

## Berus-Lie Academic Spring Tournament (BLAST)

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### Packet 7: Look, Mikey, I've hooked a BIG one!

#### Tossups

1. **The pseudonym “Frank Talk” titles a magazine that opposed this policy. As part of the Gleneagles Agreement, Commonwealth countries agreed to protest this policy. The forcible removal of residents of District Six as part of this policy inspired Neill Blomkamp’s film *District 9*. While serving as leader of the National Party, Daniel (\*) Malan first implemented this policy. A photograph by Sam Nzima shows a woman carrying a victim of this policy during the Soweto Uprising. Thirteen individuals who opposed this policy were jailed following the Rivonia Trial. For 10 points, name this system of racial segregation in South Africa.**

ANSWER: apartheid <HP, World History> {History, World/Commonwealth History}

2. **While it isn’t ice, a material analogized to a “spin” one of these is a disordered magnet. This material is used to create tadpole shaped objects that can withstand extreme compressive forces on the “head” but disintegrates into powder when hit on the “tail,” Prince Rupert’s drops. Differential scanning calorimetry can be used to find a transition named for this material. This material, which forms tektites, also names a shallow concave object used to weigh chemicals called a watch [this material]. A (\*) cranberry form of this material can be formed by introducing colloidal gold during its formation, which is called vitrification. To withstand thermal expansion, boron trioxide is added to the Pyrex form of this material. Sand can be used to supply silica dioxide in the production of, for 10 points, what amorphous material used to make windows?**

ANSWER: glass <KL, Chemistry> {Science, Chemistry}

3. **A politician from this state won his first election after successfully primarying John Tierney. Propelled by the endorsements of figures such as Michelle Wu, Ayanna Pressley successfully defeated Michael Capuano in a 2018 congressional primary in this state. A former governor of this state was the first to announce a (\*) Republican primary challenge to Donald Trump in 2020. This home of Seth Moulton and Bill Weld is also the home of a politician who advocated for the creation of the CFPB and serves alongside Ed Markey. For 10 points, name this home of 2020 candidate Senator Elizabeth Warren, where Charlie Baker governs from Boston.**

ANSWER: Massachusetts <AN, Current Events> {Other, Current Events}

4. **A character with this title profession commits suicide with a pen-knife due to his ward Nancy leaving for India and because of his relationship with his wife Leonora. A character with this profession discovers his mother has cancer when he first returns home and later makes a promise to send money to a dead printer’s family that he knows he won’t keep. John Dowell notes "This is the saddest story I've ever heard" in a (\*) Ford Madox Ford novel titled for a "Good" member of this profession. A character in this profession takes Kemmerich’s boots after he dies. For 10 points, name this profession of Paul Baumer in *All Quiet on the Western Front*, who fought in World War I.**

ANSWER: soldiers [accept obvious equivalents; accept *The Good Soldier*] <HP, Long Fiction><ed. AB and VS> {Literature, Long Fiction}

5. Among the *Nihang* Sikh warrior order, this substance is known as *shaheedi degh* [**“shuh-hee-dhi day-gh”**]. Shiva is said to have created this substance from his own body to purify the elixir of life after the churning of the ocean, giving it the epithet *angaja*. The Ethiopian Zion Coptic Church considers this substance to be the “Eucharist.” Practitioners of another religion consume this substance during (\*) “reasoning sessions”, and believe that the use of this substance burns the corruption out of the human heart. Those believers believe that the use of this substance brings them closer to Jah, and dedicate each use of it to Haile Selassie. For 10 points, name this drug that Rastafarians smoke in their “wisdom chalices”.

ANSWER: marijuana [accept shaheedi degh before mention, accept all other equivalents and slang terms] <SZ, Religion> {Beliefs, Religion}

6. This country’s navy was defeated by a French aviso squadron at the Battle of Koh Chang. This country’s name was changed as part of the twelve nationalist “cultural mandates” instituted by its dictator Phibun [**“pee-bun”**]. This country, where the Bridge on the River Kwai was built, was invaded by Japanese forces after an ultimatum of passage to (\*) Burma was refused, after which it became Japan’s only independent ally in the Asia-Pacific Theater. During World War II, this country’s monarch Rama VIII sat as no more than a figurehead. For 10 points, name this country which in 1939 changed its name from Siam.

ANSWER: Kingdom of Thailand [accept Siam before mention] <AN/CS, World History> {History, World/Commonwealth History}

7. One theorem in this field states that every chain is included in a maximal chain within certain structures. That theorem, the Hausdorff maximal principle, is equivalent to Zorn’s lemma. The axiom schema of specification was introduced to circumvent a paradox in this field. The technique of “forcing” in this field can be used to prove the independence of the (\*) continuum hypothesis and the axiom of choice from its standard axioms. Russell’s paradox arises in the “naive” form of this field, which is described by the Zermelo-Fraenkel axioms. Pioneered by Georg Cantor, for 10 points, name this field of mathematics, the theory of collections of objects that are denoted with braces.

ANSWER: set theory <SL, Math> {Science, Other Science}

8. Price discrimination of this degree is characterized by selling to each individual customer at a different price and is also called “perfect” or “personalized.” Total revenue is maximized at this value for price elasticity of demand, and a good with this value for price elasticity of demand has a revenue that does not change with price. A Lorenz curve with this value for slope or a Gini coefficient of this number represents (\*) maximum income inequality. A market structure with this many firms has “natural” and “pure” forms and can be targeted by antitrust laws. Marginal cost is defined as the cost of producing this many additional units. For 10 points, give this number of sellers in a monopoly.

ANSWER: one [accept first or unitary] <WZ, Social Science> {Thought, Social Science}

9. A poem by this author contrasts a “green valley” with the drifts of “appalling snow.” In a different stanza of that poem, this poet describes a place “where the beggars raffle the banknotes” and “Jill goes down on her back.” This poet recalls hearing that “the clocks had ceased their chiming, / And the deep river ran on” while he was “walking down (\*) Bristol Street.” In another poem, this author asks to “put crepe bows round the white necks of the public doves” when describing someone who was his North, South, East, and West, his “working week and [his] Sunday rest.” The narrator of that poem says to “cut off the telephone” and “stop all the clocks.” For 10 points, name this poet who wrote “As I Walked Out One Evening” and “Funeral Blues.”

ANSWER: Wystan Hugh Auden <KL, Non-Epic Poetry> {Literature, Non-Epic Poetry}

10. According to Giorgio Vasari, Donatello supposedly dropped a carton of eggs upon seeing Filippo Brunelleschi's ["**broon-el-ESS-ki**"] wooden sculpture of this scene. When closed, the central panel of the Isenheim Altarpiece depicts this scene. The sun and the moon are depicted above two angels holding out chalices to collect blood in Raphael's "Mond" version of this scene. A burning synagogue features on the right side of a (\*) "White" version of this scene painted by Marc Chagall. Three Breton women gather in prayer around the central figure in a version of this scene painted by Paul Gauguin. For 10 points, name this scene depicted in *The Yellow Christ*, in which Mary and John the Baptist watch as Jesus dies on the cross.

ANSWER: **crucifixion** <HP, Visual Fine Arts> {Fine Arts, Visual Fine Arts}

11. When scanning for a disease related to these entities, FLAIR ["**flair**"] hyperintensities generate a "pulvinar sign," which normally causes death within one year. That disease comes in "sporadic" and "variant" forms and is caused by mutations in the gene PRNP ["**P-R-N-P**"]. The Sc isoform of PrP, the proteins that compose these entities, is resistant to decomposition by (\*) proteases. One disease induced by these agents causes sheep and goats to lose their fur. Stanley Prusiner discovered these agents, which cause spongiform encephalopathies like scrapie and Creutzfeldt-Jakob ["**croytz-feld ya-kob**"] disease. For 10 points, name these misfolded proteins that cause mad cow disease.

ANSWER: **prions** [or **proteinaceous infectious particles**, prompt on misfolded proteins until mention] <DB, Biology> {Science, Biology}

12. Martin Heidegger's *The Origin of the Work of Art* outlines the conflict between "world" and this entity. In a thought experiment, two versions of this thing differ in whether the chemical formula for water is H<sub>2</sub>O or XYZ. Hilary Putnam formulated a thought experiment involving twin examples of this entity. Thales ["**THAY-lees**"] thought of this entity as a flat (\*) disk floating in water, while Aristotle explained its spherical shape was due to its constituent elements tending to move towards the center of the universe. James Lovelock proposed a theory describing this entity as a self-regulating organism based on interactions with its oceans and atmosphere. For 10 points, the Gaia hypothesis concerns life in the biosphere of what planet?

ANSWER: the **Earth** <WZ, Philosophy> {Thought, Philosophy}

13. An essay titled for this place ends with the sentence "Because you care" and gives satirical tips for writing about it. One writer derided another author's attempt to "confer language on the rudimentary souls" of this place. The narrator of a poem titled for this place calls himself "I who have cursed the drunken officer" and "poisoned with the blood of both." In an essay titled for this place, the author calls out another author's "best assaults," such as when (\*) Mr. Kurtz is proclaimed dead. The speaker asks, "how can I turn from [this place] and live?" in a poem titled "A Far Cry" from it by Derek Walcott. For 10 points, Chinua Achebe attacked Joseph Conrad in an essay titled "An Image of" what continent, from which Achebe hails?

ANSWER: **Africa** [accept "How to Write About **Africa**," "An Image of **Africa**," or "A Far Cry from **Africa**;" do not accept or prompt on any other answer. "How to Write About Africa" is by Binyavanga Wainaina.] <DP, Other Literature> {Literature, Short Fiction/Other}

14. Nikolay Pirogov pioneered his namesake leg surgery during this conflict. A woman developed the polar area diagram to track casualties during this conflict. During this war, Michael Faraday refused to develop chemical weapons to be used by one side's forces. After Prince Menshikov lost the Battle of Inkerman during this war, Lord (\*) Raglan was able to begin the Siege of Sevastopol. Heroic actions by the Thin Red Line and the Light Brigade were seen at this war's Battle of Balaclava. For 10 points, name this 18th century war fought between a coalition of Britain, France, and the Ottoman Empire against Russia, primarily over a namesake peninsula on the Black Sea.

ANSWER: **Crimean** War <CS, European History> {History, European History}

15. A building in Spain that *originally* served this purpose has a hall interspersed with red-striped arches and columns known as a hypostyle. Another of these buildings created gets its nickname because its largest entrance is studded with turquoise. That building was created in the four-iwan style. The architect Mimar Sinan used an octagonal plan for one of these buildings named in honor of (\*) Selim II. A “Great” one of these buildings was constructed in Cordoba. These buildings usually feature a courtyard with a fountain, known as a *sahn*, and several minarets for calling prayer. For 10 points, name these Islamic buildings of worship.

ANSWER: mosques [mentioned in order: Great Mosque of Djenne, Great Mosque of Cordoba, Blue Mosque in Isfahan] <HP, Other Visual Arts> {Fine Arts, Other Visual Arts}

16. A messenger notes how “some immortal power led” this character on as he tried to find a sword to cut open his mother’s womb. After witnessing a thunderstorm, this character tells a king not to tell anyone the location of his tomb and goes off-stage to die. A messenger who was a former shepard from (\*) Mount Cithaeron points to the scars on this character’s ankles to prove that he was not actually the son of Polybus. This character curses his son, Polyneices, to die at the hands of his brother. This character exiles himself to the village of Colonus after he blinds himself for the shame of having married his mother, Jocasta. For 10 points, name this Theban king who appears in the titles of two plays by Sophocles.

ANSWER: Oedipus [accept Oedipus Rex or Oedipus at Colonus] <HP, Drama> {Literature, Drama}

17. A book written about this case by Anthony Lewis was titled for its namesake’s “trumpet.” In the retrial resulting from this case, the plaintiff in this case chose W. Fred Turner to represent him. Losing attorney Bruce Jacob stated that his strategy in this case was to tie it to *Betts v. Brady*, which was overturned by this case. Abe (\*) Fortas agreed to serve *pro bono* for this case, which focused on a trial where the defendant was forced to represent himself after being accused of a pool room burglary. For 10 points, name this landmark 1961 case which stated that states must provide attorneys to those who could not afford one, incorporating the 6th amendment.

ANSWER: Gideon v. Wainwright <AN, American History> {History, American History}

18. One form of this quantity is proportional to the standard gravitational parameter over semimajor axis, the conservation of which implies the vis-viva equation. The sign of this quantity determines whether an orbit is closed, and escape velocity can be solved for by setting this quantity to zero. Because this quantity is the conjugate variable of time, time invariance implies the conservation of this quantity according to (\*) Noether's ["NOY-ter's"] theorem. The Hamiltonian operator represents this quantity, which is conserved by conservative forces. The first law of thermodynamics is equivalent to this quantity’s conservation. For 10 points, name this quantity which is the sum of its potential and kinetic forms.

ANSWER: total mechanical energy [accept specific orbital energy, do not accept other more specific answers, such as "kinetic energy" or "potential energy"] <SL, Physics> {Science, Physics}

19. A composer from this country wrote the Brâncuși ["brin-KOOSH"]-inspired piece “Infinite Column” and the heavily chromatic “Devil’s Staircase” to end his second book of études. That composer also wrote a set of eleven pieces for piano, each with an increasing number of pitch classes, and a piece for 16-part choir that exemplifies his style of micropolyphony. Another composer from this country wrote a set of 153 piano pieces of increasing difficulty, as well as an orchestral work with the movement (\*) “Game of Pairs.” The composer of *Musica ricercata* and *Lux aeterna* was from this country, as was the composer of *Mikrokosmos* and a famous *Concerto for Orchestra*. For 10 points, name this home country of György Ligeti [JURJ LIG-uh-tee] and Béla Bartók.

ANSWER: Hungary [or Magyarország] <ML, Auditory Fine Arts> {Fine Arts, Auditory Fine Arts}

20. Two of this city's rival soccer teams play each other in an annual match known as the *Superclásico*. Residents of one of this city's neighborhoods speak the hybrid Belgrano-Deutsch. The Royal Fort of Don Juan Baltasar was converted in the 1800s into this city's iconic "Casa Rosada." The names of Felipe Pereyra de Lucena and Manuel Artigas are inscribed on an obelisk in this city's (\*) Plaza de Mayo, which commemorates a country's independence. The most common usage of the demonym *Porteños* refers to denizens of this city, and this is the most populous city on the Rio de la Plata. For 10 points, name this capital of Argentina.

ANSWER: Autonomous City of **Buenos Aires** <GP, Geography> {Other, Geography}

## Bonuses

1. This collection of religious texts is composed in an otherwise unrecorded language. For 10 points each:

[10] Name this collection of texts that includes the *Yasna*, the *Gathas*, and the *Vendidad*, the last of which describes the construction of Towers of Silence. Commentaries and translations of these texts are known as *Zend*.

ANSWER: **Avestas** [accept **Zend-Avesta**]

[10] The Avestas are the central religious texts of this dualistic Persian religion. Practitioners of this religion venerate the god of wisdom Ahura Mazda as its Supreme Being.

ANSWER: **Zoroastrianism** [accept **Mazdayasna**]

[10] This evil deity is the twin brother of Ahura Mazda and leader of the daevas. This son of Zurvan brought forth the storm dragon Azi Dahaka and killed the first human Gayomart.

ANSWER: **Ahriman** [accept **Angra Mainyu**] <SZ, Religion> {Beliefs, Religion}

2. One character in this work falsely believes her family is passing by a grand plantation house, but eventually realizes it was in Tennessee, not Georgia. For 10 points each,

[10] Name this short story in which the Misfit accosts and murders a family led by Bailey and the grandmother.

ANSWER: "A **Good Man is Hard to Find**"

[10] "A Good Man is Hard to Find" is a short story with a long title by this southern Gothic author, notable for other short stories with long titles such as "Everything that Rises Must Converge" and "The Life You Save May Be Your Own."

ANSWER: (Mary) Flannery **O'Connor**

[10] This author wrote another short story with a long title, "Where Are You Going, Where Have You Been?" in which Arnold Friend coerces 15 year old Connie to get into his car.

ANSWER: Joyce Carol **Oates** <SW, Short Fiction/Other Literature> {Literature, Short Fiction/Other}

3. Lots of composers were inspired by birds when writing music. For 10 points each:

[10] In the sixth movement of this composer's *Chronochromie*, 18 string instruments imitate birdsong. A clarinet plays a solo in the "Abyss of the Birds" movement of this bird-obsessed composer's *Quartet for the End of Time*.

ANSWER: Olivier **Messiaen** ["mess-YAWN"] [accept Olivier Eugène Prosper Charles **Messiaen**]

[10] This Italian composer included a recording of a nightingale in his *Pines of Rome*, the second work of his *Roman Trilogy*.

ANSWER: Ottorino **Respighi**

[10] Respighi was inspired by birds to write a suite based off this musical period. This period ended at around 1750 and preceded the Classical period.

ANSWER: **Baroque** <ML, Auditory Fine Arts> {Fine Arts, Auditory Fine Arts}

4. This leader enlisted the help of the "Berkeley Mafia" to boost his country's economy. For 10 points each:

[10] Name this man, who gained significant political power after crushing the 30 September Coup. This leader promoted the native *pribumi* over Chinese immigrants as part of his "New Order" regime.

ANSWER: **Suharto**

[10] Suharto ruled this country and also put down the 30 September Coup in its capital of Jakarta.

ANSWER: Republic of **Indonesia**

[10] The FRETILIN political party fought for the independence of this country from Indonesia during Suharto's rule. The UN condemned the Santa Cruz Massacre perpetrated in this country.

ANSWER: **East Timor** [accept **Timor-Leste**; do not prompt on or accept "Timor"] <HP, World History> {History, World/Commonwealth History}

5. Answer some questions about pericyclic reactions, for 10 points each:

[10] This pericyclic reaction involves the [4+2] ["four plus two"] cycloaddition of a dienophile ["dy-EEN-oh-file"] to a diene ["DY-een"]. This reaction is stereospecific when the dienophile is a 1,2-disubstituted alkene.

ANSWER: **Diels-Alder** reaction

[10] Cycloaddition reactions like the Diels-Alder reaction create two bonds denoted by this letter. Double covalent bonds consist of one pi bond and one bond denoted by this letter.

ANSWER: **sigma** bond

[10] The Diels-Alder reaction forms sigma bonds between atoms of this element. This element forms a maximum of four bonds and compounds of this element are the basis of organic chemistry.

ANSWER: **carbon** [or **C**] <CT, Chemistry> {Science, Chemistry}

6. This character sees white flowers called "evening faces" while on the way to visit a sick nurse. For 10 points each:

[10] Name this character who is given a nickname meaning "Shining Prince" when he is born. In the work in which he appears he kidnaps a young girl to raise her himself.

ANSWER: Hikaru **Genji**

[10] Genji marries Lady Aoi ["ah-oi"], the daughter of a man with this position in the government. That marriage angers Kokiden's father, who holds an oppositely named position.

ANSWER: **Minister of the Left** [or **Sadaijin**]

[10] The *Tale of Genji* was written by this woman. The girl Genji kidnaps shares her name with this author.

ANSWER: Lady **Murasaki** Shikibu <AMB, Long Fiction> {Literature, Long Fiction}

7. The lyrics to this musician's song "Fables of Faubus" were censored by Columbia. For 10 points each:

[10] Name this double bassist and bandleader. The song "Fables of Faubus" was included on a groundbreaking 1959 album titled for this bandleader's name followed by "*Ah Um*."

ANSWER: Charles **Mingus** [accept **Mingus Ah Um**]

[10] This musician and pioneer of free jazz also released in 1959 his album *The Shape of Jazz to Come*, on which he plays his distinctive plastic saxophone.

ANSWER: Ornette **Coleman**

[10] Yet another album released in 1959 was *Time Out* by Dave Brubeck, a player of this instrument. Art Tatum was a virtuoso of the "stride" style of this keyboard instrument.

ANSWER: **piano** [accept **pianoforte**] <ML, Other Fine Arts> {Fine Arts, Other Fine Arts}

8. Dividing proper length by this quantity gives the observed length. For 10 points each:

[10] Name this term, denoted gamma, which is defined as 1 over the square root of 1 minus v-squared over c-squared.

ANSWER: **Lorentz** factor [or **Lorentz** term]

[10] The Lorentz factor arises in this theory developed by Albert Einstein. It postulates that the speed of light is the same for all observers and is contrasted with a general counterpart.

ANSWER: **special relativity** [or **SR**; prompt on partial]

[10] This effect in SR can be demonstrated using atomic clocks. The twin paradox arises from naively applying this phenomenon.

ANSWER: **time dilation** <KL, Physics> {Science, Physics}

9. This colony's namesake Toleration Act called for religious toleration to be granted to all Christians. For 10 points each:

[10] Name this early American colony, the precursor to a state of the same name, which was initially founded to be a haven for Catholics.

ANSWER: **Maryland**

[10] The Maryland colony was set up by members of this Catholic family. Although the plans for Maryland were set by his father, George, a member of this family named Cecil served as the first Proprietor of Maryland.

ANSWER: **Calvert** [prompt on Baron **Baltimore**]

[10] The colony of Maryland faced strife during this period which included rebellions by William Claiborne and Richard Ingle. It is not to be confused with a similar sounding period in Jamestown.

ANSWER: **Plundering Time** <AN, American History> {History, American History}

10. The world's first and oldest iron bridge was built over this river at Coalbrookdale. For 10 points each:

[10] Name this river which rises in the Cambrian Mountains, flows past Worcester [**"wus-ter"**] and Gloucester [**"glou-ster"**], and empties into the Bristol Channel.

ANSWER: River **Severn**

[10] The Cambrian Mountains and the headwaters of the Severn are located in this constituent country of the UK. This country's capital of Cardiff is found on the northern shore of the Bristol Channel.

ANSWER: **Wales**

[10] To the southwest of the Bristol Channel lies this English county. Governed from Truro, this region includes Lizard Point and Land's End, the southern and westernmost points of Britain.

ANSWER: **Cornwall** <CS, Geography> {Other, Geography}

11. One poem commands the speaker to "hold fast" to these things, or else "life is a broken-winged bird that cannot fly." For 10 points each:

[10] Name these things. In another poem by the same author, the speaker wonders if one of these things "crust[s] and sugar[s] over / like a syrupy sweet."

ANSWER: **dreams** [accept "a **dream** deferred"]

[10] This poet compared Harlem to "a dream deferred" in one poem, and was a major poet during the Harlem Renaissance. He also wrote "Theme For English B" and "I, Too, Sing America."

ANSWER: (James Mercer) Langston **Hughes**

[10] The narrator of a Langston Hughes "Ballad" threatens a person of this occupation by saying, "You ain't gonna be able to say a word / If I land my fist on you." That poem ends with the headline "JUDGE GIVES NEGRO 90 DAYS IN COUNTY JAIL."

ANSWER: **landlord** [accept "Ballad of the **Landlord**"] <DP, Non-Epic Poetry> {Literature, Non-Epic Poetry}

12. This revolt was chronicled by Jean Froissart, who referred to its leader as "Jack Goodman". For 10 points each:

[10] Name this 1358 French peasant rebellion, sparked by discontent over military defeats and heavy taxes which had been levied to pay for the ransom of John the Good.

ANSWER: **Jacquerie** revolt

[10] The aforementioned ransom had been brought upon after John had been captured by Edward the Black Prince at this 1356 battle, which repeated an earlier French defeat at Crécy ten years earlier.

ANSWER: Battle of **Poitiers** [**"pwah-tee-air"**]

[10] The Jacquerie revolt and the Battle of Poitiers were major setbacks for the French during this lengthy conflict with England. The French would later be decisively beaten during this conflict at the Battle of Agincourt

ANSWER: **Hundred Years'** War [prompt on **Anglo-French** Wars] <CS, European History> {History, European History}



13. In this painting, a woman crosses arms with a man holding an umbrella for her in front of a green lamppost. For 10 points each:

[10] Name this painting by Gustave Caillebotte ["kye-BOT"], which depicts pedestrians in front of the Place ["PLAHS"] de Dublin during a drizzle.

ANSWER: Paris Street; Rainy Day

[10] Caillebotte himself was depicted in this painting wearing a straw hat and a white shirt. This painting shows a group of friends dining on a balcony next to the Seine.

ANSWER: Luncheon of the Boating Party

[10] This French impressionist and friend of Caillebotte painted *Luncheon of the Boating Party*. He depicted a merry scene in Montmartre in his work *Bal du Moulin de la Galette*.

ANSWER: Pierre-Auguste Renoir <WZ, Visual Fine Arts> {Fine Arts, Visual Fine Arts}

14. Dorothy Crowfoot Hodgkin won the 1964 Nobel Prize in Chemistry for discovering the structure of this vitamin. For 10 points each:

[10] Name this vitamin whose malabsorption can cause pernicious anemia. Its structure contains a corrin ring and its absorption is facilitated by intrinsic factor.

ANSWER: vitamin B12 [accept cobalamin or cyanocobalamin]

[10] Hodgkin used an imaging technique with light in this frequency to find the shape of B12 and insulin. Bragg's law is used in a crystallography technique that uses this form of radiation, which is shorter than gamma rays.

ANSWER: x-ray [accept x-ray crystallography or x-ray diffraction, prompt on XRD or XRC]

[10] John Kendrew and Max Perutz earned the 1962 Nobel Prize by using x-ray crystallography to find the structure of this protein, which stores oxygen in muscles.

ANSWER: myoglobin <DB, Biology> {Science, Biology}

15. A *Jacobin* article denounced these two thinkers as "The Fool and the Madman." For 10 points each:

[10] These two philosophers debated about what economic system is most conducive to "Happiness" in Toronto in April 2019. Name both.

ANSWER: Slavoj Žižek AND Jordan Peterson [accept names in either order]

[10] Peterson represented capitalism while Žižek represented an ideology named after this philosopher. Peterson's opening statements consisted of a close reading of this philosopher's *The Communist Manifesto*.

ANSWER: Karl Marx

[10] In the debate, Žižek claimed that the image of this man is "the last thing a liberal sees before confronting actual social tensions." Peterson attributed the rise of this world leader to a reaction to men being forced to "feminize."

ANSWER: Donald Trump <AMB, Philosophy> {Thought, Philosophy}

16. Eumaeus praises this animal's ability for hunting and tracking shortly before it dies of old age. For 10 points each:

[10] Name this dog of Odysseus, who recognizes its owner despite not having seen him for twenty years.

ANSWER: Argus [or Argos]

[10] A king of Argos, Acrisius, had this hero and his mother, Danae, thrown out to sea in a chest. This hero would later kill Medusa and behead Acrisius with a discus.

ANSWER: Perseus

[10] This god was given the epithet *Argeiphontes* for killing the hundred-eyed giant Argus Panoptes while the latter guarded a transformed Io.

ANSWER: Hermes <WZ, Mythology> {Beliefs, Mythology}

17. This author wrote about the crew of the spaceship Eurydice in his novel *Fiasco*. For 10 points each:

[10] Name this Polish science fiction author who wrote about researchers who bombard an ocean with x-rays in his novel *Solaris*, which was adapted into a film by Andrei Tarkovsky.

ANSWER: Stanisław **Lem**

[10] This American science fiction writer claimed that Lem was actually a fake name used by a Soviet committee. His novel *Do Androids Dream of Electric Sheep?* was adapted into the film *Blade Runner*.

ANSWER: Phillip K. **Dick**

[10] Beings of this type are discovered on the planet Quinta in *Fiasco*. Lem often wrote about the first contact between humans and beings of this type.

ANSWER: **aliens** [or **extraterrestrials**] <AMB, Long Fiction> {Literature, Long Fiction}

18. These people may have inhabited the site of Gonur Tepe [“**go-noor tay-pay**”]. For 10 points each:

[10] Name these people, who are considered to be the ancestors of the Indian people. Their religion, known as Vedism, was the prototype for Hinduism. The name of Iran comes from a corruption of the word for these people.

ANSWER: Indo-**Aryans**

[10] The languages of the Indo-Aryans are part of this language family, which includes Romance languages. The Kurgan Hypothesis explains how this language family’s ancestors originated in the steppes north of the Black Sea.

ANSWER: **Indo-European**

[10] The Aryans may have migrated from a region that combines this word with “Margiana.” Alexander the Great married a princess from a region with this name named Roxana, and that region with this name was where he captured the Sogdian Rock.

ANSWER: **Bactria** [accept **Bactria**-Margiana] <HP, Ancient/Other> {History, Ancient/Other History}

19. The Hertzsprung-Russell diagram classifies these objects based on their temperature-luminosity ratio. For 10 points each:

[10] Name these astronomical objects exemplified by Sirius, Polaris, and the Sun.

ANSWER: **stars**

[10] The instability strip of the H-R diagram contains these stars. Henrietta Swan Leavitt related the period and luminosity of one type of these stars.

ANSWER: **variable** stars [accept **Cepheid variable** stars or other answers mentioning **variable**]

[10] The Sun lies on the main sequence of the H-R diagram and is denoted by this spectral class in the Harvard classification system. This spectral class is cooler than *F* type stars.

ANSWER: **G2V** [or **G2**] <KL/DB, Astronomy> {Science, Other Science}

20. Answer some things about the 2019 Women's World Cup, for 10 points each:

[10] The 2019 Women’s World Cup was held in this country. The eventual champion USA team eliminated this host nation’s team by a score of 2-1 in the quarterfinal stage at the Parc des Princes stadium in its capital.

ANSWER: **France**

[10] This player won both the Golden Boot and the Golden Ball awards at the 2019 Women’s World Cup. Earlier, this gay athlete sparked controversy by refusing to sing the national anthem.

ANSWER: Megan **Rapinoe**

[10] Another controversy surrounding the American team arose after they defeated this country by a score of 13-0. After that game, critics denounced the team as “arrogant” and “classless” for continuing to celebrate after the game was long decided.

ANSWER: **Thailand** <SZ, Current Events> {Other, Current Events}