2020 Reinstein Set – Packet 2

Tossups

1. This composer included "Playing Hobby-Horses" in his collection of 24 basic piano pieces, *Album pour enfants* [awn-fawn]. In one work by this composer, a man is tricked into confusing Odile [oh-DEEL] for Odette by Rothbart, leading that man and Odette to jump into a lake. Another work by this composer features "The Grandfather Dance" and "Waltz of the Flowers". Because of that ballet and this composer's work with cannons celebrating Russia's defense against Napoleon, this composer's works are often performed on Christmas and the Fourth of July. Name this composer of *Swan Lake*, *The Nutcracker*, and the *1812 Overture*.

Answer: Pyotr (Ilyich) **Tchaikovsky**

2. The weak equivalence principle states that all objects move the same way when this force is the only force. This force was measured in the Cavendish experiment. The hierarchy problem asks why this force is less powerful than other fundamental forces. This force is able to act as a lens according to the theory of relativity, an effect verified in Arthur Eddington's observations of eclipses. The universal constant of this force is measured in units of newton meters squared per second squared. Name this force that causes weight and which occurs between objects with mass.

Answer: **gravity** or **gravitation**(al force)

3. This person helped Princess Kököchin [KAH-kah-chin] travel to Persia so she could marry Arghun [AR-gun], but because Arghun had died, she married Arghun's son Ghazan [GAH-zahn]. On his deathbed, it is believed that this person said "I did not tell half of what I saw." This person often traveled with his uncle Maffeo [mah-FAY-oh] and father Niccoló. This person received help writing his autobiography from Rustichello [roo-stee-KEL-oh] da Pisa when they were in prison in Genoa. Depending on the language, this person's autobiography is called *Book of the Marvels of the World* or *Il Milione [eel meel-YOH-nay]*. Name this person from Venice who, during the 13th century, met Kublai Khan in China.

Answer: Marco **Polo**

4. Near the beginning of this short story, the narrator states "A wrong is unredressed when retribution overtakes its redresser." This story's narrator says another character, "did not perceive that my smile now was at the thought of his immolation." Later in this story, the narrator demonstrates that he is a mason by taking out a trowel, and he eventually uses that trowel to wall up an entrance·way, trapping somebody inside. The person trapped during this story is Fortunato ["fortune"-AH-toh]. Name this short story about Montresor taking revenge by luring his enemy using a large container of wine, written by Edgar Allan Poe.
Answer: "The **Cask of Amontillado**"

5. Each of these orbitals has exactly one angular node, which is why it is represented using a minimum of two lobes. Two of these orbitals are combined with another orbital in the hybridization of trigonal planar molecules. There are three possible values of the magnetic quantum number for this type of orbital. This type of orbital corresponds to an azimuthal [az-ih-MUTH-ull] quantum number of 1. The first element on the periodic table to have an electron in one of these orbitals in rest state is boron. Name these orbitals that for a given principal quantum number can hold six electrons, and that can be contrasted with s, d, and f orbitals.
Answer: $\boldsymbol{p}$ orbitals

6. In a novel by this writer, a sign at the zoo says "The little monkey that used to live here was blinded because of the senseless cruelty of one of the visitors. An evil man threw tobacco into its eyes." In that novel, this author depicted a patient who loves both the nurse Zoya and the doctor Vera Gangart. In another novel by this author, the protagonist is led by Tyurin and Pavlo, but he is sentenced to three days' penalty with work by The Tartar. This author of *Cancer Ward* drew on his experiences from 1945 to 1953 as a prisoner. Name this Soviet author of *One Day in the Life of Ivan Denisovich* [deh-NEE-soh-vich].
Answer: Aleksandr (Isayevich) **Solzhenitsyn** [sohl-zheh-NEET-sin]

7.   This organ has curled pieces of bone called turbinates [TUR-buh-nits] or conchae [KON-kee], and it also has the major and minor alar cartilages. The top of this organ has the ethmoid bone, which is also known as the cribiform [KREE-buh-form] plate. This organ is just above and in front of the palatine [PAL-uh-tyn] bones. One of the purposes of this organ is to be a passageway to the brain's glomerulus [gloh-MAIR-yoo-luss]. Surgery on the cartilage in the middle of this organ is called septoplasty [SEP-toh-plass-tee], and other surgeries on this organ are called rhinoplasty. The sinus cavities are above and next to this organ. Name this principal organ of the olfactory system that has two nostrils.

Answer: **nose**

8.   A person from this island helped Orontobates [oh-RAHN-toh-BAH-teez] and used catapults to slow down Alexander the Great during the Siege of Halicarnassus [HAL-ih-kar-NASS-uss]. That person, who also assisted Artabazos [ar-TAH-buh-zose] II, was Memnon. Before establishing a base in Malta and after moving to Cyprus, the Knights Hospitaller [HAHSS-pit-uh-lur] took control of this island. Demetrius I of Macedon attempted a siege on this island in 305 BCE, and this island's residents used the metal from the siege tower to build a statue. In 226 BCE, a major earthquake on this island destroyed its enormous statue. Name this island that housed a giant statue of Helios called the Colossus.

Answer: **Rhodes**

9.   A company that sells this product can set its own UCR standard, which stands for "usual, customary, and reasonable". This product is sometimes classified as point-of-service or fee-for-service. Customers who purchase this product often supplement it with a flexible spending account. This type of product can be based on a preferred provider organization, or PPO. People who purchase this product have a maximum out-of-pocket cost, which is in addition to the premiums they pay. The out-of-pocket costs paid by customers are called a deductible. Name this product that is supposed to cover medical costs.

Answer: **health insurance** (plans) or (major) **medical insurance** (plans) [before "medical", prompt on **insurance** (plans); accept just **insurance** (plans) after "medical"]

10. When Frank Carlucci was promoted to Secretary of Defense during the Iran-Contra scandal, this person replaced him as National Security Advisor. This person then served as Chairman of the Joint Chiefs of Staff during the George H. W. Bush presidency. In 2003, this person told the United Nations Security Council there is "no doubt in my mind" that Saddam Hussein was developing nuclear weapons. He said that while serving as George W. Bush's Secretary of State. Name this person who was the first African-American person to hold the previously mentioned positions.

Answer: Colin (Luther) **Powell**

11. This biome [BY-ohm] is generally the best source of caliche [kuh-LEE-chee], a calcium carbonate rock that is a good source of nitrate salts such as sodium nitrate. The smallest canid [KAY-nid], the fennec fox, lives in this biome. Some plants in this biome use CAM photosynthesis and have adaptations to minimize evaporation. In the United States, this biome is the natural habitat of *Yucca brevifolia*, which is commonly called a Joshua tree. Farmers in these biomes need to focus on irrigation, and their production is limited by the climate. Name these large areas with sparse vegetation and not much water.

Answer: **desert**s

12. Several people working in this job were killed in 1909 in Cherry, Illinois. A strike started by people with this job resulted in the Battle of Virden, and several victims are buried near Mary Harris "Mother" Jones. A labor leader of people with this job also started the United Steel Workers of America after creating the Congress of Industrial Organizations; that person was John L. Lewis. In recent decades, this job has been done by the mountaintop removal method, and there have been debates over whether this job can be done cleanly using pollution mitigation. Name this job in which a fossil fuel is taken from the ground.

Answer: **coal miner** or **coal mining** [prompt on partial answers; accept answers that specify a type of coal, such as anthracite or bituminous coal]

13. The Cauchy-Riemann [koh-shee REE-mahn] equations are used to determine whether functions using these numbers are differentiable. The fundamental theorem of algebra states that every non-constant polynomial whose coefficients are this type of number has at least one root that is this type of number. These numbers are often represented on an Argand [ar-gawn] diagram, which is two-dimensional and uses the x-axis to represent these numbers' real part. These numbers can be raised to powers using de Moivre's [mawv'z] formula, which uses their polar or "cis" [siss] form. Name these numbers that have imaginary parts and can be expressed in the form "a plus bi".
Answer: **complex** numbers [prompt on **C**]

14. One poem by this writer asks "What candles may be held to speed them all?" and ends with the line "each slow dusk a drawing-down of blinds". This poet's rejection of religion can be seen in that poem's line "No mockeries now for them; no prayers nor bells." Another poem by this writer begins "Bent double, like old beggars under sacks". This writer began the second stanza of that poem with the exclamation "Gas! Gas! Quick, boys!". The title of that poem means "It is sweet and glorious" in Latin. Name this English poet who wrote "Anthem for Doomed Youth" and "Dulce et Decorum est" ["DULL"-kay et day-KOR-um est] before he died in World War I.
Answer: Wilfred (Edward Salter) **Owen**

15. This artist portrayed Nicholas of Bari, John the Evangelist, Mary, Pieter, and Benedict in the pentagonal panels of his *Badia Polyptych* [BAH-dee-ah PAH-lip-tik]. Andrea Pisano [ahn-DRAY-uh pee-ZAH-noh] completed work on a bell tower that this artist worked on, which is called this artist's campanile [kahm-pah-NEE-lay] and is in the Piazza del Duomo in Florence. This artist studied under Cimabue [chee-mah-BOO-ay] during the late 13th century. This artist's *Madonna Enthroned* is commonly referred to as the *Ognissanti* [ohn-yee-SAHN-tee] *Madonna*. Name this artist who painted a fresco cycle depicting the lives of Mary and Jesus for the Scrovegni [skroh-VEHN-yee] Chapel—also known as the Arena Chapel—in Padua.
Answer: **Giotto** di Bondone [**JOH-toh** dee bohn-DOH-nay] [prompt on **Bondone**]

16. In Greek mythology, a person uses one of these objects to seduce the queen of Lydia and then kill her husband, which he can do because this object makes him invisible. In Norse mythology, Andvari curses one of these objects after it is stolen from him. Another one of these objects along with a belt is stolen from Brünhild [broon-HEELD] by Siegfried. That object is made by Alberich [AL-beh-rik] using gold taken from the Rhine River. Name this type of object owned by Gyges [JY-jeez] in Greek myth and by Bilbo Baggins at the beginning of a series of novels named for Sauron, who is the "Lord of" this object.

Answer: **ring**s

17. A question in this novel is answered with the statement, "You only get them in big countries, like Africa or India." That question, asked by a boy with a mulberry-colored birthmark during a meeting in this novel, is about what will be done about the snake-thing, which is also called a beastie. One chapter of this book is titled "Beast from Water", referring to an imagined creature, and another chapter is "Beast from Air", referring to a dead parachutist. When Simon tries to explain that the parachutist is not a beast, he is violently killed. Name this novel in which Ralph and Jack try to lead a bunch of boys stranded on an island, written by William Golding.

Answer: ***Lord of the Flies***

18. This substance is the lighter of two substances injected into plutonium or uranium to make a boosted fission weapon. In a liquid state, this substance was used in early thermonuclear weapons, and it is now combined with lithium to make the primary fusion fuel in thermonuclear weapons. This substance combines with a similar but heavier substance to make helium and a neutron. This substance was discovered by Harold Urey [YUR-ee], who was able to explain it a year later once the neutron was discovered. This isotope is part of heavy water but is negligible in standard water. Name this isotope that has one proton and, unlike normal hydrogen, one neutron.

Answer: **deuterium** [doo-TEER-ee-um] [prompt on **hydrogen-2** or **heavy hydrogen**]

19. A large part of this U.S. state is taken up by the Colville Indian Reservation, and another of its reservations includes part of Mount Adams. One of the earliest white settlements in what is now this state was Fort Nez Percés [PER-suh] near what is now the town of Walla Walla. Though most of this state's major cities are in its west near Puget [POO-jut] Sound, its second-most populous city is the site of Gonzaga University, which is Spokane ["spoke-Ann"]. This state contains the original headquarters of Amazon and Microsoft and is the location of Mount Rainier [ruh-NEER]. Name this state whose capital is Olympia and whose most populous city is Seattle.

Answer: **Washington** (state)

20. When a woman in this book tells her father whom she wants to marry, he tells her a story about a merchant who overhears his bull and donkey talking to each other. The merchant then talks to a rooster. In this book, when that woman gets married, she asks to say good bye to her younger sister, and their father eventually goes to Samarkand. That happens in this book when Shah Zaman decides to marry Dunyazad. At the beginning of this book, King Shahryar [SHAH-ree-ar] repeatedly marries women and has them beheaded. Name this book in which Scheherazade [shuh-HAIR-uh-ZAHD] stays alive by telling stories about characters such as Aladdin and Ali Baba.

Answer: *One **Thousand and One Nights*** or *The **Arabian Nights*** [or ***Alf layla wa-layla***]

21. David Robbins gave a formula for the areas of cyclic versions of this shape; such shapes are named for Robbins if all of their side lengths are rational. The regular type of this polygon is the polygon with the most sides in which all diagonals are congruent. Hexagons and these shapes are the faces of a truncated icosahedron ["eye"-KOH-suh-HEE-drun], and every face of a dodecahedron [doh-DEK-uh-HEE-drun] is one of these shapes. In the regular type of this polygon, the length of a diagonal is the length of a side times the golden ratio. This polygon can be split into three triangles by some of its diagonals. Name this polygon that has the same number of diagonals as sides.

Answer: (regular) **pentagon**(s) [prompt on **5-gon**]

1. A character in this play states "Not finding yourself at the age of 34 is a disgrace!"

A. Name this play about the father of Biff and Happy Loman.

Answer: ___**Death of a Salesman**___

B. This playwright created *Death of a Salesman* as well as *The Crucible*.

Answer: Arthur (Asher) **Miller**

C. Arthur Miller also wrote this play set in Brooklyn, in which Alfieri [al-fee-AIR-ee] narrates the story of Eddie Carbone ["car-BONE"], who dies during a fight with Marco.

Answer: *A* ___**View from the Bridge**___

2. Minamoto Yoritomo was the first person to attain this title.

A. Name these people who from 1192 to 1867 were appointed by the emperor of Japan to oversee the military.

Answer: **shogun**s [or **bakufu** or sei-i tai**shogun**shoku]

B. This family controlled the shogunate ["SHOW-gun"-uht] from 1600 to 1868 until the Meiji [MAY-jee] Restoration.

Answer: **Tokugawa [toe-koo-GAU-wuh]** Ieyasu [ee-AY-uh-soo]

C. This rank was held by many people, including Oda Nobunaga [noe-boo-NAH-guh] and Toyotomi Hideyoshi [toy-uh-TOE-me hee-day-YO-she], who were feudal lords. This Japanese word refers to the land that these people owned.

Answer: **daimyo**s

3. This category includes conifers and the ginkgo [GEENK-oh] plant.

A. Identify this category of plant whose name means "naked seeds".

Answer: **gymnosperm**s ["**GYM-no-sperm**s"] [or **Acrogymnosperm**ae]

B. These plants are the closest living relatives of gymnosperms and angiosperms that do not fit into either category. They reproduce by spores, and their leaves are called fronds.

Answer: **fern**s [or **Polypodiopsida**]

C. Ferns and early gymnosperms developed during this geologic period, about 400 million years ago. It is sometimes called the Age of Fishes.

Answer: **Devonian** Period

4. This department is nicknamed "the Department of Everything Else".

A. Name this Cabinet-level department that oversees the National Park Service.

Answer: United States Department of the **Interior** [or the **Interior** Department]

B. While serving as Franklin Roosevelt's secretary of the interior, Harold Ickes [IK-eez] also led this agency that spent billions of dollars on construction projects.

Answer: **Public Works Administration** [or **PWA**; do not accept "WPA"]

C. Ickes oversaw the finishing of this major project. It was named for the person who worked out a deal for it when he was the secretary of commerce, which was before he became president.

Answer: **Hoover Dam**

5. This concept is used to find denominators when adding or subtracting fractions.

A. Give this term for the smallest positive number that two given numbers are both a factor of. Don't include the word "denominator" in your answer.

Answer: **least common multiple** or **lowest common multiple** [accept **LCM**; accept **smallest common multiple**]

B. Find the least common multiple of 12 and 20.

Answer: **60**

C. Find the smallest integer greater than 1 that is a factor of the least common multiple of 13 and 77.

Answer: **7**

6. After several rejected drawings of sheep in this book, a person draws a box with air holes in it.

A. Name this book, originally written in French, in which a drawing of a snake eating an elephant is mistaken for a picture of a hat.

Answer: *The **Little Prince*** [or *Le **Petit Prince***]

B. The Little Prince visits six asteroids before Earth, the first of which has a man who holds this position. This man sits on a throne and considers everybody to be his subject.

Answer: **king** [accept **roi**]

C. The last of the six asteroids has a man who has this job, and who talks about how it is different than being an explorer.

Answer: **geographer** [accept **géographe**]

7. Nickel and this element are the most abundant elements in the Earth's core.

A. Name this primary ingredient in steel.

Answer: **iron** [accept **Fe**]

B. In this process, steel or iron is coated with zinc to prevent rust.

Answer: **galvanization** [or **galvanizing**]

C. This compound was the first one found to protect iron through passivation ["passive"-AY-shun]. This compound is sometimes called "aqua fortis".

Answer: **nitric acid** [or **HNO_3**; prompt on **spirit of niter**]

8. In October 2019, the United States announced that it was sending an additional 1,800 troops to this country.

A. Name this country that murdered the journalist Jamal Khashoggi [kuh-SHOHG-ee] in Turkey in 2018 and which has played a major role in the Yemen Civil War.

Answer: (Kingdom of) **Saudi Arabia** [or al-Mamlakah al-**Arabiyah** as-**Suudiyah**]

B. This person became the king of Saudi Arabia in 2015.

Answer: **Salman** bin Abdulaziz Al Saud [prompt on **Saud**]

C. This president of Yemen moved to Saudi Arabia in 2015 when the Houthi [HOO-thee] movement took over Yemen's presidential palace.

Answer: Abdrabbuh Mansur **Hadi**

9. Identify these people who represented Tennessee in the U.S. Senate:

A. This person was a senator both before and after being president. He became president when Abraham Lincoln was assassinated.

Answer: Andrew **Johnson**

B. This senator–whose father was also a senator from Tennessee–stepped down to be Bill Clinton's vice president, then failed to carry Tennessee when he ran for president in 2000.

Answer: Al(bert Arnold) **Gore** (Jr.)

C. This senator became the longest-serving secretary of state in U.S. history. He received a Nobel Peace Prize for his role in drafting the United Nations Charter.

Answer: Cordell **Hull**

10. This city is often credited as the birthplace of jazz due to performances by "Buddy" Bolden and Jelly Roll Morton.

A. Name this city where Preservation Hall is in the French Quarter just off of Bourbon Street.

Answer: **New Orleans**, Louisiana

B. During the 1910s, many New Orleans musicians performed for this trombonist and bandleader before he moved to Los Angeles. Those musicians included Joe "King" Oliver and Louis Armstrong.

Answer: Edward "Kid" **Ory**

C. Many jazz musicians, including Louis Armstrong and Washington D.C.'s Duke Ellington, moved to this city and performed in the Cotton Club during the 1920s and 30s.

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

11. This quantity is usually measured in amperes.

A. Name this quantity equal to the rate of flow of electric charge.

Answer: electric **current**

B. This quantity is a measure of a specific object's ability to carry electric current. It equals current divided by electric potential difference, and it also is the reciprocal of resistance.

Answer: **conductance** [do not accept "conductivity"]

C. According to this law, the electric current generated by a current-carrying wire is proportional to the current divided by the square of the distance from the wire. It is usually expressed using an integral.

Answer: **Biot-Savart** [bee-oh sah-var] law

12. This series of meetings occurred in 1814 and 1815.

A. Name these meetings at which the United Kingdom was represented by Viscount Castlereagh ["VIE-count CASTLE-ray"] and the Duke of Wellington, while France was represented by Talleyrand.

Answer: **Congress of Vienna** [or **Wiener Kongress** or **Vienna Congress**]

B. This Foreign Minister of the Austrian Empire was the chair of the Congress of Vienna.

Answer: Klemens von **Metternich** [MET-ur-nik]

C. At the Congress of Vienna, Sweden gained control of Norway from Denmark, but lost this territory to Prussia.

Answer: Swedish **Pomerania** [or New Western **Pomerania**]

13. The characters in this story state a few times "Strange they don't see us."

A. Name this story about a captain, an oiler, a cook, and a correspondent.

Answer: "The **Open Boat**"

B. This author wrote "The Open Boat" and *The Red Badge of Courage.*

Answer: Stephen **Crane**

C. Stephen Crane also wrote "The Blue Hotel", in which a man from this country repeatedly says that he will not leave the room alive.

Answer: **Swede**n

14. In some texts, this term refers to orderings of a set, though in most high school textbooks it refers to the orderings of a subset.

A. Name this operation which calculates how many ways you can choose r objects from a set of n objects, if order matters and repetition is not allowed.

Answer: **permutation**s [accept **permuting**; prompt on n**P**r]

B. In how many ways can three objects be selected from a set of six objects, if the order matters and repetition is not allowed?

Answer: **120** ways

C. In how many ways can three objects be selected from six objects if it matters which one is first but does not matter which one is second? Repetition is not allowed.

Answer: **60**

15. Answer the following about religions that use stars as symbols:

A. A star combined with this shape used to be a symbol of the Ottoman Empire, and is now used as a general Islamic symbol. A star with this shape is on the flags of Turkey, Pakistan, and other countries.

Answer: **crescent** (moon) [prompt on **moon**]

B. Judaism can be symbolized by a six-pointed star, which in the last few centuries has become named for this Biblical king.

Answer: (Star of) **David**

C. This religion often uses nine-pointed stars because it considers nine to be a symbol of perfection and because this religion considers itself the ninth in a line of religions.

Answer: **Baha**'ísm or **Baha**'í faith

16. This is the regular polyhedron [pah-lee-HEE-drun] with eight vertices [VER-tuh-seez] and six faces.

A. Name the only Platonic solid that has square faces. It is sometimes called a hexahedron [HEK-suh-hee-drun].

Answer: **cube** [accept **cubic** polyhedron]

B. How many edges does a cube have?

Answer: **12** edges

C. The four-dimensional analogue of a cube is a tesseract. How many vertices does a tesseract have?

Answer: **16** vertices

17. The sepal [SEE-pul], or calyx [KAL-iks], is at the base of this part of a plant.

A. Name this reproductive part of many plants that is easily noticed because of its colorful petals.

Answer: **flower**(s)

B. This primary part of a flower gynoecium [jin-EE-see-um] contains an ovary, style and stigma.

Answer: **pistil**

C. The stamen of a flower contains these little stalks that hold up the anthers.

Answer: **filament**s

18. Some fictional dogs are good dogs, and some fictional dogs are bad dogs.

A. This Daniel Defoe character got the captain's dog and two cats when he survived a shipwreck. The dog helped him hunt so he could survive on an island.

Answer: **Robinson Crusoe** [accept either]

B. In this novel by Charles Dickens, Bill Sikes owns the dog Bull's-eye, who looks "as if he were anxious to attach himself to [the title character's] windpipe without delay."

Answer: ***Oliver Twist*** [do not accept or prompt on "Oliver"]

C. In this play by William Shakespeare, Crab is "the sourest-natured dog that lives". Crab is owned by Launce, the servant of Proteus in this play.

Answer: *The **Two Gentlemen of Verona***

19. A parsec is about 3.26 of these units, so a mega·parsec is over 3 million of these units.

A. Name this unit of distance that is as far as an object can travel in 365.25 Earth days.

Answer: 1 **light-year**

B. About a billion years ago, this galaxy was a mega·parsec from the Milky Way. It is moving towards us, which could be a problem in a few billion years.

Answer: **Andromeda** Galaxy [accept **M**essier **31**]

C. This very bright galaxy is about 10 mega·parsecs from the Milky Way. Its name is based on its unusual appearance, which is due to a dust lane around it.

Answer: **Sombrero** Galaxy [accept **M**essier **104**]

20. In Titian's [TEE-shun'z] painting of this subject, he showed himself holding the hand of Jesus.

A. Give the Italian name for depictions of Mary holding the dead body of Jesus.

Answer: **Pietà**(s) [pee-ay-TAH]

B. This artist's *Pietà* is in St. Peter's Basilica in Vatican City. This artist also painted the nearby Sistine Chapel ceiling.

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

C. This painter's Pietà is in the Uffizi [oo-FEE-zee] gallery. This painter's fresco *The Delivery of the Keys* is in the Vatican.

Answer: Pietro **Perugino** [pair-oo-JEE-noh] [or Pietro **Vannucci**]