

**Bulldog High School Academic Tournament 2021 (XXX): “I feel like ACF Regionals 2021 is a confusing subtitle for a set that’s not ACF Regionals 2021.”**

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**Packet 7 Tossups**

1. **Kant argued that humans have a natural propensity for this “radical” concept, and that it stems from wrongful self-love. Augustine stated that this concept does not exist on its own; instead, it is “privation” or lack of another related concept. A type of philosophical problem named for this concept can be solved through a (\*) theodicy, which attempts to explain how suffering could exist alongside an omnipotent God. Arendt concluded that this concept is only brought about by “sheer thoughtlessness” in *Eichmann in Jerusalem: A Report on the Banality of* [this quality]. Nietzsche attempted to go “Beyond,” for 10 points, what quality that is often paired with “Good”?**

ANSWER: **evil** [accept *Beyond Good and Evil*] (MGS)

2. **In one scene from this film, a woman shouts “You don’t know the meaning of the word ‘neighbor’!” after discovering her dog’s corpse by a flowerbed. That dog had been strangled by a man who was earlier spotted cleaning a knife and handsaw in his sink. One character in this film repeatedly points to a wedding ring on her finger after being discovered in the apartment of (\*) Lars Thorwald, whom this film’s main character later temporarily blinds with camera flashes before being defenestrated from his wheelchair. For 10 points, Jimmy Stewart stars as a photographer who observes his neighbors from the title location in what Alfred Hitchcock film?**

ANSWER: ***Rear Window*** (SL)

3. **A poet writing in this language complains to his friend that “alas, the fleeting years glide by.” A poet in this language quips that “it is pleasant to play the fool on occasion.” A poem in this language begins “now is the time to beat the earth with free foot” after declaring “now is the time to drink!” An author writing in this language said his poetry would be a (\*) “monument more lasting than bronze.” Wilfred Owen described the “old Lie” of a poet writing in this language who said that “it is sweet and fitting to die for the fatherland.” For 10 points, name this language in which Horace said to “seize the day,” or *carpe diem*.**

ANSWER: **Latin** (MK)

4. **In this country, 39 soccer fans died in the Heysel stadium disaster. A center-back from this country blasted a 30-yard winner against Leicester [“LESS-ter”] City to edge out Liverpool for the title in 2019. A Basque goalkeeper named “Kepa” moved to Chelsea to replace a goalkeeper from this country who transferred to Real Madrid. This country’s national team, which finished (\*) third at the 2018 World Cup, is nicknamed the Red Devils. Jan [“yan”] Vertonghen has the most-ever appearances for this country’s national team, which is captained by Eden Hazard. Its teams include Club Brugge [“broozh”] and Standard Liège [“lee-EZH”]. For 10 points, name this country whose national team plays in King Baudouin [“bow-DWEN”] stadium in Brussels.**

ANSWER: **Belgium** [or Kingdom of **Belgium**; or Koninkrijk **België**; or Royaume de **Belgique**; or Königreich **Belgien**] (PC)

5. According to Marden's theorem, a function with roots at the vertices of one of these objects has zero derivative at the foci ["FOH-sy"] of that object's Steiner inellipse ["in-ellipse"]. With their edges and vertices, these objects form a structure named for Boris Delaunay that is dual to a Voronoi diagram. Thales's theorem states that if one of these objects is inscribed in a circle with one side as a (\*) diameter, the opposite angle is a right angle. The area of one of these shapes can be calculated by Heron's formula. Euclidean distance obeys an "inequality" named for these shapes, which are called "scalene" if they have all different side lengths. For 10 points, name these polygons with three edges and three vertices.

ANSWER: triangles (DR)

6. This man built a sanctuary of Artemis next to his house under the epithet *Aristobule*, or "best advisor." This man issued coins bearing his own image, perhaps becoming the first person to do so, when he was appointed governor of Magnesia by Artaxerxes I. This man was the long-time rival of Aristides the Just. This man correctly interpreted the prophecy that (\*) "wooden walls will defend you and your children." This man won the battle of Artemisium and lured an enemy fleet, including ships commanded by Artemisia I, into narrow straits in another battle. For 10 points, name this Athenian commander who defeated the Persians at Salamis.

ANSWER: Themistocles (VS)

7. The efficacy of one of these substances is reduced by quinoline or lead acetate in a process called "poisoning." A double bond to ruthenium is found in three generations of these compounds named for Robert Grubbs. The turnover number and turnover frequency quantify the effectiveness of these substances, which are classified as (\*) homogenous or heterogenous based on whether they exist in the same phase as the reactants and products. These substances do not shift the position of equilibrium, but they do lower the transition state activation energy. For 10 points, name these substances that speed up a chemical reaction without being consumed.

ANSWER: catalysts [accept catalysis] (MP)

8. In the *Enuma Elish*, Marduk makes one of these things appear and disappear to demonstrate his power to the Igigi. After Zeus turns them to stone, the Teumessian Fox and Laelaps are commemorated among these things. Coatlicue ["kwat-LEE-kway"] has 400 children, excepting Coyolxauhqui ["coy-ol-SHAW-kee"], who represent these things; she is saved from those murderous offspring by (\*) Huitzilopochtli ["weet-sill-oh-POTCH-tlee"]. The centaur Chiron is placed among these things after giving up his immortality. After he is stung by a scorpion and dies, one figure also joins these things; that hunter is Orion. For 10 points, Sagittarius numbers among what arrangements of stars that comprise the zodiac?

ANSWER: constellations [accept stars before mention; anti-prompt on Canis Major, Canis Minor, Orion or Sagittarius before "Sagittarius" is read] (AY)

9. In the first movement of a work with this nickname, a subito piano descending D major dominant seventh arpeggio followed by silence ushers in its composer's "Un Bacio di Mano." That piece with this nickname begins on a loud C followed by rising sixteenth note triplets from G to C. The whole-note "C-D-F-E" motif appears in a (\*) five-voice fugato ending that piece with this nickname. The melody from a movement with this name was adopted into the hymn "I Vow to Thee, My Country." Johann Peter Salomon nicknamed Mozart's C-major final symphony for this Roman deity. For 10 points, name this "Bringer of Jollity," which precedes Saturn in Holst's *The Planets*.

ANSWER: Jupiter [accept Jupiter Symphony or "Jupiter, the Bringer of Jollity"] (DM)

10. In a novella by this writer, the maid Maryanka delays responding to Olenin's advances until her betrothed Lukashka is wounded by Chechens. This author wrote a story that opens with two sisters arguing about city and country life as a man listens from atop an oven. In that story by this author, Pahom dies from exhaustion after completing the Bashkirs' challenge, providing an answer of (\*) "six feet" to the title question. This author of *The Cossacks* and "How Much Land Does a Man Need?" created a judge who hates his wife Praskovya but finds support in the servant Gerasim after suffering a terminal injury while hanging curtains. For 10 points, name this author of *The Death of Ivan Illych*.

ANSWER: Leo **Tolstoy** [or Lev Nikolayevich **Tolstoy**] (MG)

11. An activist in this country was jailed for sharing a "toolkit" via Google Documents with Greta Thunberg. A group of comics organized a Right to Laugh event to protest this country's jailing of the comedian Munawar Faruqi for a joke he never actually made. The Covaxin and Covishield vaccines are being manufactured by the world's (\*) largest manufacturer of vaccines, this country's Serum Institute. Throngs of people and tractors have blocked the highways leading to this country's capital to protest the passage of laws that deregulate the pricing and storage of foods. Massive farmers' protests have shaken, for 10 points, what country governed from New Delhi by Narendra Modi?

ANSWER: **India** [or Republic of **India**; or **Bharatiya** Ghanarajya] (HK)

12. This future leader fled to London to avoid extradition after leading a failed coup in Strasbourg. After being elected president, this leader was opposed by the conservative Party of Order coalition, which he later had dissolved. This non-American leader's government financed public works through the Cr dit Mobilier bank. This ruler survived an assassination attempt by (\*) Felice ["feh-LEE-chay"] Orsini and was captured at the Battle of Sedan. Karl Marx compared the "farce" of a coup that brought this man to power to the "tragedy" that empowered his uncle of the same name. For 10 points, name this ruler of the Second French Empire who lost the Franco-Prussian War.

ANSWER: **Napoleon III** [accept Charles-**Louis Napol on** Bonaparte; prompt on Napoleon or Bonaparte; do **NOT** accept or prompt on "Napoleon Bonaparte"] (LL)

13. This character tells a man to ignore a pair of men who say "God bless us!" and "Amen." This character calls a man's face "a book where men / May read strange matters" before advising "look like the innocent flower / But be the serpent under't." This character would have "dash'd the (\*) brains out" of her own child, and she calls on "spirits" to "unsex [her] here." News of this person's offstage death causes her husband to call life a tale "full of sound and fury." While sleepwalking, this woman cries "out, damned spot!" For 10 points, name this Shakespearean noblewoman who convinces her husband to murder King Duncan of Scotland.

ANSWER: **Lady Macbeth** [accept **Macbeth's wife**; do **NOT** accept or prompt on "Macbeth"] (HK)

14. An influential one of these texts exhorts readers to "Seek knowledge even unto China." Whether there are four or six authoritative books of these texts is a matter of sectarian debate. The *isnad* of these texts, or their chain of transmission, determines whether they're classified as (\*) *sahih*, *hasan*, or *da'if*. The most authoritative collection of these texts in Sunni tradition were collected by Muslim ibn al-Hajjaj and Muhammad al-Bukhari. These texts serve as documentation for the *sunnah*. Some Shia Muslims reject the authority of one major source for these texts, Aisha. For 10 points, name these texts, which are collections of sayings of the Prophet Muhammad.

ANSWER: **hadith** [or **ah dith**; prompt on sunnah before mention] (HK)

15. **This work’s preparatory sketches do not include its eventual depiction of a pensive, purple-robed writer leaning on a block of marble. A turbaned man in this work gazes over the shoulder of a figure holding a slate with a U-shaped diagram. Another man in this painting, thought to be modeled on Bramante, draws a six-pointed star with a compass. Statues of Apollo and (\*) Minerva stand in niches on either side of this painting, which faces *La Disputa*. A self-portrait of this work’s artist appears next to Zoroaster. This painting, housed in the Stanza della Segnatura, features a figure in blue holding the Nicomachean Ethics. For 10 points, name this Raphael fresco of luminaries in the title city.**

ANSWER: *The School of Athens* [or *La Scuola di Atene*] (SL)

16. **This technique is used in a modification of Maxam–Gilbert sequencing known as the DNase footprinting assay, and also in the mobility shift assay. In one version of this technique, ammonium persulfate must be added after TEMED to prevent premature polymerization. A “smiling” appearance is a common problem when using this technique. Silver, SYBR [<sup>“cyber”</sup>] Safe, (\*) Coomassie blue, and the carcinogen ethidium bromide are visualizing agents in this technique. Increasing the percentage of agarose in this procedure’s matrix increases its resolution. For 10 points, name this technique that applies an electric field to a namesake matrix to separate DNA or proteins by size.**

ANSWER: gel electrophoresis [accept more specific answers like protein gel electrophoresis or DNA gel electrophoresis; accept 2D-SDS-PAGE; prompt on partial answers like “running a gel” or electrophoresis] (HK)

17. **A brigade whose soldiers were mainly of this ethnicity was dubbed the “Fighting 69th” by opposing general Robert E. Lee. The Five Points neighborhood was dominated by a gang of this ethnicity called the Dead Rabbits. A mob of people mainly of this ethnicity stormed the Colored Orphan Asylum in July 1863 in the New York City Draft Riots. (\*) Nationalists of this ethnicity plotted to invade Canada as members of the Fenian Brotherhood. An event known as *An Gorta Mór* pushed people of this ethnicity to New York City, where posters declared they “need [not] apply” for jobs. For 10 points, many people of what ethnicity came to the U.S. during an 1840s potato blight?**

ANSWER: Irish Americans (JS)

18. **At rest, these devices produce Johnson–Nyquist noise with a power proportional to “ $4 k_B T$ .” Though these devices were once made by fusing carbon and ceramic powders, their active element is now usually a nichrome winding or a helical carbon film. The strength of these devices varies inversely with their cross-sectional area, and is proportional to their (\*) length and an intensive property denoted  $\rho$ . The strengths of these devices add linearly in series. These devices are drawn as zigzag lines on circuit diagrams. For 10 points, name these devices that impede the flow of electricity, whose strength is measured in ohms and denoted  $R$ .**

ANSWER: resistors [accept wires before “carbon” is read] (SE)

19. **A leader with this surname was excommunicated after expelling two Catholic priests from his country; the next day, his supporters were bombed by his country’s air force in a strike on the Casa Rosada. The body of a woman with this surname went missing shortly after her husband was overthrown in the “Liberating Revolution,” a 1955 coup. Supporters of that man with this surname were known as (\*) *descamisados*, or “shirtless ones,” and were targeted in the “Dirty War” after the end of his third wife’s presidency. For 10 points, a populist Argentine political movement is named for what surname shared by presidents Juan and Isabel, as well as Juan’s second wife Evita?**

ANSWER: Perón [accept Eva Perón or Isabel Martínez de Perón or Juan Perón; accept Peronism or Peronismo] (MGS)

20. In this play, a father beats his son and assaults a girl, causing the son to realize that his father is “the Devil himself.” A woman in this play describes “plant[ing] a seed” inside her husband and calls him “a womanless man” after agreeing to raise a baby. This play closes with the line “That’s the way that go!” after a mentally disabled veteran (\*) blows a broken trumpet. The protagonist of this play has an affair with Alberta and forbids his son, Cory, from playing football. That protagonist of this play is promoted to become his town’s first Black garbage truck driver. For 10 points, Rose’s husband Troy Maxson builds the title structure of what Pittsburgh Cycle play by August Wilson?

ANSWER: Fences (HK)

*Tiebreaker*

It’s not HIV, but this condition’s prevalence in sub-Saharan Africa may be linked to the region’s ongoing HIV epidemic. Identifying this disease’s slow-growing causative agent requires acid-fast staining to detect the mycolic acid in its cell walls, whose synthesis is inhibited by first-line drugs like isoniazid and rifampin. A fifteen-millimeter induration is diagnostic of this condition in the (\*) Mantoux test for it, which involves injecting PPD under the skin. An organism in genus *Mycobacterium* causes this disease, whose most notable symptom is a chronic, bloody cough. For 10 points, name this highly contagious respiratory infection once known as consumption.

ANSWER: tuberculosis [or TB; accept *Mycobacterium tuberculosis* infection; accept consumption before mention] (HK)

### Packet 7 Bonuses

1. This artist designed an iconic coffee table with a two-piece interlocking wooden base and a rounded-triangle tabletop. For 10 points each:

[10] Identify this Japanese-American architect who designed the sets for Merce Cunningham's *The Seasons* and Martha Graham's production of *Appalachian Spring*.

ANSWER: Isamu **Noguchi**

[10] This Surrealist, who created *The Tilled Field* and *Dog Barking at the Moon*, designed the costumes and sets with Max Ernst for a 1926 Ballet Russes production of *Romeo and Juliet*.

ANSWER: Joan **Miró** [or Joan **Miró** i Ferrà]

[10] For *Bacchanale*, this other artist designed a swan with a hole in its breast, from which dancers could emerge, for the Ballets Russes de Monte Carlo. This artist also depicted melting clocks in *The Persistence of Memory*.

ANSWER: Salvador **Dalí** [or Salvador Domingo Felipe Jacinto **Dalí** i Domènech] (SL)

2. Proteins like katanin sever these structures. For 10 points each:

[10] Name these structures that comprise the cytoskeleton along with microfilaments and intermediate filaments. Their simultaneous assembly and disassembly is called "dynamic instability."

ANSWER: **microtubules**

[10] Members of this class of motor protein, unlike dyneins, "walk" cellular cargo vesicles down the length of microtubules towards their plus ends—*away* from the cell body.

ANSWER: **kinesins**

[10] These "hairy-looking" structures require kinesins for their development and, like flagella, contain microtubules arranged in a 9+2 arrangement. They're used for cell locomotion.

ANSWER: **cilia** [or **cilium**] (HK)

3. Answer the following about controversial depictions of a certain religious figure, for 10 points each.

[10] C.S. Lewis wrote that in *The Chronicles of Narnia*, the lion Aslan is not an allegorical stand-in for this religious figure, but rather a parallel version of how this figure *could* exist in a world of animals.

ANSWER: **Jesus Christ** [accept either underlined portion; accept the **Messiah**]

[10] This author took some heretical stances in a novel in which Jesus lives with Mary Magdalene and questions God's hunger for power. His version of Jesus asks mankind to forgive God, "for He knows not what He has done."

ANSWER: José **Saramago** [or José de Sousa **Saramago**] (That scene appears in *The Gospel According to Jesus Christ*.)

[10] This Russian novel features the parable of the Grand Inquisitor, who denounces Jesus for giving humanity freedom instead of yielding to Satan's temptation to turn stones into bread.

ANSWER: *The* **Brothers Karamazov** [or **Bratya Karamazovy**] (MGS)

4. This colony was initially called the Commonwealth of Eleutheria, the Ancient Greek word for "freedom." For 10 points each:

[10] Identify this colony whose first royal governor, Woodes Rogers, earlier rescued the stranded Alexander Selkirk in Chile. 128 American slaves were granted freedom in this colony in the 1841 *Creole* case.

ANSWER: The **Bahamas** [or British **Bahamas**]

[10] This infamous pirate settled in the Bahamas during the early 1700s before launching raids aboard *Queen Anne's Revenge*. He blockaded Charleston for several days in 1718 and was killed by Robert Maynard's crew later that year.

ANSWER: **Blackbeard** [accept Edward **Teach**]

[10] After he was found to have Nazi sympathies, this English king was removed from Europe to be Governor of the Bahamas in 1940. He abdicated the throne in 1936 to marry the divorced Wallis Simpson.

ANSWER: **Edward VIII** [prompt on **Edward**] (VS)

5. This man heard an ant's warning to its colony and thus prevented his army from trampling them. For 10 points each:

[10] Name this wise prophet who was advised by the *hud-hud* bird. This son of David once suggested a baby be cut in half to settle a dispute between its two self-proclaimed mothers.

ANSWER: King **Solomon** [or **Sulayman**]

[10] Islamic tradition holds that Sulayman had the power to command these beings of smokeless fire. One of these beings called an ifrit once transported a golden throne into Sulayman's palace in the blink of an eye.

ANSWER: **jinn**s [or **djinn**is, or **genies**]

[10] That throne belonged to this woman, who, awed by Sulayman's power and glass palace, eventually converted to Islam. Some accounts hold that she later married him.

ANSWER: **Queen of Sheba** [or **Bilqis**] (HK)

6. Pandemic quarantines led to viral popularity for shows like *Tiger King* and many video games. Answer the following about some of those games, for 10 points each.

[10] *New Horizons* is the latest installment in this video game franchise. Released on March 20, 2020 as the pandemic worsened, this game centers on moving to a deserted island and developing it with the help of Tom Nook.

ANSWER: **Animal Crossing: New Horizons**

[10] In the sensational *Among Us*, impostors can perform this action named for some namesake openings to hide or quickly move around the map. Someone spotted performing this action is surely not a crewmate.

ANSWER: **venting** [or using **vents**]

[10] More literally about a pandemic, Artemy Burakh is the protagonist of this game by the Russian studio Ice-Pick Lodge that centers on his efforts to save the Town-on-Gorkhon from a viral outbreak called the "Sand Pest."

ANSWER: **Pathologic** [accept **Pathologic 2**] (MGS)

7. In the *Völuspá*, a war between these groups is preceded by the three burnings of Gullveig, who survives and practices seidr to the delight of "evil women." For 10 points each:

[10] Name these two mythological groups, whose conflict ended with members from each group spitting into a vat. These two groups exchanged hostages, including deities who were appointed priests and priestess of the sacrifices.

ANSWER: **Aesir** AND **Vanir** (In the *Ynglinga Saga*, Njord, Frey, and Freyja were given those positions over the sacrifices.)

[10] The spit of the Aesir and Vanir was fashioned into Kvasir, whose blood became this substance. Odin took the form of a snake and infiltrated a mountain to steal this substance from the giant Suttungr.

ANSWER: **Mead of Poetry** [prompt on **mead**]

[10] *Description acceptable*. Offended by the hostage Hoener's incompetency, the Vanir performed this action on Mimir. A horseman carries the result of this action under his arm as he terrorizes Sleepy Hollow.

ANSWER: **beheading** [accept **decapitation** or anything indicating a **head** being **removed**; prompt on **headless** by asking "how, generally, did he become headless?"] (AY)

8. This artist's work *Everyone I Have Ever Slept With 1963-1995*, a square tent stitched with names, was destroyed in the 2004 Momart warehouse fire. For 10 points each:

[10] Identify this artist, a prominent member of the Young British Artists. Her work *My Bed*—literally, her unkempt bed strewn with condoms and sanitary pads—was shortlisted in 1999 for the Turner Prize.

ANSWER: Tracey **Emin**

[10] Damien Hirst, another YBA, suspended one of these animals in formaldehyde in *The Physical Impossibility of Death in the Mind of Someone Living*. One of these animals attacks Watson in a painting set at Havana's harbour.

ANSWER: **sharks**

[10] Emin's *My Bed* has been described as one of these artworks, originated by Marcel Duchamp in found object pieces like *Bicycle Wheel* and *Fountain*.

ANSWER: **readymades** (SL)

9. The hormone cortisol is often released in response to this phenomenon. For 10 points each:

[10] Name this state of tension that leads to the activation of the autonomic nervous system's "fight or flight" response. It can result after experiencing trauma in a namesake disorder.

ANSWER: **stress** [accept post-traumatic **stress** disorder; prompt on **PTSD**]

[10] This system, which includes areas such as the hippocampus, amygdala, and hypothalamus, is particularly responsive to stress. This system regulates emotion and memory, and is also involved in homeostasis.

ANSWER: **limbic** system

[10] Because a namesake "bulb" involved in processing this sense is connected directly to the amygdala, stimuli of this sort are particularly evocative of states like stress and can easily trigger flashbacks in PTSD patients.

ANSWER: **smell** [or **olfaction**; accept **olfactory** bulb] (HK)

10. William Makepeace Thackeray sandwiched this author between William Hogarth and Henry Fielding in his lecture series *The English Humorists of the Eighteenth Century*. For 10 points each:

[10] Name this Scottish writer famed for often-grotesque picaresques, such as *The Adventures of Peregrine Pickle*.

ANSWER: Tobias (George) **Smollett**

[10] In one example of Smollett "humor," Peregrine tricks his friend Pallet, who is about to be released from this Paris prison, into thinking he will be castrated. Manette is freed from this place at the start of *A Tale of Two Cities*.

ANSWER: **Bastille** [or **Bastille** Saint-Antoine]

[10] Parson Yorick encounters Smelfungus, a joyless caricature of Smollett, in this author's *A Sentimental Journey*. Yorick also appears in an earlier novel by this man about the *Life and Opinions* of its title gentleman.

ANSWER: Laurence **Sterne** (The second novel is *Tristram Shandy*.) (DS)

11. One possessor of this cognomen supposedly wrote a "little handbook on electioneering" to help his older brother win the consulship. For 10 points each:

[10] Give this name meaning "chickpea" shared by brothers Quintus and Marcus Tullius, the latter of whom was named *pater patriae* for thwarting Cataline's Conspiracy as consul in 63 B.C.

ANSWER: **Cicero** [or Quintus Tullius **Cicero**; or Marcus Tullius **Cicero**]

[10] Quintus Tullius Cicero served as a *legatus* under Julius Caesar in a series of military campaigns to conquer this historical region centered in modern France.

ANSWER: **Gaul** [or **Gallia**; accept **Gallic Wars**]

[10] During Ambiorix's revolt, Quintus was nearly overrun by the Nervii, members of this group who inhabited the part of Gaul farthest from Rome. Caesar considered these people the strongest of the three main Gallic groups.

ANSWER: **Belgae** (DS)



12. In her historic 2019 response to the State of the Union Address, this woman emphasized that “we cannot accept efforts to undermine our right to vote.” For 10 points each:

[10] Name this politician. She founded Fair Fight Action in response to her failed gubernatorial run against Brian Kemp, and her organizing is largely credited with narrowly flipping her home state in the 2020 election.

ANSWER: Stacey (Yvonne) **Abrams**

[10] Abrams hails from this state, where her efforts helped elect Raphael Warnock and Jon Ossoff in a 2021 runoff election, giving Democrats a narrow majority in the Senate.

ANSWER: **Georgia**

[10] After Joe Biden became the first Democrat to win Georgia since 1992, Donald Trump begged this man, Georgia’s Secretary of State, to “find” 11,000 votes for him in a leaked January 2 phone call.

ANSWER: Brad **Raffensperger** [or Bradford Jay **Raffensperger**] (MP)

13. Answer the following about Wilhelm Wien [“veen”], for 10 points each.

[10] At short wavelengths, Wien’s approximation describes the emission spectrum of these idealized physical objects. Described exactly by Planck’s law, these objects absorb radiation at all frequencies.

ANSWER: **blackbodies**

[10] Wien’s displacement law states that the peak wavelength of a blackbody varies inversely with this quantity. The Sun’s peak wavelength of 500 nanometers corresponds to a value for this quantity of 5800 kelvins.

ANSWER: **temperature** [accept absolute **temperature**; prompt on **T**]

[10] A Wien filter consists of perpendicular electric and magnetic fields with strengths  $E$  and  $B$ , respectively, such that only particles with a value for this quantity equal to “ $E$  over  $B$ ” will be selected.

ANSWER: **velocity** [accept **speed**; accept **velocity** selector] (DM)

14. While stopped on this bridge, Hosea Williams asked “May we have a word with the major?” but received no response. For 10 points each:

[10] Name this bridge. Marchers attempting to cross this bridge were brutally attacked by state troopers on a day that became known as “Bloody Sunday.”

ANSWER: Edmund **Pettus** Bridge

[10] The marchers on Edmund Pettus Bridge were traveling from Selma to this city, the state capital of Alabama. Rosa Parks sparked a bus boycott in this city in 1955.

ANSWER: **Montgomery** [accept **Montgomery** Bus Boycotts]

[10] This man and Hosea Williams led the marchers on Edmund Pettus Bridge on Bloody Sunday. This man served as chairman of the SNCC from 1963 to 1966.

ANSWER: John (Robert) **Lewis** (MK)

15. This country's ancient court music, known as *gagaku*, is difficult to reconstruct because it survives in part books that lack extremely detailed guides. For 10 points each:

[10] Name this country, whose traditional instruments include a 13-stringed zither known as a *koto*. A later composer from this country, Michio Miyagi, featured the *koto* in his song "Haru no Umi."

ANSWER: **Japan** [or **Nihon**; or **Nippon**]

[10] This Japanese composer paired traditional instruments like the *biwa* with a Western orchestra in his *November Steps*. This composer of *A String Around Autumn* gained prominence in the West after the premier of his *Requiem*.

ANSWER: Tōru **Takemitsu**

[10] Takemitsu also composed many works in this genre, most notably for *Ran*. Prokofiev included sleigh bells in the troika from his *Lieutenant Kijé*, which was written in this genre before being excerpted as a suite.

ANSWER: **film** score [or **film** music; accept synonyms like **movie** soundtrack] (AY)

16. Answer the following questions about plays in which characters figured out the hard way that the American dream is a sham, for 10 points each.

[10] In this Arthur Miller classic, Willy Loman's inability to achieve a materialistic version of the American dream drives him to commit suicide for the insurance money his family will receive upon his death.

ANSWER: ***Death of a Salesman***

[10] Dodge's alcoholism, barren fields, failing marriage, and murder of his wife and son's incest-begotten baby all erode the myth of the American dream in this depressing play by Sam Shepard.

ANSWER: ***Buried Child***

[10] In one play, this author allegorizes the titular *American Dream* as a handsome, emotionless Young Man. Jerry mocks Peter's dream of "two daughters, two cats and two parakeets" in another play of his set on a park bench.

ANSWER: Edward **Albee** [or Edward Franklin **Albee** III] (The latter play is *The Zoo Story*.) (DS)

17. One of this work's main arguments is that the modern industrial age requires, and thus produces, "docile bodies." For 10 points each:

[10] Name this book, a socio-philosophical analysis that traces the shift from public torture to the private "birth of the prison."

ANSWER: ***Discipline and Punish: The Birth of the Prison*** [or ***Surveiller et punir: Naissance de la prison***]

[10] In *Discipline and Punish*, Michel Foucault discusses this structure first imagined by Jeremy Bentham. In this type of prison, a guard in a tower can watch all the inmates, who are unaware if they are being observed.

ANSWER: the **panopticon**

[10] Bentham was the founder of *this* approach to ethics that seeks to bring about "the greatest amount of good for the greatest number." The name of this school of thought was popularized by John Stuart Mill.

ANSWER: **utilitarianism** (MGS)

18. Arrhenius was the first to quantify this effect, warning about the dangers of increases in carbonic acid levels. For 10 points each:

[10] Name this effect, in which certain gases trap heat in the Earth's atmosphere. The global-warming potential of various gases is characterized based on how many equivalents of carbon dioxide they contribute to this effect.

ANSWER: **greenhouse** effect [accept **greenhouse** gases]

[10] One greenhouse gas is this flammable hydrocarbon released by clathrates in melting Arctic permafrost. This gas has a global-warming potential of roughly 25 carbon dioxide equivalents.

ANSWER: **methane** [accept **CH4**]

[10] Though less potent than methane or carbon dioxide, this other gas strongly absorbs infrared light and is the most abundant greenhouse gas in Earth's atmosphere.

ANSWER: **water** vapor [accept **H2O**; accept equivalents] (MP)

19. The First World War was defined by long, drawn-out trench warfare for most of its history, with many battles lasting for weeks and months. For 10 points each:

[10] Name this main theatre of war during the First World War. This front featured a 400-mile long stretch of land that was fought over in battles such as Verdun and the Somme in Belgium and France.

ANSWER: **Western** Front

[10] This was the last major German offensive on the Western Front, following the failed Spring Offensive. A successful Allied counterattack after this battle led to the Hundred Days Offensive.

ANSWER: **Second** Battle of the **Marne** [prompt on Battle of the **Marne**]

[10] This country fought major actions at St. Mihiel and Meuse-Argonne during the Hundred Days Offensive. They had also fought at Château-Thierry during the Second Battle of the Marne.

ANSWER: **United States** of America [or **U.S.**; or **USA**; accept **America**] (ZA)

20. This author's *ghazals* are collected in the *Divan-e-Shams*. For 10 points each:

[10] Name this mystical Persian poet once considered the "most popular poet in America" thanks to Coleman Barks' so-called "translations" of his work, including excerpts from his six-book *Masnavi*.

ANSWER: **Rumi** [or Jalal ad-Din Muhammad **Rumi**; or Jalal Ad-Din Muhammad **Balkhi**; or **Maulana**; or **Mevlev**]

[10] Another master of the *ghazal* was this later Persian author whose pen name comes from his mastery of the Qur'an. His *divan* is the subject of a popular Iranian tradition of bibliomancy.

ANSWER: **Hafez** [or Khwaja Shams-ud-Din Muhammad **Hafez**-e Shirazi]

[10] Sufi poets like Rumi and Hafez often discussed imbibing this *haram* substance, though Rumi used the image strictly metaphorically. An Omar Khayyam quatrain references "a jug of [this drink], a loaf of bread, and thou."

ANSWER: **wine** [or **alcohol**] (HK)

*Tiebreaker*

This process is denoted by a single arrow in Knuth up-arrow notation, and its repeated form is called tetration. For 10 points each:

[10] Name this operation that carries out repeated multiplication by raising a base to a power. Specific types of it include squaring and cubing.

ANSWER: **exponentiation** [accept **exponent** or **exponential**]

[10] Consider an exponential function “ $b$  to the  $x$ .” That function is well-defined and constant for all real numbers  $x$  if and only if the base  $b$  equals what number?

ANSWER: **one**

[10] It’s often useful to re-express exponentials using a change of base. For example, the function “ $b$  to the  $x$ ,” where  $b$  is a positive number, equals Euler’s number  $e$  raised to what power?

ANSWER:  **$x$**  times the natural **logarithm** of  **$b$**  [accept **log** for “logarithm”; do **NOT** accept or prompt on answers that mention a “common logarithm” or a logarithm with a base other than  $e$ ] (DR)