

## 2023 Reinstein Set – Packet 5

### Tossups

1. This composer repeatedly used treble-clef 16th notes followed by dotted eighth notes alternating with pairs of bass-clef 16th notes in the first movement of *Piano Sonata Number 30*. That piece was written shortly after this composer's *Hammerklavier Piano Sonata*. The final movement of this composer's third symphony uses a theme he had used earlier in the ballet *The Creatures of Prometheus*. This composer originally dedicated that symphony to Napoleon but renamed it *Eroica* [eh-ROH-ih-kah]. Name this German composer who used the “short-short-short-long” motif to open his 5th symphony.

Answer: Ludwig van **Beethoven**

2. A controversial version of Heisenberg's uncertainty principle combines the uncertainty of this quantity with the uncertainty of time. In time-independent quantum mechanics, this quantity is equivalent to the Hamiltonian. Electric potential is measured in units of this quantity divided by units of charge. The first law of thermodynamics is based on the conservation of this quantity, and in thermodynamics heat is treated as a form of this quantity. Work equals the change in this quantity. Name this conserved quantity that has kinetic and potential forms.

Answer: **energy**

3. It is possible that some of this explorer's possessions were found with Native Americans by the Portuguese explorer Gaspar *Corte-Real* [kort ray-ahl]. This person's last voyage had five ships, one of which was damaged and forced to go to Ireland and the other four of which were never found. The strait north of Cape *Breton* [BREH-tun] Island is now named for this explorer. This person sailed on the ship *Matthew* when he left Bristol in 1497 with the support of King Henry VII [7]. Name this explorer who reached Cape Breton Island, Labrador, or *Newfoundland* [NOO-fund-lund], which means he is probably the first European to reach North America after the Vikings.

Answer: John **Cabot** [or Giovanni **Caboto**]

4. In one novel by this author, the title character swings a boy around for fun, but she loses her grip, causing him to drown. This author portrays the lack of guilt felt by the title character's friend Nel Wright for the death of Chicken Little. In another novel, this author describes a statuette that says "At Yo' Service" and belongs to the Bodwins. The protagonist of that novel tries to attack Mr. Bodwin with an ice pick. In that novel, this author has Stamp Paid explain to Paul D why the community is afraid of Sethe [SETH-uh]. Name this author of *Sula* and *Beloved*.

Answer: Toni Morrison [or Chloe Ardelia Wofford or Chloe Anthony Wofford Morrison]

5. A cloud named for this process, which is sometimes called a Wilson cloud, can briefly form rings around a mushroom cloud during a massive explosion in places where the air is spread out. Traps named for this process are sometimes used to prevent bathroom fans from causing damage to ducts. Cloud seeds, which are often just dust, act as nuclei for this process. The process of deposition can be informally understood as a combination of this process and freezing. This process is the reverse of vaporization. This process occurs when water forms on a cold glass. Name this phase change from gas to liquid.

Answer: condensation [or condensing; accept condenses]

6. In a work by this writer, the centaur Chiron [KY-rah-n] threatens the protagonists with an arrow when he sees that they cause rocks to move, but Chiron then provides Nessus to help them. That occurs near a river of blood. Later in the same work by this writer, the protagonists get a ride from Geryon [GAIR-ee-ahn] to the Circle of Fraud, and they eventually reach a region named for Judas Iscariot. This writer described a gate containing the words "Abandon all hope, you who enter here." This author portrayed himself being guided through Paradise by Beatrice. Name this Italian writer from the Middle Ages who wrote the *Divine Comedy*.

Answer: Dante Alighieri [DAH-N-tay ah-leeg-ee-"AIR"-ee] [accept either underlined name; or Durante degli Alighieri]

7. Some species of the *Halomonas* genus of this type of organism can consume rust. A common way to classify these organisms into two categories uses Lugol's iodine to determine the thickness of their **peptidoglycan** [PEP-tid-oh-GLY-kan] layer. A large proportion of the **monera** [moh-NER-uh] kingdom consists of these organisms, and under Carl **Woese's** [WOHZ'z] system, these organisms are a domain alongside **Archaea** [ar-KEE-uh] and **Eukarya** [yoo-KAR-ee-uh]. Round examples of these organisms are called **cocci** ["COCK-see"], while rod-shaped examples are **bacilli** [buh-SILL-"eye"]. Name these single-celled **prokaryotes** ["pro-CARRY-oats"] that are responsible for diseases which can be treated with antibiotics.

Answer: **bacteria** [or **bacterium**; accept **eubacteria**; prompt on **prokaryotes** before "iodine"]

8. Before this person was well known, he ordered an aggressive attack against Italian forces at the Battle of **Tobruk** [TOH-bruk]. This person stopped Greek forces at the Battle of the **Sakarya** [suh-KAR-yuh]. As a politician, this person started the Republican People's Party, which included Republicanism, Populism, Nationalism, and **Laicism** [LAY-uh-sizm] as four of its "Six Arrows", which played a role in westernizing this person's country. This person changed his country's alphabet from being based on Ottoman to being based on Latin. Name this person who from 1923 to 1938 served as the first president of Turkey.

Answer: **Mustafa Kemal Atatürk** [moo-STAH-fuh **kay-MAHL AT-uh-turk**] [accept either underlined name]

9. This newspaper employs the first woman to win both the Reuben Award and the Pulitzer Prize for Editorial Cartooning, Ann **Telnaes** [TELL-neeZ]. Megan McArdle and Kathleen Parker currently work for this newspaper. This newspaper was published by Katharine Graham from 1963 to 1991, and in 2013 the Graham family sold it to Nash Holdings, which is controlled by Jeff **Bezos** [BAY-zohss]. This newspaper employed Carl **Bernstein** [BURN-steen] and Bob Woodward when they investigated Watergate. Name this newspaper that is headquartered in our nation's capital.

Answer: *The **Washington Post***

10. According to some accounts of this battle, Salem Poor shot James Abercrombie when he yelled “Surrender, you rebels.” One consequence of this battle is that three months later William Howe was given a command that had previously been held by Thomas Gage. This battle was fought on June 17, 1775. By the end of this battle, the British controlled Charlestown Peninsula in Boston, but this battle discouraged further British attacks because of the large number of British casualties. Name this battle at which William Prescott gave the legendary command “Don’t fire until you see the whites of their eyes.”

Answer: Battle of **Bunker Hill** [accept Battle of **Breed’s Hill**]

11. The species name of *Euophrys omnisuperstes* [yoo-FREEZ ahm-nee-SOO-pur-steez] was given because they live on these features. These features also create a good living environment for Dall sheep and bighorn sheep, which have concave elastic hooves. The process that creates these features is **orogeny** [or-AH-jeh-nee], which takes place at convergent plate margins. That process usually creates the folded type of these features, which are larger than the upwarped or dome type caused by magma that does not burst. Some of these features are volcanos. Name these large steep features that often occur in ranges such as the Rockies or the Himalayas.

Answer: **mountains** [prompt on **mounts**]

12. The reverse program to this program included the use of luxury superliner ships. This program received Congressional approval despite testimony against it by Charles Lindbergh. This program was a strengthening of the Cash and Carry program, and it ended several Neutrality Acts. Under the leadership of Harry Hopkins, this program was expanded to help several countries, including the Soviet Union. Opponents of this program warned that it would get the United States involved in a major war, which did in fact happen. Name this program by which the United States sent supplies and equipment to the Allies, often on a temporary basis, during World War II.

Answer: **Lend-Lease** Program [or **Lend-Lease** Act]

13. The tangent of the quantity “[this number] times theta” equals sine theta divided by the quantity 1 plus cosine theta. The **Riemann** [REE-mahn] hypothesis states that every zero of the Riemann zeta function is a negative even integer or a complex number with this number as the real part. This number is multiplied by the perimeter and **apothem** [AP-uh-thum] length of a polygon to find the area. The sum of the base lengths of a trapezoid are multiplied by this number and the height to find the area. This number is multiplied by the product of the base and height of a triangle to find the area. Name this number between 0 and 1.

Answer: one-**half** [accept 0.5]

14. In a play by this writer, the title character says “Go baffled coward, lest I run upon thee” to Harapha of Gath. This writer ended that play with reports that the title character has destroyed a temple. In a poem by this writer, he says his goal is to “assert eternal providence, and justify the ways of God to men”. In that poem, this writer described Pandemonium as the capital of Tartarus, which is where the fallen angels are led by Satan. In that epic poem, this writer described Adam and Eve being removed from the Garden of Eden. Name this English writer of *Samson Agonistes* [ag-un-ISS-teez] and *Paradise Lost*.

Answer: John **Milton**

15. Banksy made a **Mujahideen** [moo-jah-hih-DEEN] version of this painting by adding a rocket launcher to it. One of the legacies of the Incoherents, a late-19th-century art movement, is **Sapeck’s** [SAH-pek’z] version of this painting with a pipe and smoke rings. Another version of this painting has a name that is a five-letter abbreviation and incorporates a mustache. The fame of this painting grew in the early 20th century after an Italian man stole it because he did not want it to stay in France. Name this painting that is parodied in Marcel **Duchamp’s** [doo-sham’z] *L.H.O.O.Q.* [el ahsh oh oh koo] that is in the Louvre and was painted by Leonardo da Vinci.

Answer: ***Mona Lisa*** [or *La Gioconda* or *La Joconde* or *Portrait of Lisa Gherardini, wife of Francesco del Giocondo*]

16. This god caused earthquakes by writhing in pain because of poison dripping from a snake while he was bound by the entrails of his son Nari. The poison was collected and removed by this god's wife, **Sigyn** [SIG-in]. This god attempted an escape shortly after burning his fishing net and changing himself into a salmon. This god trades insults with the other gods, but he eventually stops because he is afraid of Thor. This god gave a weapon to Hodur that was made of mistletoe, causing the death of Balder. This god is the father of **Jörmungandr** [YOR-mun-GAHN-dur] and the mother of **Sleipnir** [SLAYP-neer]. Name this trickster god from Norse mythology.

Answer: **Loki** [LOH-kee]

17. At the beginning of one play by this writer, a woman brings her husband corn flakes, but the next day they are out of corn flakes. This writer has the husband receive a drum as a gift, but he trips over the drum, and the drum is then thrown in the fireplace. In another play by this writer, the two characters discuss an 87-year-old man who was killed when he tried crawling under a truck. In that play, the title device has a speaking tube that is used by Ben and Gus, who are hit men. Name this English playwright who wrote *The Birthday Party* and *The Dumb Waiter*.

Answer: Harold **Pinter**

18. Back when radium paint was used to make luminous watches, the sulfide of this element was typically used with the paint. An ion of this element is central to both carbonic **anhydrase** ["an-HIDE-race"] and alcohol **dehydrogenase** [dee-"hi"-DRAH-juhn-"ace"]. This metal is in the **calamine** [KAL-uh-"mine"] mineral, which contains both its carbonate and its **silicate** [SILL-ih-"Kate"]. The **pyrithione** [pir-ih-THY-ohn] of this element is used to treat skin conditions, including dandruff. To prevent the rusting of steel or iron, a coating of this element is applied, which is called galvanization. This element usually makes up about one-third of brass, with most of the rest being copper. Name this metal whose atomic symbol is "Zn".

Answer: **zinc** [accept **Zn** before the end]

**19.** A 1993 U.S. law is named for the restoration of freedom with respect to this concept, and that law was applied to the 2014 *Burwell v. Hobby Lobby* decision. The principal effect of a law can neither aid nor inhibit this concept according to the U.S. Supreme Court's *Lemon* test, which also prevents excessive entanglement between government and this concept. Article 6 of the U.S. Constitution bans tests using this concept as a qualification for any office. The First Amendment of the Constitution states "Congress shall make no law respecting an establishment of" this concept. Name this concept that is supposed to be separated from government, despite the national motto "In God We Trust."

Answer: religion [accept religious; prompt on church or God]

**20.** This character gives the advice to move to Morocco where there are orangutans living in bushes after hearing a speech from Huhu. That occurs shortly after Dr. Begriffenfeldt finds this character talking to the Sphinx. Much earlier, this character takes Ingrid away from her wedding but then tells her to go away. That occurs after Solveig [SOHL-vay] refuses to dance with this man. Even earlier, this character exaggerates a story about a deer hunt. At another point, this character is asked "What is the difference between troll and man?" by the Troll Mountain King. Name this title character of a play by Henrik Ibsen.

Answer: Peer Gynt [accept either]

**21.** A polynomial-time verifier can be used on the probabilistically checkable types of these things. Computer-assisted examples of these things were very controversial when first used in the 1970s, including one by Kenneth Appel and Wolfgang Haken [HAH-kun] for the four-color theorem. One type of these things begins with a basis step and then assumes that a statement is true for a certain case as part of its inductive step. Postulates and axioms are accepted as true without these things, but mathematical theorems are supported by these things. Name these things that, in high school geometry classes, are often written using two columns.

Answer: mathematical proofs