ab or antitoxins]

13. This novel says of one of its characters “All the world used her ill” before stating “The world is a looking-glass, and gives back to every man the reflection of his own face.” In this novel, that woman works for a family along with the butler Horrocks and marries one of the young men. Part of this novel is set at the Battle of Waterloo, where George Osborne is killed. Osborne’s widow, who is pregnant when he dies and eventually marries William Dobbin, is Amelia Sedley. Name this “Novel without a Hero” that features Becky Sharp and was written by William Makepeace Thackeray.

Answer: **Vanity Fair**

14. A painting by this artist shows a woman leaning forward and wearing a white flower by her ear in front of another woman sitting erectly and wearing a pink dress. That painting is *When Will You Marry?*. The bottom and left parts of another painting by this artist show the backs of several women in head coverings, many of whom are praying. This artist portrayed those women looking past a tree to see a vision of a wrestling match between an angel and Jacob. This artist wrote the title of a different painting in a yellow corner of it, but he left out the question marks. Name this French artist who painted *Vision after the Sermon* and *Where Do We Come From? What Are We? Where Are We Going?*.

Answer: (Eugène Henri) Paul **Gauguin** [goh-gan]

15. When a king returned this woman to her brother, the king told her “I am giving your brother a thousand shekels of silver.” This woman is returned after God tells that king “You are as good as dead because of the woman you have taken; she is a married woman.” That king was one of several **Philistine** [FIL-uh-steen] kings named **Abimelech** [ah-bee-MEL-ek]. Soon after God changed the name of this woman and her husband, he announced that she would have a son. This woman denied that she laughed when she overheard that she would have a son at her very advanced age. Name this mother of Isaac and wife of Abraham in the Book of Genesis.

Answer: **Sarah** [accept **Sarai**]

16. In a television series based on this movie, a demon named Zhan Tiri tries to get control of the Sundrop and Moonstone. In a short-film sequel to this major motion picture, Pascal and Maximus lose wedding rings just before a wedding. Those two characters are a chameleon and a horse. In this movie, Donna Murphy voiced Mother Gothel, who imprisoned this movie's protagonist in a tower for 18 years. The protagonist of this movie falls in love with Flynn Rider, who was voiced by Zachary Levi [LEE-vy]. This movie featured the song "I See the Light." Name this animated Disney movie starring Mandy Moore as Rapunzel.

Answer: **Tangled**

17. This species was purposely infected to confirm that DNA is genetic material during the 1952 Hershey-Chase experiment. Since 1988, this species has been the subject of an evolution experiment by Richard Lenski at Michigan State University. Some of these organisms produce a toxin named for the fact that they are similar to the toxins produced by *Shigella dysenteriae* [shig-ELL-uh dis-en-TAIR-ee-ee]. The existence of these organisms on lettuce processed in Yuma, Arizona in 2018 led to food recalls. Name this species of rod-shaped bacteria that often lives in digestive tracts, though some strains are often responsible for food poisoning.

Answer: **E(scherichia) coli**

18. This person was found guilty after Austrian actress Hede [HAY-duh] Massing testified against him. Later evidence from the writings of Noel Field pointed towards this person's guilt on two charges of perjury. Dean Acheson [ACH-eh-sun] was heavily criticized for saying that he would not turn his back on this person. During an earlier House subcommittee hearing, this person was told "I was a Communist and you were a Communist" by Whittaker Chambers. Some of the evidence used against this person was taken from a hollowed-out pumpkin. Name this State Department official who was believed to be a spy for the Soviet Union.

Answer: Alger **Hiss**

19. The **Minkowski–Bouligand** [min-KAWFF-skee boo-luh-gawn] version of this quantity is also known as the box-counting version and is calculated by dividing the log of a quantity analogous to area by the log of a quantity analogous to radius. Another version of this quantity is found by dividing the log of the number of copies of a figure by the log of a scaling factor. That version of this quantity equals the log base 3 of 2 for the Cantor set and the log base 2 of 3 for the **Sierpinski** [sir-PIN-skee] triangle. This quantity is irrational for many fractals. Name this quantity that is 1 for lines, 2 for planes, and 3 for space.

Answer: (fractal) **dimension**

20. This event occurred soon after Mayor Carter Harrison left the location. Seven people were sentenced to death because of this event, though Governor Richard Oglesby commuted two of the sentences. This event occurred the day after an attempt to secure an eight-hour workday from McCormick Harvesting Machine Company. This event happened at the end of a police brutality protest that was organized by anarchists. Name this 1886 event that took place in Chicago, in which somebody threw a bomb at police and the police responded with gunfire.

Answer: **Haymarket** Square affair [accept “massacre” or “riot” in place of “affair”]

21. The axiom schema of specification states that any of this type of mathematical object’s subclass defined by a predicate is also this type of object. These objects are the subject of the well-ordering theorem, which was proven by the axiom of choice, which in turn uses the Cartesian product of these objects. Zermelo–Fraenkel theory is an axiomatic system describing these mathematical objects. The complement of one of these objects contains everything in the universe except what is in the original. Two of these objects can be combined using either union or intersection. Name these unordered collections of elements that are often written as a list inside curly braces.

Answer: **sets**

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Bonuses

1. This composer spent half his life in Poland and half in France.

A. Name this 19th-century composer of the *Minute* [MIN-ut] Waltz and several mazurkas and polonaises [POH-luh-nay-ziz].

Answer: Frédéric **Chopin** [“show-pan”]

B. Chopin wrote several of these works designed to develop the skills of the musician, including one nicknamed “Revolutionary”.

Answer: **études** [AY-toodz]

C. Chopin also wrote one of these pieces usually associated with Venice. Chopin’s was in F-sharp major, and Jacques Offenbach’s “Belle nuit, o nuit d’amour” [bell nwee, oh nwee dah-mor] from *The Tales of Hoffmann* is also this type of composition.

Answer: **barcarolle**(s)

2. Identify these molecules whose structures were determined by Dorothy Crowfoot Hodgkin:

A. Hodgkin determined the structure of this hormone that is often injected by people to control diabetes.

Answer: **insulin**

B. Hodgkin won a Nobel Prize for discovering the structure of this vitamin that is also called **cobalamin** [koh-BAL-uh-min].

Answer: vitamin **B₁₂** [prompt on vitamin **B**]

C. Hodgkins’ first major discovery was the structure of this **protease** [PROH-tee-“ace”] that works alongside **chymo·trypsin** [ky-moh-TRIP-sin] and trypsin.

Answer: **pepsin**

3. This person is the only person to be named General of the Armies of the United States while he was still alive.

A. Name this commander of the American Expeditionary Forces during World War I.

Answer: John J(oseph) **Pershing** [prompt on **Black Jack**]

B. Pershing mentored and served as the best man for this person, who was Army Chief of Staff during World War II and served as President Truman’s Secretary of State and Secretary of Defense.

Answer: George C(atlett) **Marshall** (Jr.)

C. Pershing led American troops during this offensive from September 26 to November 11, 1918 that ended the war.

Answer: **Meuse** (River) – **Argonne** (Forest) offensive [prompt on **Meuse** or **Argonne**]

4. In this novella, the narrator holds Brenda's glasses when she dives, and he later picks her up at the end of a tennis match.

A. Name this novella about a man who attends Newark Colleges of Rutgers University [pause] and dates a wealthy woman who attends Radcliffe College.

Answer: **Goodbye, Columbus**

B. This author of *Goodbye, Columbus* also wrote *Portnoy's Complaint*.

Answer: Philip (Milton) **Roth**

C. *Goodbye, Columbus* is the title story in a collection with this story in which Rabbi Binder hits Ozzie Freedman.

Answer: "The **Conversion of the Jews**"

5. This person devised a thought experiment about a cat that can be treated as both alive and dead.

A. Name this Austrian physicist whose equation using wave functions is a fundamental part of quantum mechanics.

Answer: Erwin **Schrödinger** [SHRAY-ding-ur]

B. Most forms of the Schrödinger equation use this operator that combines kinetic and potential energies.

Answer: **Hamiltonian**

C. Though the Schrödinger equation is often very difficult to solve, this problem—sometimes called the "infinite potential well" or "infinite square well"—does have relatively straightforward solutions.

Answer: **particle in a box** problem

6. During a novel set in this city, Jalila gets drunk while performing at a wedding, and Amina breaks her collarbone, causing her husband to figure out that she leaves the house.

A. Name this city where Fahmy protests against the English and **Kamal** [kuh-MAHL] studies philosophy.

Answer: **Cairo**, Egypt

B. This author wrote the *Cairo Trilogy*.

Answer: **Naguib Mahfouz** (Abdelaziz Ibrahim Ahmed Al-Basha) [nag-EEB mah-FOOZ]

C. An assassination attempt against Naguib Mahfouz was made in reaction to this novel, in which the characters represent major people in the development of Judaism, Christianity, and Islam.

Answer: **Children of Gebelawi** [or **Awlad Haretna** or **Awlaadu Haaratena** or **Children of Our Alley**]

7. Name these paintings by Pierre-Auguste Renoir [pyair oh-goost ren-war]:

A. This painting shows Jeanne Darlot [zhahn dar-loh] and a younger girl. An owner of this painting called it *On the Terrace*.

Answer: Two Sisters [or *Les Deux Soeurs*]

B. *Two Sisters* is set near this painting in which a woman holds a dog on a table and a man sits backward on a chair.

Answer: Luncheon of the Boating Party [or *Le déjeuner des canotiers*]

C. Unlike *Two Sisters*, this painting actually shows two sisters. It is also called *Alice and Elisabeth Cahen d'Anvers* [dahn-veer], but you should give the common title based on the girls' colorful dresses

Answer: Pink and Blue [or *Rose et bleu*; order must be correct]

8. The formula for this quantity is based on the Pythagorean theorem.

A. Give this term for the length of the shortest path between two points.

Answer: distance

B. Find the distance in three dimensions between the origin and the point “1 comma -1 comma 2”.

Answer: square root of 6 [accept radical 6; do not prompt on “6”]

C. Find the distance between the point whose polar coordinates are “1, 90 degrees” and “2, 30 degrees”.

Answer: square root of 3 [accept radical 3; do not prompt on “3”]

9. This country lost control of Schleswig [shless-vik], Holstein [“HAUL”-shtyn], and Lauenburg in the Second Schleswig War.

A. Name this country that still controls the territories of the Faroe Islands and Greenland.

Answer: (Kingdom of) Denmark [or (Kongeriget) Danmark]

B. During the 15th century, Denmark, Norway, and Sweden belonged to this entity ruled by a single monarch.

Answer: Kalmar Union

C. This former part of Denmark signed a 1918 agreement that it would be independent but recognize the Danish king. This location cut ties with the Danish monarchy when Denmark was occupied in 1944.

Answer: (Republic of) Iceland [or Lydveldid Ísland]

10. Identify these types of chemical reactions:

A. In this reaction, a substance reacts with oxygen gas. Energy is released, usually in the form of light and heat.

Answer: **combustion** reaction(s) [accept **combusting** or **burning**]

B. There are single and double types of these reactions, which are characterized by one element leaving a compound and another element joining the same compound.

Answer: **replacement** reactions [or **replacements**]

C. In organic chemistry, this type of reaction joins two compounds using a metal catalyst.

Answer: cross-**coupling** reaction

11. This book starts in Sanderling Island, Georgia, and the first part of it is from the point of view of Orleanna Price.

A. Name this novel in which Orleanna's daughter, Ruth May, forgets to take her malaria pills and is bitten by a snake.

Answer: *The **Poisonwood Bible***

B. This author wrote *The Poisonwood Bible* and *Animal, Vegetable, Miracle*.

Answer: Barbara **Kingsolver**

C. Methuselah, who is an African grey parrot in *The Poisonwood Bible*, is compared to this poet's raven.

Answer: Edgar Allan **Poe**

12. This object was the first object, other than planets, that was shown to orbit the Sun.

A. Identify this comet named after the person who, in 1705, correctly predicted that it would next be sighted in 1758.

Answer: **Halley's** comet

B. Edmond Halley funded and edited this scientist's work *Principia* [*prin-SIP-ee-uh*] *Mathematica*.

Answer: Isaac **Newton**

C. Observations of Halley's comet in 1986 supported aspects of this theory, proposed by Fred Whipple, stating that comets are made of ice and dust.

Answer: **dirty snowball** theory

13. This psychologist's small-world experiment led other people to use the phrase "six degrees of separation".

A. Name this psychologist who also led an experiment at Yale University in which participants believed they were giving electric shocks to a learner.

Answer: Stanley Milgram

B. Milgram's experiment was inspired by the trial of this Nazi in Israel, which led to this person being hanged.

Answer: Adolf Eichmann

C. Milgram used this word to title a documentary about his experiment. Milgram's 1974 article was titled "Perils of" *this word*.

Answer: Obedience

14. It is hard to specify a Lissajous [lees-ah-zhoo] curve in Cartesian or polar coordinates, but easy in this system.

A. Name this system in which coordinates such as x and y are defined in terms of another variable, often t .

Answer: parametric equations or parametric system

B. Name the curve generated by the set of equations " x equals 3 sine t " and " y equals 5 cosine t ".

Answer: ellipse [prompt on conic section]

C. Find the area of the that ellipse. Again, its parametric equations are " x equals 3 sine t " and " y equals 5 cosine t ".

Answer: 15 pi [do not prompt on partial answers]

15. This novel is narrated by Antoinette Cosway.

A. Name this novel in which Antoinette is taken to England by her husband, who calls her "Bertha".

Answer: Wide Sargasso Sea

B. This author wrote *Wide Sargasso Sea* and *Good Morning, Midnight*.

Answer: Jean Rhys [or Ella Gwendolyn Rees Williams]

C. The first part of *Wide Sargasso Sea* is set in what is now this country, which was a British colony during the time when the novel is set.

Answer: Jamaica

16. This goddess was born from the left eye of her father, **Izanagi** [ee-zah-nahg-ee].

A. Name this Shinto goddess of the sun.

Answer: **Amaterasu**(-omikami) [ah-mah-teh-rah-soo]

B. This brother of Amaterasu was born from the right eye of Izanagi and became the god of the moon.

Answer: **Tsukuyomi**(-no-Mikoto) [tsoo-koo-yoh-mee]

C. Amaterasu stays away from Tsukuyomi because he killed **Ukemochi** [oo-kay-moh-chee], the goddess who is supposed to protect this substance.

Answer: **food** [do not accept specific foods]

17. Completing the square on a quadratic function makes it easy to identify the coordinates of this point.

A. Give this term for the point on a parabola that the axis of symmetry passes through.

Answer: **vertex**

B. Find the x -coordinate of the vertex of the parabola “ y equals x squared minus $6x$ plus 10 ”. Give only the x -coordinate.

Answer: $x = \underline{3}$ (The y -coordinate is 1.)

C. Find *both* coordinates of the vertex of a parabola if its focus is the point “3 comma 8” and its directrix is the line “ x equals 7”.

Answer: **(5, 8)** [order matters; accept $x = \underline{5}$ and $y = \underline{8}$]

18. Simplistic interpretations of this consequence of relativity theory are addressed by Bell’s spaceship paradox.

A. Name this effect that is similar in some ways to time dilation.

Answer: **length contraction** [accept **length contracting**]

B. In this other paradox addressing length contraction, a namesake object travels through a garage or barn.

Answer: **ladder** paradox

C. The paradoxes are addressed by the relativity of this concept, which requires the use of local time rather than absolute time.

Answer: **simultaneity** [accept being **simultaneous**]

19. Another nickname for this region and period is “the Dirty Thirties”, and one of the days in 1935 became known as Black Sunday.

A. Give this two-word phrase for areas affected by drought and storms in the 1930s that hurt agricultural output. Oklahoma and Kansas were particularly hard-hit.

Answer: **Dust Bowl**

B. This photographer was hired by the Farm Security Administration to document the damage. One resulting work is *Migrant Mother*.

Answer: Dorothea **Lange** [or Dorothea Margaretta **Nutzhorn**]

C. In reaction to the Dust Bowl, President Roosevelt created this project that used the U.S. Forest Service and New Deal agencies, including the Works Progress Administration and Civilian Conservation Corps, to plant trees from North Dakota to Texas.

Answer: Great Plains **Shelterbelt** Project

20. At the end of this book, Wart learns his real name.

A. Name this book that is the first in a series, preceding *The Queen of Air and Darkness*.

Answer: *The **Sword in the Stone***

B. This 20th-century author wrote about King Arthur in the series collectively called *The Once and Future King*.

Answer: T(erence) H(anbury) (“Tim”) **White**

C. Before learning that he is King Arthur in *The Sword in the Stone*, Wart is tutored by this wizard who sometimes turns him into an animal.

Answer: **Merlin**