

## 2022 Reinstein Set – Packet 8

### Tossups

1. One piece by this composer quotes the funeral march of Beethoven's *Eroica Symphony* and was written for 23 solo string instruments. That work was composed at the end of World War II after the destruction of opera houses that had performed this composer's works. Another work by this composer begins with rising half notes that play C, then G, then C, then two chords followed by percussion. That passage is in the introduction, which is titled "Sunrise" and was used in the film *2001: A Space Odyssey*. Name this German composer of *Metamorphosen* and *Also sprach Zarathustra*.

Answer: Richard (Georg) **Strauss** [REEK-hart shtraoss]

2. This process can be done with silver perchlorate [pur-KLOR-"ate"] to polyacetylene [PAH-lee-uh-SEE-tuh-leen] to get that material to behave like a metal. This process is often done with boron or phosphorus, because elements with three or five valence electrons improve the efficiency of elements with four valence electrons. The material that this process is done to becomes either an *n*-type or a *p*-type, depending on whether it becomes more efficient at conducting electrons or holes. This process can increase conductivity by a factor of 1 million. Name this purposeful introduction of impurities into a semiconductor crystal.

Answer: semiconductor **doping** [accept **doped** or **dopant**]

3. Despite being outnumbered, this person was able to win a battle against John de Warenne, Earl of Surrey by trapping enemy troops on and near a narrow bridge, though this person's ally Andrew Moray was fatally wounded. This person lost the Battle of Haprew, but he was able to escape with his ally Simon Fraser. Much earlier, this person lost the Battle of Falkirk. This hero of the Battle of Stirling Bridge was eventually executed on the orders of Edward I. Name this 13th- and 14th-century fighter who was replaced by Robert the Bruce as a leader in the First War of Scottish Independence.

Answer: William **Wallace**

4. At the beginning of a short story by this writer, the narrator mistakenly rings up HiHo crackers twice. This author ended that story with the narrator quitting his job because he thinks his manager, Lengel, unnecessarily embarrassed three female customers. In a novel by this author, the protagonist's rivalry with Ronnie Harrison heats up after an affair with Ruth Leonard. This author describes that affair starting after the protagonist visits Marty Tothero, his former basketball coach. That novel is the first of four novels that this author wrote about Harry Angstrom. Name this author who wrote "A&P" and *Rabbit, Run*.

Answer: John (Hoyer) **Updike**

5. This phenomenon and the energy associated with it can be measured by a contact angle **goniometer** [goh-nee-AH-mih-tur]. A coefficient representing this phenomenon is in the numerator of **Jurin's** [JUR-in'z] law, which is used to analyze capillary action. This phenomenon can be measured using a vertical plate called a Wilhelmy plate or a slowly rising ring called a Du **Noüy** [nwee] ring. This phenomenon occurs when cohesion is stronger than adhesion because liquid molecules have a stronger attraction to each other than they do to nearby air molecules. Name this phenomenon that explains why some insects are able to walk on water.

Answer: **surface tension**

6. In this novel, when one character says “Blessed be the fruit”, the reply is supposed to be “May the Lord open.” Shortly after one of those introductions, this novel’s narrator remembers that Rita and Cora knew a woman who was recently shot by guardians. Like many of the people in this novel, the dead woman is called a “Martha”, which means that she had to wear green. The first person who says “Blessed be the fruit” in this novel is a Mayday resistance member named **Ofglen** [“of-glen”]. Name this novel set in the Republic of Gilead, where women have lost their freedom, and which was written by Margaret Atwood.

Answer: *The **Handmaid's Tale***

7. Give either the common name or the scientific family name. The ***Bothriomyrmex decapitans*** [“both”-REE-oh-MEER-mekss dee-KAP-ih-tanz] species of this animal family gets its name from biting off the heads of the ***Tapinoma*** [tap-ih-NOH-muh] genus. The complex interactions used by these animals to support each other led to the development of sociobiology by E. O. Wilson, who was an expert on these animals. Like wasps and bees, these common animals belong to the order ***Hymenoptera*** [“hi-men”-AHP-teh-ruh] within the class Insecta, and they have drones and queens. These insects can be yellow or red but are usually brown or black. Name these very common insects, some types of which are called “carpenter” and “fire”.

Answer: **ants** [or **Formicidae**]

8. This leader was criticized for the *Gukurahundi* [goo-kuh-rah-OON-dee] massacres, and Peter Tatchell tried to arrest him when he went to London. This person came to power after fighting a three-way war against Joshua Nkomo [nuh-KOH-moh] and Ian Smith, which led to the Lancaster House Agreement. When this person came to power, he forcibly took land from white farmers so it could be redistributed. By 2009, this leader had his country recognize U.S. dollars as legal tender in order to address hyperinflation. This leader left office in 2017 and died in 2019. Name this former president of Zimbabwe.

Answer: Robert (Gabriel) **Mugabe** [moo-gah-bay]

9. During the season-4 finale of this television show, one of the characters finds out that her father—who was played by Beau Bridges—has died. As a result, Anna Deavere [duh-VEER] Smith’s character Alicia Johnson is now a widow. The main characters on this show are a husband and wife who are an advertising executive and an anesthesiologist. Some recurring characters on this show are played by Raven-Symoné [sih-MOHN] and Daveed [dah-VEED] Diggs. The main characters, nicknamed “Dre” [dray] and “Bow” [boh], are played by Anthony Anderson and Tracee Ellis Ross. Name this ABC show that started in 2014 and is about a wealthy African-American family.

Answer: ***Black-ish***

10. When *Miranda v. Arizona* was argued before the Supreme Court, this person made the final argument that the U.S. could not supply counsel to all defendants. This person was the U.S. Solicitor General at the time. This person claimed that the most important case he argued as a lawyer was *Smith v. Allwright*, which made it easier for some people to vote in primaries. In his role as NAACP chief counsel, this person also represented the winning side in *Brown v. Board of Education*. Name this person who in 1967 was appointed to the Supreme Court by President Lyndon Johnson, making him the first African-American Supreme Court justice.

Answer: Thurgood **Marshall**

11. Stars named for these phenomena are also dwarf and variable stars, including UV Ceti [“SEE-tie”]. That star, also known as Luyten 726-8 [“LIE-ten seven twenty-six dash eight”], goes through extreme changes in brightness, like other stars named for these phenomena. A small number of these actual phenomena, as opposed to the stars named for them, are classified as spotless and exhibit less energy than the others. These phenomena usually occur with sunspot activity. Major examples of these phenomena occur along with coronal [kuh-ROH-null] mass ejection and can be detected in the Earth’s magnetosphere [mag-NEE-toh-“sphere”]. Name these brief eruptions from the Sun’s surface.

Answer: (solar) flares

12. Four months after his biggest victory, this person helped Wesley Merritt increase its scope. This leader’s major victory was a six-hour fight against troops under Patricio Montojo y Pasarón [pah-TREE-see-oh mohn-TOH-hoh ee pah-sah-ROHN]. Leading up to that second battle, this person worked closely with Emilio Aguinaldo [ah-gwee-NAHL-doh]. This person won victory near Cavite [kah-VEE-tay] Island after commanding “You may fire when you are ready, Gridley.” This person was the only person ever named U.S. Admiral of the Navy. Name this commander who destroyed the Spanish Pacific fleet in 1898 at the Battle of Manila Bay.

Answer: George Dewey

13. Unlike the osculating [AH-“skew”-lay-ting] circle, the osculating type of this surface is defined by the tangent and normal vectors. On a Riemann [REE-mahn] sphere, every point except one maps to one of these surfaces—specifically, the one named for Jean-Robert Argand [zhahn roh-bair ar-gawn], which represents the complex numbers. This surface contains all points expressible by two Cartesian [kar-TEE-zhun] coordinates. The first six books of Euclid’s [YOOK-lid’z] *Elements* develop a geometry which is often named for this surface before that book extends into three dimensions. Name this flat, infinite, two-dimensional surface.

Answer: plane or planar

14. One poem by this writer contains the stanza “True, a new mistress now I chase, the first foe in the field; and with a stronger faith embrace a sword, a horse, a shield.” That poem is paired with another poem by this writer whose title contains the phrase “Going beyond the Seas”. Another poem by this writer begins “When love with unconfined wings hovers within my gates”. This writer began the last stanza of that poem with the lines “Stone walls do not a prison make, nor iron bars a cage.” Name this English poet who wrote “To Lucasta, Going to the Wars” and “To Althea, from Prison”.

Answer: Richard Lovelace

15. In one painting by this artist, it is uncertain whether the two young girls being held up by old women on the right side are about to be initiated or eaten. In that painting, this artist depicted a circle of women around a large goat. That painting, *Witches’ Sabbath*, is part of this painter’s series of *Black Paintings*. Another painting by this artist depicts a man in a white shirt with his hands up just before he is killed by a firing squad. That painting, which is one of this painter’s works portraying the horrors of war, glorifies Spanish resistance to Napoleon. Name this painter of *The Third of May, 1808*.

Answer: Francisco (José de) Goya (y Lucientes)

16. In both 1973 and 1993, ancient versions of this text were found in tombs, and those findings supported theories that this text was written by several authors. According to legend, this text was written by somebody who was born old and lived for 990 years. According to this book, “He who knows does not speak; he who speaks does not know.” The first of this text’s 81 sections states “The name that can be named is not the enduring and unchanging name.” Name this text whose title means “Classic of the Way of Power” and which, according to legend, was written by Lao Tzu.

Answer: Tao Te Ching [the ‘T’s may be pronounced like ‘D’s; prompt on *The Book of Lao Tzu* or *The Way of Lao Tzu* or *Classic of the Way of Power*]

17. At the beginning of a play by this writer, the title character tells his servant “Open the shrine, that I may see my Saint,” causing the servant to put gold and jewelry on display. In that play, this writer has Corbaccio [kor-BAH-chee-oh], Corvino [kor-VEE-noh], and Voltore [vohl-TOR-ay] try to flatter the title character in an attempt to get into his will. This writer used the line “He was not of an age but for all time” in his poem “To the Memory of My Beloved the Author, Mr. William Shakespeare”, and he used the opening line “Drink to me only with thine eyes” in his poem “To Celia”. Name this playwright of *Volpone* [vol-POH-nay], or *The Fox*.

Answer: Ben(jamin) Jonson

18. This person often worked closely with Justus Liebig [YOOSS-tooss LEE-bik], and together they are credited with making lab-work part of science classes. Before aluminum was produced by the Hall-Hérout [air-ohl] process, this person refined a process by Hans Christian Ørsted that used potassium to get aluminum metal. Another production process discovered by this scientist created a substance made of the same elements in the same proportion as ammonium cyanate [“SIGH”-uhn-“ate”]. That discovery is given much credit, though probably too much credit, for ending the belief in vitalism. Name this German scientist who in 1828 synthesized urea [yur-EE-uh].

Answer: Friedrich Wöhler [FREE-drik VUH-lur]

19. The effect of the 14th Amendment on this other amendment was clarified in *Gregg v. Georgia*, which was an attempt to extend the application of this amendment in *Furman v. Georgia*. A different clause in this Amendment was clarified by *United States v. Bajakajian* [bah-juh-KAH-jee-un], which was based on a person leaving the United States without reporting that he was taking an amount over 10,000 dollars. Justice Earl Warren wrote that this constitutional amendment should be applied with “evolving standards of decency”. This amendment has been the basis of several decisions about the death penalty. Name this amendment that prohibits excessive bail, excessive fines, and cruel and unusual punishment.

Answer: 8th Amendment

20. One of the characters in this novel is told “I always told you that nobody should carry as good a watch as that.” The mother of the character whose watch is stolen later asks this novel’s narrator “Why are you living then, when he is dead?”. This novel’s narrator tells the mother that Franz died instantly from a shot to the heart, which is a lie. Many of the characters in this novel are students of Kantorek [kan-TOR-ek], who encourages them to fight in World War I. Name this novel about Paul Bäumer [BOY-mur] that was written by Erich [AIR-ik] Maria Remarque [“remark”].

Answer: *All Quiet on the Western Front* or *Im Westen nichts Neues*

21. One theory behind the development of this unit of measure combines the use of equilateral triangles and a sexagesimal [“sex”-uh-JESS-ih-mull] numeric system. Though it is common to use this unit of measure for many applications, this unit is generally avoided in calculus because trigonometric derivatives are not simple with this unit. Though this unit does not measure time, it can be divided into minutes and seconds. 90 of these units equals 100 gradians. Approximately 57.3 of these units is equal to one radian; the exact conversion is 180 over pi. Name this unit used for angles that divides a circle into 360 parts.

Answer: degrees

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### Bonuses

1. Though this novel is set in the United States, its prologue is in a villa overlooking Rome.

A. Name this novel about Jean-Marie Latour's travels to and around New Mexico in support of Catholicism.

Answer: *Death Comes for the Archbishop*

B. *Death Comes for the Archbishop* was written by this author, who also wrote *My Ántonia* [AN-toh-NEE-uh].

Answer: (Wilella Sibert) "Willa" Cather

C. Much of *My Ántonia* is set in this fictional town in Nebraska.

Answer: Black Hawk

2. There were protests in this location from April 15 to June 4, 1989.

A. Name this location in Beijing where students marched for a more open government.

Answer: Tiananmen Square

B. This Chinese leader, who was officially the chairman of the Central Military Commission at the time, was criticized for his crackdown against the protests. This person also replaced Zhao Ziyang with Jiang Zemin [j'yahng zuh-MIN] as General Secretary.

Answer: Deng Xiaoping [prompt on Xiaoping]

C. In the middle of the protests, Deng met with this last major leader of the Soviet Union.

Answer: Mikhail Gorbachev

3. Identify these human hormones:

A. This hormone is the primary male sex hormone. Men have about eight times as much of this androgen hormone as women.

Answer: testosterone

B. This steroid hormone is released by the adrenal [uh-DREE-null] gland during stress, and it makes glucagon [GLOO-kuh-gahn] and adrenaline more effective.

Answer: cortisol

C. This hormone, produced in the kidney chromaffin ["CHROME-uh-fin"] cells, binds to morphine receptors and is similar to endorphins.

Answer: enkephalin(s) [en-KEFF-uh-lin]



4. The United States fought three wars against these people between 1816 and 1858.

A. Name these Native Americans, many of whom live in Florida.

Answer: **Seminole** people or **Seminoles**

B. This person led several Seminole fighters during the Second Seminole War, but he was captured under a false flag of truce. This person died while still in captivity.

Answer: **Osceola** [ah-see-OH-luh] [or Billy **Powell** or **Asi-yahola**]

C. While Osceola was busy killing Wiley Thompson, several Seminoles took part in this event that killed 107 members of the U.S. Army going from Fort Brooke to Fort King.

Answer: **Dade's** massacre

5. Computers often generate these numbers using thermal noise or mouse movements because they are unpredictable, while humans may generate them by rolling dice.

A. Name these numbers that are chosen by chance.

Answer: **random** numbers

B. If two fair six-sided dice are rolled, find the probability that both of them come up 1. Give your answer as a fraction.

Answer: **1/36**

C. If three dice are rolled, find the probability that *none* of them comes up 1. Give your answer as a fraction.

Answer: **125/216**

6. This poem begins “Before the wig and the dress coat there were rivers, arterial rivers.”

A. Name this history of the Western Hemisphere in 15 cantos, beginning with “A Lamp on Earth”.

Answer: **Canto General** [KAHN-toh hen-ay-RAHL]

B. *Canto General* was written by this Chilean poet who also wrote *Twenty Love Poems and a Song of Despair*.

Answer: Pablo **Neruda** [or (Ricardo Eliécer) Neftalí **Reyes** Basoalto]

C. In an ode to these objects, Pablo Neruda wrote “Beauty is twice beauty, and what is good is doubly good.”

Answer: “Ode to My **Socks**”

7. The elevation of boiling point and the depression of freezing point caused by adding solutes are both these types of properties.

A. Give this term for properties that depend on the amount of solute rather than properties of the solute.

Answer: **colligative** [kuh-LIG-uh-tiv] properties

B. This colligative property is defined as the pressure that must be applied to a solution to stop fluid movement across a semi-permeable membrane.

Answer: **osmotic** [ahz-MAH-tik] pressure

C. In Raoult's law, this quantity is multiplied by the equilibrium vapor pressure of the component to calculate total vapor pressure, which is another colligative property.

Answer: **mole fraction** [do not prompt on partial answers]

8. This state is between Colorado and Missouri.

A. Name this state whose most populous city is Wichita and whose capital is Topeka.

Answer: **Kansas**

B. This fort in Kansas was built in 1827. It now contains a maximum-security prison.

Answer: Fort **Leavenworth**

C. This cattle trail is named after the person of Scottish-Cherokee descent who started it with Black Beaver. In the 19th century, this trail was used to take cattle between Texas and places in Kansas such as **Abilene** [AB-ih-leen].

Answer: **Chisholm** Trail

9. This event started with forced closures of courts and grew to an attack on the Springfield Arsenal.

A. Name this rebellion in Massachusetts in 1787.

Answer: **Shays'**(s) Rebellion [do not accept "Shay"]

B. This person was the Secretary of War at the time and later became President Washington's first Secretary of War. He helped stop the rebellion but was mostly powerless because the federal government was so weak.

Answer: Henry **Knox**

C. This person led a militia that stopped the rebellion. Earlier, this person accepted Charles O'Hara's sword to signify the British surrender at Yorktown.

Answer: Benjamin **Lincoln**

10. Name these violinists:

A. This person, nicknamed the “Red Priest”, was a highly regarded violinist in the early 18th century. He also wrote the *Four Seasons*.

Answer: Antonio (Lucio) **Vivaldi**

B. This person, born in what is now Israel, suffered through polio as a child. He was the soloist on the *Schindler’s List* soundtrack and has performed many times with **Pinchas [PEEN-kuss]** Zukerman.

Answer: Itzhak **Perlman**

C. This person famously broke two E-strings when she was 14-years-old and being conducted by Leonard Bernstein in 1986.

Answer: **Midori Goto** [accept either]

11. This country was led by Josip Broz Tito from 1953 to 1980.

A. Name this Balkan country that broke up violently during the 1990s.

Answer: (Socialist Federal Republic of) **Yugoslavia**

B. This person became the first president of the Republic of Serbia in 1991. He was on trial for war crimes when he died.

Answer: Slobodan **Milošević** [**mi-LOH-shuh-vich**]

C. **Franjo Tudjman** [**FRAHN-yoh TOOJ-mun**] became the first president of this country by promising to protect it from Milosević.

Answer: (Republic of) **Croatia** [or (Republika) **Hrvatska**]

12. This type of oscillation can be approximately demonstrated by a weight hanging from a spring.

A. Give this three-word term for motion caused by a restoring force that is proportional to displacement. Your answer should have three words.

Answer: **simple harmonic motion** or **simple harmonic oscillation** [accept **simple harmonic oscillator**; prompt on **SHM** or **SHO**]

B. A pendulum exhibits simple harmonic motion if you make the simplifying assumption that what function is always equal to the angle theta?

Answer: **sine** theta or the **sine** of the angle of displacement from equilibrium

C. For a pendulum, this quantity equals length times mass times little *g* times sine theta. Give a one-word answer.

Answer: **torque**

13. The characters in this play are thrown for a loop when they learn that Theodore “Hickey” Hickman no longer drinks.

A. Name this play set in Harry Hope’s saloon in New York City.

Answer: *The **Iceman Cometh***

B. *The Iceman Cometh* was written by this author who also wrote *Long Day’s Journey into Night*.

Answer: Eugene (Gladstone) **O’Neill**

C. Hickey is accused of re-starting this war when **Piet Wetjoen** [peet weh-“TONE”] yells at Cecil Lewis.

Answer: (Second) **Boer** War

14. This shape is used to approximate integrals by approximating a function’s graph as a series of line segments.

A. Name these quadrilaterals that have *one* pair of opposite parallel sides.

Answer: **trapezoids** [accept **trapeziums**]

B. Find the area of a trapezoid if its bases measure 5 units and 7 units and the height is 3 units.

Answer: **18** square units

C. If one of the bases of a trapezoid makes a 75-degree angle with a side, find the measure, in degrees, of the angle between the other base with the same side.

Answer: **105** degrees

15. Identify these ugly gods and creatures from Greek mythology.

A. This Greek god of blacksmiths was often portrayed as misshapen, which might explain why his beautiful wife **Aphrodite** [af-roh-“DIE”-tee] often cheated on him.

Answer: **Hephaestus**

B. This creature lost a battle with Zeus for control over the gods and mated with **Echidna** [eh-KID-nuh] to create several monsters.

Answer: **Typhon** [“TIE”-fahn]

C. These creatures were part woman and part bird. They are beautiful in early depictions, but over time their portrayals made them uglier and uglier.

Answer: **harpy**/ies

16. This concept is very similar to that of residual and error.

A. Name this quantity found by subtracting an observed value minus the expected value, where the expected value is often the mean. Give a one-word answer.

Answer: deviation

B. This quantity equals the average value of the squares of the deviations. This quantity is the square of the standard deviation.

Answer: variance

C. What is the variance of the standard normal distribution? Your answer should be a number.

Answer: 1

17. Lipids are a principal component of cell membranes.

A. These lipids, which are the main constituents of body fat, contain fatty acids.

Answer: triglycerides [try-GLISS-uh-rides]

B. Triglycerides are also these types of organic compounds formed by replacing an acid's hydrogen with a hydrocarbon group. The hydrocarbon group used is often an alkyl [AL-kil].

Answer: ester

C. Some lipids are this type of molecule that has one end attracted to water and one end repelled by water.

Answer: amphiphile(s) [AM-fih-“file”] or amphiphilic molecule(s) [or amphipathic molecules or amphipaths]

18. In this novel, Miss Gostrey says “What you’ve come out for then is simply to render him an immense service.”

A. Name this novel in which Miss Gostrey is talking about Lewis Lambert Strether’s attempts to bring Chad Newsome back to America.

Answer: *The* **Ambassadors**

B. This author wrote *The Ambassadors*, *The Portrait of a Lady*, and *Daisy Miller*.

Answer: Henry **James**

C. Henry James also wrote this novella about the siblings Miles and Flora and the ghosts of Miss Jessel and Peter Quint.

Answer: *The* **Turn of the Screw**

**19.** These storms are the same type of storm as cyclones or typhoons, but they take place in the Atlantic Ocean or northeastern Pacific Ocean.

A. Name these massive storms that often strike the southeastern United States.

Answer: hurricanes

B. The strongest Atlantic hurricanes usually start near these islands west of Senegal.

Answer: Cape Verde [or Cabo Verde]

C. This effect occurs in storms where the clouds surrounding the eyewall bend outwards. This effect is named for what the clouds look like.

Answer: stadium effect

**20.** Answer the following about the Japanese woodblock commonly called *The Great Wave off Kanagawa*.

A. This artist made the print.

Answer: (Katsushika) Hokusai

B. *The Great Wave* is the first of 36 Hokusai prints showing this mountain.

Answer: Mount Fuji [or Fuji-san]

C. This many fishing boats can be seen in *The Great Wave*.

Answer: three fishing boats