

Early Fall Tournament 2016 - "Auntie Vivian's daughter can answer these questions, why can't you?"

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Packet 2

TOSSUPS

1. The QIAGEN [kye-uh-jin] spin column is used in procedures to purify this substance such as minipreps. Depending on its environment, this substance can exist in 3 different conformations with differing rises and pitches. This substance displays hyperchromicity when heated and displays an inflection point at its "melting point." Hoechst and DAPI stain this substance by binding to a 12-angstrom groove. The sum of the twist and writhe is this substance's (*) linking number, which can be modified by topoisomerases. This substance's phosphodiester ["phospho"- "die"- "ester"] backbone is not subject to acid hydrolysis, unlike a similar substance whose backbone contains a sugar with one more oxygen. This molecule exists in supercoils wrapped around histones, forming chromatin. For 10 points, name this double helical substance that contains genetic information.

ANSWER: DNA [or deoxyribonucleic acid] <Bio, AW>

2. The oldest known text in this people's language was written by a king of Kussara named Anitta who sacked what would become its capital. Some texts in this people's empire were written in Luwian, the language of the people to its southwest. Their last monarch may have managed to conquer the trading post of Alashiya. These speakers of Neshite conquered the Mitanni kingdom under (*) Suppiluliuma I. With a power to the south, this empire fought a battle on the Orontes River, probably the largest chariot battle ever. It signed the first peace treaty in history under Muwatalli II after fighting the Battle of Kadesh. This empire is thought to be the first to have developed iron tools. For 10 points, name this civilization with a capital at Hattusa in Anatolia.

ANSWER: Hittites <Brit/ClassHist, JZ>

3. Repeating different examples of these things, such as "al-Haqqu," as a *du'a* can grant benefits such as prosperity. In the first line of the Throne Verse, "Hayyu" and "Qayyum" are used as examples of these things. Sufis repeat a word used as one of these things, "Hu," while engaging in *dhikr*. The 99 of these things that are called the "most beautiful" in Islam include (*) "ar-Rahmani ar-Rahim," which is said in every utterance of the *basmala*; those 99 examples of *them* are often combined with "Abd" to create personal names. Strongly observant Jews never utter one of these words called the Tetragrammaton, which is usually written in Latin characters as Y-H-W-H. For 10 points, Jehovah is an example of what sort of identifier used for the supreme deity?

ANSWER: names of God [or names of Allah; or equivalents; prompt on names] <Rel, WA>

4. This character "silently consented" to joining another character on a morning walk to Oakham Mount. When told that poetry is the food of love, this character replies that "one good sonnet will starve it entirely away." This character is told to accept an "unhappy alternative" that "From this day you must be a stranger to one of your parents" after a conversation between her and a fan of *Fordyce's Sermons*. This character's friend (*) Charlotte Lucas marries a priest; that priest, whose marriage proposal this character rejects, is named Mr. Collins. This character stays at Netherfield to nurse her sick older sister Jane, whom she is enraged to learn was intentionally separated from Mr. Bingley. For 10 points, name this second-eldest of the Bennet sisters who marries Mr. Darcy in Jane Austen's *Pride and Prejudice*.

ANSWER: Elizabeth Bennet [or Lizzy; prompt on Bennet] <BritLit, RY>

5. James Franco was accused of appropriation when he placed himself in twenty-nine works in this medium displayed at the Pace Gallery in 2014. The works *Bus With Reflections of Flatiron Building* and *Telephone Booths* attempt to capture the effect of this medium, which inspired the work of an artist who strapped a paintbrush to his hand after becoming quadriplegic. "Hyperrealist" artists who imitate this medium include (*) Richard Estes and Chuck Close. An artist who works in this medium captured herself in stereotypical female roles in *Untitled Film Stills*. A Frenchman who wrote *The Decisive Moment* named Henri Cartier-Bresson pioneered the use of this medium in journalism. For 10 points, identify this art form used by Cindy Sherman and Alfred Stieglitz.

ANSWER: photography [or photographs; or equivalent answers; accept photorealism] <OArts, WA>

6. A director of this ethnicity depicted an ex-con doctor who reads surrealist poetry from his book *Roadside*

Picnic in the 2015 film *Kaili Blues*. Keith Quincy's 1988 book on this ethnic group was cited heavily in a book about one of them who was treated at Merced Community Medical Center for a condition called *gaug dab peg* ["cow"-dah-"pay"]. Many members of this group live in China's Guizhou [gwei-"joe"] province, where they are considered part of the Miao people. A family of this ethnicity with an (*) epileptic daughter is the subject of Anne Fadiman's book *The Spirit Catches You and You Fall Down*. General Vang Pao led a U.S.-backed "secret army" of these people to attack the Ho Chi Minh Trail. For 10 points, name this ethnic group whose members settled in California, Wisconsin, and Minnesota as refugees from Laos.

ANSWER: Hmong [accept Miao until it is read] <Other, RY>

7. The enzyme GPx1 uses this molecule to reduce a pair of glutathione ["glue"-tuh-"THY-OWN"] molecules and form a disulfide bond between them. This chemical's reaction with diphenyl oxalate initiates the reaction that lights up a glowstick. Despite its freezing point being very close to 0 °C, this compound forms a eutectic [yoo-TEK-tik] with water which freezes at -51 °C. This compound is used to trigger assays whose target molecules are conjugated to an enzyme derived from (*) horseradish. mCPBA is often used in place of this compound due to its superior selectivity. The disproportionation reaction catalyzed by superoxide dismutase forms water and this compound as products, and it is decomposed by catalase into oxygen and water. This substance, which decomposes when in light, is used as a disinfectant and to bleach hair. For 10 points, name this compound with formula H₂O₂.

ANSWER: hydrogen peroxide [accept H₂O₂ before mention; prompt on "peroxide"] <Chem, AW>

8. This writer described a creature whose color and shape become more and more perfect as a person who has attained nirvana climbs the Tower of Victory. This author created a character who criticizes a manuscript because "in the third chapter the hero dies; in the fourth he is alive." This author cites the book "On Malay Witchcraft" in an entry on the A Bao A Qu ["ah"-bao-"ah"-choo] alongside a description of the island-sized sea turtle Zaratan. In a story by this author, a phone call from the apartment of (*) Viktor Runeberg spurs the speaker to escape Richard Madden and visit Stephen Albert, a scholar studying the story's title structure. This writer described 120 mythical creatures in his *Book of Imaginary Beings*. For 10 points, name this Argentine author whose "The Garden of Forking Paths" appears in *Ficciones*.

ANSWER: Jorge Luis Borges [accept C.C. Iturvuru on the first sentence] <OLit, RY>

9. A ruler of this name commissioned the first of Fabergé's eggs for his wife, Dagmar of Denmark, which contained a golden hen enclosing a royal crown. Another ruler of this name gained territory from Abdul Hamid II after his forces won the Siege of Plevna. That ruler concluded the displacement of the Circassians. A ruler of this name was nicknamed the "Peacemaker" for reviving the League of the Three Emperors and created the (*) *Okhrana*. The second ruler of this name had his gains decreased in the Congress of Berlin after securing the independence of Bulgaria from the Ottomans in the Treaty of San Stefano. That ruler promoted local councils called *zemstvos* and was assassinated by the People's Will. For 10 points, give this name of several Russian tsars, including the emancipator of the serfs.
ANSWER: Tsar Alexander [or Alexander II; Alexander III; Alexander the Liberator; Aleksander Osvoboditel; accept Alexander the Peacemaker or Aleksander Mirotovores before "Peacemaker"] <EuroHist, JZ>

10. Sabrina Galitzia theorized that the central lunette above a painting of this scene contains its artist's prediction of the end of the world in the year 4006. Several restorations of that version of this scene were necessitated by it being struck by bombs in 1943, though it was protected by sandbags in the refectory in which it is housed. A ghostly version of this scene is only lit by a single lamp on the left, out of which angels fly. A large aureole surrounds the main figure in that (*) diagonally oriented version of this scene executed by Tintoretto. The question "Lord, is it I?" is posed by a group of James, Thomas, and Philip in quizzical reaction to an announcement by this scene's central figure in the most famous version, which is by Leonardo da Vinci. For 10 points, name this scene in which Jesus dines with 12 disciples.
ANSWER: *The Last Supper* [or *Il Cenacolo* or *L'Ultima Cena*] <Painting, PC>

11. The speaker of a poem in this language recalls the deaths of his rowing companions and says "No one remembers them. Justice." That poem includes lines like "We who had nothing will teach them peace," and "I woke with this marble head in my hands." A poem in this language advises to "hope your voyage is a long one," and another ends, "They were, those people, a kind of (*) solution." A novel in this language is about a student who goes to work in a lignite mine with the title character, who romances Madame Hortense. George Seferis wrote his *Mythistorema* in this language, and C.P. Cavafy used it to write "Waiting for the Barbarians." For 10 points, name this language in which Nikos Kazantzakis wrote a novel about Alexis Zorba.
ANSWER: Modern Greek [or Elleniki] <EuroLit, JC>

12. Morley Safer interviewed a man who spied on this country under the guise of one of its top *Time* magazine correspondents. This country's army lost decisively in an invasion that it gave the code number 719. This country's COMIGAL agency received hundreds of thousands of refugees under the advice of Edward Lansdale. Melvin Laird coined the name of a strategy that aimed to build up this country's military. Frederick Nolting and Henry Cabot Lodge Jr. were both ambassadors to this country during its (*) "Buddhist crisis." The assassination of this country's dictator and failure of the Strategic Hamlet Program were documented in Daniel Ellsberg's Pentagon Papers. For 10 points, name this country where helicopters evacuated Americans during the Fall of Saigon, when it lost the Vietnam War.
ANSWER: South Vietnam [or Republic of Vietnam; or Việt Nam Cộng Hòa; accept State of Vietnam; prompt on Vietnam] <AmHist, RY>

13. Michael Eysenck, who co-authored a textbook studying this phenomenon with Baddeley and Anderson, criticized the “levels of processing model” of it as lacking sufficient depth. Karl Lashley attempted to locate the operation of this phenomenon in “engrams.” A form of this phenomenon operates via a “phonological loop” according to a model of it developed by Baddeley and Hitch. The (*) “lost in the mall” experiment, which examined the ability of this phenomenon to be altered clinically, was conducted by Elizabeth Loftus. Alexander Luria studied a journalist who exhibited the “eidetic” type of this phenomenon, whose degradation was studied by Hermann Ebbinghaus. For 10 points, identify this mental phenomenon which has short and long term varieties.

ANSWER: memory [accept working memory or long-term memory or short-term memory] <SocSci, WA>

14. In Hamiltonian mechanics, a function f is only conserved if the sum of its Poisson bracket with the Hamiltonian plus its partial with respect to this variable is zero. When this quantity is cyclic, the energy of a system is conserved. The cycloid is the solution to a pair of problems named for this quantity. This quantity is assumed to be identical between reference frames when using Galilean transforms. (*) Torricelli names an equation that relates the initial and final velocities of an object with constant acceleration with no need for this variable. The directionality of this quantity is oriented with the increase in entropy of the universe and is a namesake arrow. Integrating acceleration with respect to this variable yields velocity, then position. For 10 points, name this quantity typically denoted t and measured in seconds.

ANSWER: time <Phys, AW>

15. This deity presents a stag as a gift to a young lover that accidentally spears it to death and turns into a cypress tree out of sorrow. The foundation of Apulia is attributed to a lover of this deity named Iapyx. This deity yokes a lion and a boar to a chariot in order to help a companion win his wife in marriage. A jealous love triangle involving this god and Zephyrus leads to a stray discus fatally striking the youth (*) Hyacinthus. A lover of Cyparissus, this god becomes slave to Admetus for a year as punishment for his murder of the Cyclopes, who had earlier caused the death of this god’s son Asclepius. In earlier myths, he defeats the monster Python at the site of the Oracle of Delphi. The epithet “Phoebus” is given to -- for 10 points -- what twin brother of Artemis?

ANSWER: Apollo [or Apollon; or Phoebus Apollo] <Myth, EK>

16. It’s not being gay, but one book recommends that people with this characteristic live as outcasts and perverts to challenge the “Omnipotent Administrator.” Paul Claudel and D. H. Lawrence are included among five writers who perpetuate the myth of the “eternal” nature of people with this characteristic in the latter part of a section titled “Facts and Myths.” These people are the “object” in Mulvey’s film theory, which opposes them to a (*) counterpart’s “gaze.” One is not “born” with this biological characteristic, but rather “becomes” a person with it, according to a book that inspired a *contrast* [emphasize] drawn by Judith Butler with the *non-biological* concept. For 10 points, identify this biological characteristic which is referred to by the title of Simone de Beauvoir’s *The Second Sex*.

ANSWER: being female [or being a woman; or being feminine, or feminism, or obvious equivalents; prompt on sex; do not accept or prompt on “gender” at any point] <Phil, WA>

17. The exposition of this symphony's first movement ends with a clarinet solo that grows quieter and lower-pitched, until its last four notes are given to a bassoon. It is a somewhat unofficial tradition to clap after this symphony's third movement, a march-like scherzo in dual 12/8 time and common time. This symphony begins with a slow introduction in which a solo bassoon plays over divided double basses, while its last movement is an *Adagio* (*) *lento* in the home key of B minor. Some have cited its composer's guilt over his same-sex desire for his nephew, or his consumption of cholera-infected water, as probable causes leading to his death nine days after the premiere of this symphony. For 10 points, name this final symphony by Pyotr Ilyich Tchaikovsky.

ANSWER: Pathétique Symphony [or Symphony No. 6 by Pyotr Ilyich Tchaikovsky; or Symphony No. 6 after "Tchaikovsky" is read; prompt on partial answer] <Music, EK>

18. During this period, different scholars proposed the "horizontal strategy" of uniting to oppose expansionism and the "vertical strategy" of bandwagoning. Two great theories of an adviser from this period are given as "fixing the standards" of weights and measures and "treating the people as one" under the law. The book compiled by Liu Xiang [lyoo shyang] that names this period presents the views of the School of Diplomacy, which flourished during it, like a philosophy that preached "universal love." The (*) Hundred Schools of Thought blossomed during this period, which chronologically follows the Spring and Autumn period. It ended when a man who crowned himself Shi Huangdi unified the country. For 10 points, name this fractious period of Chinese history ended by the Qin dynasty.

ANSWER: Warring States Period [or Zhànguó shídài; accept more specific answers, such as unification of China under the Qin dynasty, until read; prompt on Eastern Zhou dynasty; do not accept or prompt on "Qin dynasty" alone] <WorldHist, WA>

19. Michael Moon claims that the speaker of this poem uses the "energy of" a lonely girl's "desires" in order to caress young men who "do not ask who seizes fast to them." This poem ends by reassuring its addressee that "I stop somewhere waiting for you." In this poem, a lonely woman spies on "twenty-eight young men" bathing by the shore. This poem invites the speaker's soul to "loafe" and "[o]bserve... a spear of summer (*) grass" and later compares the grass to "the uncut hair of graves." In this poem, the speaker declares, "I contain multitudes" and sounds his "barbaric yawp over the roofs of the world." For 10 points, name this long poem from *Leaves of Grass* which begins "I celebrate myself, and sing myself," written by Walt Whitman.

ANSWER: "Song of Myself" <AmLit, JC>

20. The 1993 Nobel Prize in Physics went to a pair of scientists who showed that a star of this type in a binary system had an orbit that was decaying due to its emission of gravitational waves. The "recycled" variety of these objects are thought to have been "spun up" through accretion from a binary. The first extrasolar planets ever discovered were found orbiting one of these stars, which eventually reach a (*) "death line." The Hulse-Taylor binary system contains a neutron star and one of these stars, whose "millisecond" variety have a very short period. They were first observed by Antony Hewish and Jocelyn Bell, who initially called them "little green men." For 10 points, name these rapidly rotating neutron stars that emit X-ray radiation from their poles.

ANSWER: pulsars [prompt on neutron stars] <OSci, RH>

IF THE GAME IS A TIE AFTER REGULATION: Report to the tournament director. Then, read a bonus from the tiebreakers packet that the tournament director determines the team has not yet heard.

BONUSES

1. This man convinced his father to conquer the Moroccan city of Ceuta. For 10 points each:

[10] Name this son of John I of Portugal who gathered a court at his house of Sagres. He's best known for sponsoring numerous naval expeditions down the coast of Africa.

ANSWER: **Henry the Navigator**, Duke of Viseu [or **Infante Henrique**]

[10] Henry the Navigator's sponsorships paved the way for explorers like this man, who built on the success of Bartolomeu Dias by voyaging beyond the Cape of Good Hope in 1497. His trip is commemorated in *The Lusiads*.

ANSWER: Vasco da **Gama** [or First **Count of Vidigueira**]

[10] Vasco da Gama arrived in India at this port city, also known as the "City of Spices." This city ruled by people called *Zamorin* attacked members of Pedro Cabral's expedition and were bombarded in retaliation.

ANSWER: **Calicut** [or **Kozhikode**; do not accept or prompt on "Calcutta" or "Kolkata"] <EuroHist, JZ>

2. Second Great Awakening giant Nathaniel Taylor graduated from this seminary while its college was presided over by Timothy Dwight. For 10 points each:

[10] Name this prestigious, now-interfaith divinity school, which also educated Jonathan Edwards, who names its major collection of manuscripts. *Amistad* lawyer Josiah Gibbs also worked here.

ANSWER: **Yale** Divinity School

[10] This U.S. city is home to Union Theological Seminary, the birthplace of Black Liberation Theology and Womanist theology, among other influential religious movements. It also contains St. Patrick's Cathedral.

ANSWER: **New York** City [or **NYC**; or The **Big Apple**]

[10] Most students who attend the seminary at Liberty University, the world's largest evangelical university, belong to this Protestant denomination, whose "Southern" conference is the largest Protestant church in the United States.

ANSWER: **Baptist** Church [accept **Southern Baptist** Conference] <Rel, WA>

3. The middle section of this piece is taken up by a lengthy drum solo played by Joe Morello. For 10 points each:

[10] Name this jazz standard written by Paul Desmond. This song is the third track on an album that includes "Blue Rondo à la Turk" and is built around a two-chord vamp played by the piano.

ANSWER: "**Take Five**"

[10] "Take Five" is the third track on this jazz pianist's album *Time Out*. Its fifth track, "Kathy's Waltz," includes sections in both 4/4 time and 3/4 time.

ANSWER: Dave **Brubeck** [or David Warren **Brubeck**]

[10] Another jazz waltz is the one titled for Debby by this jazz composer, who collaborated with Scott LaFaro and Paul Motian on the live album *Sunday at the Village Vanguard*.

ANSWER: Bill **Evans** [or William John **Evans**; do not accept "Gil Evans"] <OArts, EK>

4. The primary voice of this book is a woman from Boston who has come to Dunnet Landing, Maine to write. For 10 points each:

[10] Name this work of fiction by Sarah Orne Jewett, which is framed as a series of stories told to its narrator by characters such as Captain Littlepage and Mrs. Todd.

ANSWER: *The Country of the Pointed Firs*

[10] Sarah Orne Jewett belonged to the New England variety of this broad American artistic style, which focuses on authentic cultural experiences of a geographical area, such as the Midwest or the South.

ANSWER: regionalism [accept word forms such as regionalist; accept local color fiction]

[10] The regionalist style took off after this war, which symbolized the triumph of national interests over state differences. Much of Southern local color fiction is embedded with elements of the Lost Cause of the Confederacy of this war.

ANSWER: American Civil War <AmLit, JC>

5. This concept was first proposed to explain the stability of benzene. For 10 points each:

[10] Name this phenomenon that describes conjugated molecules and delocalized pi systems. It's exhibited by ions such as carbonate and nitrate.

ANSWER: resonance

[10] Molecules exhibiting resonance have multiple viable contributing structures, which are typically depicted using this man's namesake dot diagrams.

ANSWER: Gilbert N. Lewis

[10] Another example of delocalization is this stabilizing interaction of sigma bond electrons with an adjacent orbital. This interaction explains the greater stability of tertiary carbocations compared to less-substituted examples.

ANSWER: hyperconjugation [do not prompt on "conjugation"] <Chem, AW>

6. In response to these laws, John Dickinson wrote that Americans will be made "as abject slaves as France and Poland can [show]" in his *Letters from a Farmer in Pennsylvania*. For 10 points each:

[10] Name these acts that taxed goods like paper, glass, and tea through an American Board of Customs Commissioners. They were named for the minister who proposed them in 1767.

ANSWER: Townshend Acts

[10] Prior to the Townshend Acts, Lord Rockingham passed the Declaratory Act in combination with the repeal of this 1765 act that taxed all printed goods.

ANSWER: Stamp Act

[10] The Stamp and Sugar Acts were the brainchildren of this Prime Minister who preceded Rockingham. His government also prosecuted John Wilkes for "seditious" libel.

ANSWER: George Grenville <AmHist, RY>

7. This philosopher advocated a life-affirming outlook that he called *amor fati*, which refers to loving and embracing one's fate in life. For 10 points each:

[10] Identify this German philosopher who declared that "God is dead" in *The Gay Science*.

ANSWER: Friedrich Nietzsche

[10] Nietzsche used this term to refer to what he believed to be the ultimate force in humans, the force that generates ambition and striving to achieve the highest in life.

ANSWER: the will-to-power [or der Wille zu Macht; prompt on will or Wille]

[10] This book by Nietzsche applauds life-affirming philosophers and conquerors like Caesar, Napoleon, and Thucydides, while denouncing Socrates as the epitome of decadence. It presents a number of single-sentence aphorisms in its section "Maxims and Arrows."

ANSWER: *Twilight of the Idols*, or, *How to Philosophize with a Hammer* [or *Götzen-Dämmerung*, oder, *Wie man mit dem Hammer philosophirt*] <Phil, WA>

8. Objectives for this process are classified within Bloom's taxonomy. For 10 points each:

[10] Identify this process, which Jean-Jacques Rousseau outlined an ideal form of for the title boy in *Émile*. Lev Vygotsky's "zone of proximal development" describes ability to participate in this process.

ANSWER: education [or learning; or teaching]

[10] This early 20th century theorist pioneered methods of scientific pedagogy in the "Children's House" that were praised by Progressives in the U.S.

ANSWER: Maria Montessori

[10] This education theorist and Summerhill method advocate worked on the Annenberg Challenge to reform Chicago schools with Barack Obama, whom he was controversially associated with during the 2008 campaign. This husband of Bernadine Dohrn was denied tenure at Illinois for writing books like *Prairie Fire*.

ANSWER: Bill Ayers <SocSci, WA>

9. Translator John Willett used the term "alienation effect" for a phrase that a German playwright identified in this genre of theater, which he wished to incorporate into his own "epic theater." For 10 points each:

[10] Name this genre of performing arts with regional variants like *kunqu* [kun-"chew"] and a more prominent one named for a national capital. This genre's repertoire includes plays like *Farewell My Concubine*.

ANSWER: Chinese opera [or Peking/Beijing opera; or *jingju*; or *jingxi*]

[10] That theorist who described "Alienation Effects in Chinese Acting" was this German playwright of *The Caucasian Chalk Circle* and *Mother Courage and Her Children*.

ANSWER: Bertolt Brecht [Eugen Berthold Friedrich Brecht]

[10] Brecht wrote about the alienation effect after seeing a 1935 European tour by Mei Lanfang, a performer who was known for playing this general type of role, called *dan* in Chinese, and *oyama* in Japanese.

ANSWER: female roles [accept obvious equivalents like men playing women] <OLit, RY>

10. Paul Cohen built upon the work of Kurt Gödel to demonstrate that this statement cannot be proven nor disproven with ZFC set theory. For 10 points each:

[10] Name this hypothesis, which states that there is no set whose cardinality is strictly between that of the integers and that of the real numbers.

ANSWER: continuum hypothesis

[10] The integers have a cardinality which possesses the "countable" form of this property, while the reals possess its "uncountable" form. This number is usually represented with a symbol resembling a sideways "eight" and indicates a number is boundless.

ANSWER: infinite [or infinity]

[10] According to one theorem, negating the continuum hypothesis is equivalent to stating the axiom of this property, which was proposed by Freiling. An unrelated theorem from physics states that a conservation law exists for every physical system with the differentiable form of this property.

ANSWER: symmetry [accept axiom of symmetry] <OSci, RH>

11. The best-known version of this work is a largely made-up “translation” by Edward FitzGerald from the Victorian Era. For 10 points each:

[10] Name this set of hedonistic verses by Omar Khayyam, which call for celebrating Paradise on Earth and questions God’s purpose in lines such as “The Moving Finger writes; and, having writ, / Moves on.”

ANSWER: The **Rubaiyat** of Omar Khayyam

[10] The two most frequent objects used as images in FitzGerald’s version of *The Rubaiyat* are pots and these objects, which embody the hedonism of the poem. The Persian term “Saki” refers to someone who carries them.

ANSWER: **cups** [do not accept or prompt on any other term]

[10] The namesake *rubai* of the poem are tightly-themed Persian verses of this many lines. A proper Shakespearean sonnet contains three instances of verses with this many lines, followed by a couplet.

ANSWER: **four** [accept “**quatrains**”] <BritLit, JC>

12. This technique was developed by Kai Siegbahn, who gave it the alternate name ESCA. For 10 points each:

[10] Name this technique in which light of a certain wavelength is shot at a sample and the kinetic energy of the resulting ejected electrons are measured. The binding energies of the sample’s inner-shell electrons can thus be measured.

ANSWER: **X-ray photo-electron spectroscopy** [or **XPS**; prompt on partial answers]

[10] XPS relies on the photoelectric effect, which was famously explained by this scientist in a 1905 paper. This scientist also postulated that the rest energy of a particle equals its rest mass times the speed of light squared.

ANSWER: Albert **Einstein**

[10] The binding energy in XPS is equal to the energy of the incident X-rays minus the kinetic energy of the electrons minus this quantity for the spectrometer. Phi is often used to symbolize this quantity, which is the minimum energy required to eject an electron from a given atom.

ANSWER: **work function** [do not accept or prompt on “work”] <Phys, BB>

13. This painter was one of the jurors in charge of awarding the Prix Blumenthal, a grant given to young up-and-coming French artists. For 10 points each:

[10] Name this artist, who painted art critic Félix Fénéon in front of a swirling background of different colors and patterns.

ANSWER: Paul **Signac** [or Paul Victor Jules **Signac**]

[10] Signac was a practitioner of this technique, which uses smaller brushstrokes than the similar Divisionism. Georges Seurat utilized it in his *A Sunday Afternoon on the Island of Le Grande Jatte*.

ANSWER: **pointillism** [prompt on **Neo-Impressionism**]

[10] Along with Seurat and Signac, this French symbolist helped found the Salon des Indépendants. His works include *Eye Balloon* and a charcoal work depicting a giant floating head supported by a single wing, *Guardian Spirit of the Waters*.

ANSWER: Odilon **Redon** [or Bertrand-Jean **Redon**] <Painting, PC>

14. A leader of this party named Johannes Strydom was nicknamed “Lion of the North.” For 10 points each:

[10] Identify this party, which first won a majority in parliament in a 1948 election under Daniel Francois Malan’s leadership. Its government implemented the Group Areas Act and the Land Acts.

ANSWER: **National** Party [or **Nasionale** Party]

[10] This South African policy of racial segregation was implemented by the National Party.

ANSWER: **apartheid**

[10] P. W. Botha’s Rubicon speech stated that he would neither end apartheid nor carry out *this specific action*. This action took place during the subsequent government of F. W. de Klerk on February 11, 1990.

ANSWER: **release** Nelson **Mandela** from prison [accept clear equivalents] <WorldHist, WA>

15. This region is spanned by a series of railways connecting Moscow to Vladivostok. For 10 points each:

[10] Identify this large, snowy region of Russia that consists of most of the country east of the Urals.

ANSWER: Siberia [or Sibir]

[10] Siberia comprises much of this region designated by Halford Mackinder in his article "The Geographic Pivot of History." This term refers to the inner areas of the "world-island" of Africa, Asia, and Europe; Mackinder thought securing its control was the key to world domination.

ANSWER: Heartland [accept Heartland Theory]

[10] Mackinder gave this river as the western bound of the Heartland. This river's drainage basin includes the Oka and Kava rivers, meaning the basin encompasses cities as distant as Moscow and Perm [pyerm].

ANSWER: Volga River <Other, WA>

16. The monoclonal antibody denosumab prevents decreases in this quantity by inhibiting the RANK ligand. For 10 points each:

[10] Name this quantity that can be quantified via a DXA ["DEX"-uh"] scan. Bisphosphonates are commonly prescribed to maintain this quantity.

ANSWER: bone density [accept bone mineral density; accept BMD; accept descriptive answers involving bone mass]

[10] Bisphosphonates help treat osteoporosis by causing the death of these cells, which form in response to the release of IL-6 from osteoblasts. Parathyroid hormone increases blood calcium levels by causing formation of these bone-digesting cells.

ANSWER: osteoclasts

[10] Bone density is often measured at the head of this bone, the longest in the human body. The cavity in the hip where this bone fits is called the acetabulum.

ANSWER: femur <Bio, AW>

17. This learned monarch translated works of Boethius and St. Augustine into English. For 10 points each:

[10] Name this monarch who signed the Treaty of Wedmore with Guthrum after the Battle of Edington.

This only English monarch with the epithet "Great" ruled Wessex.

ANSWER: Alfred the Great [or Aelfred the Great]

[10] This region defined by the Treaty of Wedmore lay to the north east of Alfred's Doom Book-governed realm. Viking customs predominated in this region, which was governed in counties called *wapentake* [WAH-pen-tahk].

ANSWER: Danelaw [or Danelagh; or Dena lagu; or Danelagen]

[10] Alfred the Great defeated this military force, once commanded by Ivar the Boneless, at the Battle of Edington. It was supposedly founded by the sons of Ragnar Lodbrok.

ANSWER: Great Heathen Army [or Great Danish Army; Great Viking Army; Mycel Heathen Here; prompt on partial answers] <Brit/ClassHist, JZ>

18. This archetype is exemplified by Belov from Alexander Herzen's novel *Who is to blame?* For 10 points each:

[10] Identify this common literary archetype from 19th century Russian literature, a talented and capable man who is unable to fit in mainstream society. It takes its name from a novella by Ivan Turgenev.

ANSWER: the **superfluous man** [or *lishniy chelovek*; accept *Diary of a Superfluous Man*]

[10] One of the earliest examples of a superfluous man in Russian literature is the protagonist of this author's verse novel *Eugene Onegin*.

ANSWER: Alexander **Pushkin** [Alexander Sergeyevich **Pushkin**]

[10] The title character of this best-known novel by Mikhail Goncharov is an extreme example of a superfluous man: he's so bored, disillusioned, and lazy that he doesn't get out of bed for the first several chapters.

ANSWER: **Oblomov** <EuroLit, WA>

19. This character arrives at a bountiful garden after he manages to crawl through a pitch-black mountain before the sun sets. For 10 points each:

[10] Name this character who dons a lionskin and wanders the wilderness after thirteen days of debilitating illness take the life of his best friend.

ANSWER: **Gilgamesh**

[10] This immortal flood survivor takes pity on Gilgamesh and tells him that an immortality-granting plant can be found at the bottom of a lake.

ANSWER: **Utnapishtim**

[10] Midway through the epic, this goddess of fertility coerces her father Anu to unleash the Bull of Heaven to ravage Gilgamesh. Nebuchadnezzar II ordered the construction of her namesake gate in Babylon.

ANSWER: **Ishtar** [or **Inanna**] <Myth, EK>

20. Some of these works inspired by the *Sturm und Drang* movement include minor-key pieces nicknamed *Trauer* and *La passione*. For 10 points each:

[10] Identify these musical works by their genre and composer. A group of them called the "Paris" ones includes a G-minor piece nicknamed "The Hen" for the clucking-like sound in its triple-time *Andante* movement.

ANSWER: **symphonies** by Franz Joseph **Haydn**

[10] This symphony by Haydn is nicknamed for the unexpected, abrupt loud chord in its second movement, which follows a quiet passage. The instance is probably the most famous of Haydn's musical "jokes."

ANSWER: "**Surprise**" Symphony [or Symphony No. **94** in G major]

[10] Haydn's *Military* Symphony and Mozart's opera *The Abduction from the Seraglio* both use an expanded percussion ensemble to evoke a style of music from this modern-day country.

ANSWER: **Turkish** style [or alla **Turca**] <Music, EK>

IF ADDITIONAL BONUSES ARE NEEDED: Report to the tournament director. Then, read a bonus from the tiebreakers packet that the tournament director determines the team has not yet heard.