**2019 National All-Star Academic Tournament**

**Round 18 – Tossups**

1. This structure is the chronologically **(emphasize)** *later* of two compared at the close of a Colin Rowe paper titled for “The Mathematics of the Ideal” type of building it exemplifies. The 5 meter sides of the squares in the 16-member grid for this building were reduced to cut costs; that grid helped the architect implement the golden ratio into its design. The curved walls of this building's terrace have drawn comparisons to the smokestacks of an ocean liner. This building, which was planned with the turning radius of a Citroen car in mind, was its designer's first to feature the combination of a free floor plan, free facade, and support from ground-level pilotis. The roof of this building in Poissy **(Pwa-si)** hosts both a terrace and a garden, in accordance with principles outlined in *Towards a New Architecture*. For 10 points, name this house which exemplifies the five points of its architect Le Corbusier.
ANSWER: **Villa Savoye** **(sa-VWAH)** [prompt on partial answers]
*<Arts Architecture - Smith>*

2. An object named for Duncan Lorimer is one of the fast, non-gamma ray, bursts, named for this regime. Later, the CHIME telescope would associate those bursts in this regime with magnetars. Ryle and Hewish received a Nobel prize for the development of a technique in this regime. That technique in this regime, aperture synthesis, was used to create an image of the center of M87 by the EHT. The Hanbury Brown and Twiss effect was first used in this regime to measure the diameter of Sirius via intensity interferometry. The Green Bank telescope exists in a national “quiet zone” for emission in this regime. The study of this regime was pioneered by a Bell Labs scientist's “Merry-go-round.” That scientist who studied this regime also names a non-SI unit of spectral flux density, the Jansky. For 10 points, name this spectral region longer than Microwaves.
ANSWER: **Radio** Astronomy [accept most answers involving **Radio** and some synonym for observation]
*<Science Astronomy - Lasker>*

3. This city formed an early alliance with a local leader nicknamed the “Laughing King”. One man who led a siege of this city after attempting to poison its inhabitants with cowbane is frequently identified with Don Luis, a convert who had escaped a Spanish mission hundreds of miles to its south. This city was home to a planter named Martin the Armenian, who had immigrated from Iran. O·pe·chan·can·ough was a strong opponent of this city's expansion, and the *Sea Venture* was wrecked while attempting to resupply this city. Residents of this city practiced cannibalism during the “starving time”. Under the leadership of John Rolfe, this city's residents began to cultivate tobacco. This city was established on the territory of the Powhatan chiefdom. For 10 points, name this English colony founded in Virginia in 1607.
ANSWER: **Jamestown**
*<History American (pre-1865) - Myers>*

4. This deity is depicted with the head of a horse in a Onatas statue made for Phigalian shrine. That “black” form of this deity refers to an instance when this deity retreated to a cave on Mt. Elaeum to perform ritual purifications. After one man stole food from this deity's temple, he was punished with unending hunger and a snake tormenter. In addition to Tripos, this deity also punished Erisychthon with insatiable hunger after he ordered this deity's sacred trees to be cut down. After King Lyncus tried to kill one of this deity's favorite humans, he was turned into a lynx. That human was the brother of another man, whom this deity tried to make immortal before being interrupted by Metanira. Those men were Triptolemus and Demophon. This goddess and her daughter were at the center of the Eleusinian Mysteries. For 10 points, name this mother of Persephone, the greek goddess of the harvest.
ANSWER: **Demeter** [do NOT accept or prompt on “Ceres”]
*<RMP Greek/Roman Myth - McLain>*

5. In one poem in this language that inspired Alfred Lord Tennyson's “Locksley Hall”, the author blames “bursting pods of colocynth” for his tears on the departure of his beloved. That poem, “Let us Stop and Weep”, is the first of a series of seven odes in this language named for being displayed on a wall. Another poem in this language begins by comparing its addressee's eyes to “two palm forests” and repeats an onomatopoetic word for “rain” three times between each stanza. One book-length poem in this language is set on Hiroshima Day and entitled *Memory for Forgetfulness*. Another poem in this language ends with the line “beware my anger and my hunger!” The number of that poem in this language's title document is fifty thousand. “Identity Card” was written in this language. It's not Farsi, but the ghazal originated in this language. For 10 points, name this language used by medieval poets such as Imru al-Qays and modern poets such as Mahmoud Darwish.
ANSWER: **Arabic** [accept **Quranic** Arabic, **Modern Standard Arabic**]
*<Literature World - Myers>*

6. In one method of determining these constructs, the Hohenberg-Kohn theorems are used to describe functionals of a quantity that uniquely determines a potential and therefore these constructs. To account for correlation, these constructs are written as a power series in the namesake operator in the coupled cluster method. These constructs can be calculated by writing the wave function as a sum over a set of related entities, substituting into the Schrödinger equation, and applying the variational principle; that method is LCAO. Half the difference between the occupancy of two different types of these constructs gives the bond order. When these constructs contain nodes between nuclei, they are denoted by a star and known as antibonding. For 10 points, name these functions which give the probability of finding an electron in the region surrounding a molecule.
ANSWER: **molecular orbital**s [or **MO**s, prompt on orbitals or wavefunctions, do not accept or prompt on “atomic orbitals”]
*<Science Chemistry - Rombro>*

7. This play's opening description of a “small bookcase with a picture of Shakespeare above it containing ... poetry by Swinburne” prefaces a scene near its end in which a character recites verses from Swinburne's “A Leave-Taking” with a “bitter sadness.” McGuire defrauds the central character of this play into making bad real estate investments. One character in this play fills part of a whiskey bottle with water after drinking it illicitly and quotes an Ernest Dowson poem to a prostitute. A foghorn blows at seemingly random intervals throughout this play, in which the tubercular Edmund quarrels with his miserly father over being sent to a state-owned sanitarium. Mary goes downstairs and plays a piano in her wedding dress after suffering a relapse of her morphine addiction in this play. For 10 points, name this semi-autobiographical play about the Tyrone Family, written by Eugene O'Neill.
ANSWER: ***Long Day's Journey Into Night***
*<Literature American - Myers>*

8. In 2016, Raymond Burke led a group of Cardinals to write a letter to Pope Francis for clarification about chapter 8 of *Amoris Laetitia* regarding this practice. The hymn “Adoro te devote **(“dee-voe-tay”)**” that is sung before this practice calls Jesus a “good Pelican.” Pope Pius X's *Quam singulari* reduced the age in which one can participate in this action. 1 **(“first”)** Corinthians 11:24-25 is often read during this practice as part of the Words of Institution. In some traditions, those who do not wish to partake in this practice may indicate so by crossing their arms to receive a blessing instead. At the Marburg Colloquy, Martin Luther and Huldrych Zwingli debated about whether this practice included the “Real Presence.” The Catholic Church believes in the occurrence of transubstantiation during this practice. For 10 points, identify this sacrament in which Christians take bread and wine.
ANSWER: Holy **Communion** [or **Eucharist**; accept **Eucharist**ic hymns; prompt on Last Supper]
*<RMP Christian/Bible Religion - Hijazi>*

9. A 2/4 *Presto ma non assai* theme interrupts the third movement of this composer's second symphony, which starts *Allegretto grazioso (quasi andantino)*. In a symphony by this composer, the cellos play two repetitions of a **(read slowly)** “slurred dotted eighth sixteenth slurred dotted quarter dotted eighth sixteenth eighth” rhythm to start the third movement's melody. A symphony by this composer is based around a “D C-sharp D” motif introduced in the first movement by the cellos and basses; that motif was first used in a piece he wrote for Bertha Faber's second son. For his F minor third symphony, this composer modified the idea of a friend's “F-A-E” motto to make his own “F A-flat F” motto. This composer's first symphony quotes the “fate motif” of Beethoven. For 10 points, name this composer of a symphony nicknamed “Beethoven's Tenth” who also created a namesake lullaby.
ANSWER: Johannes **Brahms**
*<Arts Music - Smith>*

10. In this decade, Yankel Rosenbaum was fatally stabbed to death. During the first year of this decade, Sonny Carson led a boycott against the Korean-owned Family Red Apple grocery store in in Flatbush, Brooklyn. In this decade, a riot started after the leader of the Lubavitch Jewish sect struck and killed a black child with his motorcade. On the first day of this decade, David Dinkins took office to become New York's first African American mayor. The Crown Heights Riots took place during this decade. The NYPD started significant broken-windows policies under commissioner Bill Bratton in this decade. Eyad Ismoil was convicted for driving the Ryder truck used to carry out a bombing int his decade that damaged but did not destroy the World Trade Center. For 10 points, name this decade where New Yorkers twice cast presidential ballots for Bill Clinton.
ANSWER: 19**90**s
*<History American (1945-present) - Bentley>*

11. Strict consistency of an ERM-based learning method is related to the empirical risk having a form of this property by the “key” theorem of statistical learning theory. This property and stability are equivalent for consistent finite difference methods applied to certain PDEs by the Lax equivalence theorem. A theorem named for this property states that, for linearly-separable and bounded data, the perceptron makes only finitely many errors. Forms of this property include “in distribution” and “in probability.” A formal definition of this property often includes the phrase “there exists a big *N* such that for all little *n* greater than or equal to big *N*.” Newton's method has a quadratic form of this property, and the alternating harmonic series possesses this property conditionally but not absolutely. For 10 points, name this property of sequences that tend to a limit.
ANSWER: **convergence** [accept specific types of convergence such as uniform **convergence**; accept word forms such as **convergent**]
*<Science Math - Morrison>*

12. This character wonders “Who chose this face for me? This dogsbody to rid of vermin” upon looking into a cracked mirror. This man hears a voice “sweettoned and sustained” calling to him from the sea before thinking of the single word “usurper,” which may refer to a character who had upset this man by describing death as a “beastly thing and nothing else.” That character calls this man a “fearful Jesuit” while parodying the Catholic mass with his shaving items. This character remarks that “history is a nightmare from which I am trying to awake” during a conversation with the anti-Semitic schoolmaster Mr. Deasy. This roommate of Buck Mulligan corresponds roughly to the character Telemachus from the *Odyssey*. For 10 points, the first three chapters of *Ulysses* focus on what character, who is also the protagonist of *A Portrait of the Artist as a Young Man*?
ANSWER: **Stephen** Dedalus [or Stephen **Dedalus**]
*<Literature British Non-Shakespeare - Morrison>*

13. A homolog of a human protein expressed in Down syndrome, AgDSCAM, may provide resistance to this disease in its most common vector. The presence of heme leads to promiscuity in a drug used to treat this disease, since heme cleaves its endo-peroxide bridge. Fever cycles caused by this disease may be either tertian or quartan. Presence of the Duffy antigen leads to susceptibility to one form of this disease. Causative agents of this disease reproduce en masse in exoerythrocytic schizogony, forming merozoites. *Anopheles gambiae* is responsible for much of the transmission of this disease. Tu Youyou won a Nobel Prize for discovering artemisinin's ability to treat this disease. People with sickle-cell trait have increased resistance to this disease in a classic example of heterozygote advantage. For 10 points, name this disease caused by *Plasmodium*, often transmitted through mosquito bites.
ANSWER: **malaria**
*<Science Biology - Shanmugam>*

14. One anthropologist claimed he used a method of “doing history backwards” to produce a book about this religion. One book subtitled for “honor and poetry” discusses how states of spirit possession within this religion can enable women to express otherwise taboo sentiments. Ernest Gellner's study of “saints” in this religion helped spark scholarly interest in it. One scholar pointed out the wide variety of practices in this religion in a critique of “the idea of an anthropology” of this religion. The spread of this religion due to the “Nine Saints”, or “Wali Sanga”, is discussed in a book titled for it being “observed”, in which its practices in two countries are compared. Edward Said argued that Western perceptions of this religion are overly simplistic in *Orientalism*. For 10 points, what religion had its Moroccan and Indonesian forms compared by Clifford Geertz?
ANSWER: **Islam** [accept **Sunni** Islam, **Sufi** Islam, **Shia** Islam, **Shi'ite** Islam]
*<Social Science Anthropology - Myers>*

15. After a woman in this play prostrates herself and exclaims “liberate me!,” the protagonist delivers a soliloquy in which he describes himself as a “man among wild beasts, / And a wild beast amongst men.” At this play's opening, a “Wild hippogriff, running swift as the wind” is decried by a cross-dressing Russian noblewoman who has fallen off her bolting horse. That woman's identity is later revealed when she presents a sword once owned by the protagonist of this play. A subplot of this play concerns Astolfo's possession of a portrait of that woman, Rosaura, whose father Clotaldo twice puts this play's protagonist into a drug-induced sleep. This play's protagonist is kept locked in a tower from birth because he was prophesied to overthrow his father, a King of Poland named Basilio. For 10 points, name this Spanish Golden Age drama about Segismundo, the masterpiece of Pedro Calderón de la Barca.
ANSWER: ***Life is a Dream*** [or ***La vida es sueño***]
*<Literature European - Keyal>*

16. The ballad “We will Stay Here” was used as an anthem by protesters calling for this leader's overthrow. This leader contracted with the South Korean Dong Ah Group to build one major infrastructure project after other countries refused to work with him. The interception of the ship *Claudia* revealed a program by which this leader supplied weapons to the IRA. In 1974, this builder of the Great Man-Made Waterway entered talks with a neighboring leader, Habib Bourguiba, to unite their countries. The La Belle Discotheque and Lockerbie bombings were committed by agents of this leader. This leader, whose ideology was outlined in the Green Book, deposed a monarchy backed by the Sanussi Brotherhood. This leader established an “Arab Jamahariya” before being deposed by a Civil War and NATO intervention in 2011. For 10 points, name this longtime dictator of Libya.
ANSWER: Mu'ammar **Qaddafi** [accept **Gaddafi**, **Kaddafi**]
*<History World - Myers>*

17. Melanie Klein discussed a form of this concept as an “instinct of curiosity” that is oriented towards knowledge. Rene Girard theorized that the origin of human conflict is in the “mimetic” form of this concept, which is born from resentment. Deleuze and Guattari argued that this concept is constituted by excess instead of lack, and often described subjects as machines which enact this concept. In the *Four Fundamental Concepts*, Jacques Lacan wrote that “the Other” gave this concept to the subject and denoted the object-cause of this phenomenon with a *petit a* **(peh-TEE AH)**. In a different work, Lacan distinguished this concept from need and demand. Freud contended that unconscious examples of this concept become apparent in dreams. For 10 points, name this concept central to psychoanalytic thought, the will to acquire or do something, which is often unattainable.
ANSWER: **desire**s [or ***envie***; or ***Verlangen***; accept “**desiring** machines”]
*<RMP Philosophy/Thought - Marvin>*

18. Along with its Northern neighbor, much of this place's infrastructure was destroyed in a natural disaster that, according to analysis by the Atlantic, received less than 1% of the media coverage given to other major storms, 2018's Typhoon Yutu. Georgia Representative Hank Johnson expressed concern that this place could “capsize” if 8000 US marines were deployed there. This place governed by Lou Leon Guerrero was the first to announce that it had elected a Democratic governor on 2018's election day. After the launch of its Hwasong-12 missile, North Korea said it would “contain” this island by using its nuclear weapons to wipe out US military bases there. This island territory is bordered to the North by the Northern Marianas Islands. For 10 points, name this US territory with its capital at Agana.
ANSWER: **Guam**
*<Current Events US - Myers>*

19. One of these people had his one more of his teeth knocked out every day until he paid a fee to the king during the so-called “Bristol tallage”. A noted scholar and poet among these people who had immigrated from the French city of Joigny died when these people committed mass suicide in a fire that destroyed Clifford's Tower in York. These people were accused of murdering a boy later known as Little Saint Hugh, and these people were forced to pay 40 shillings apiece to finance King John's crusades. These people were expelled from England under Edward I, and these people were the targets of the “blood libel”. One of these people, Sir Edward Brampton, changed his name after immigrating from Portugal, where a large community of their Sephardic branch lived. For 10 points, name these people who included Isaac of Canterbury and Rabbi Josce of York.
ANSWER: English **Jews** [accept **Sephardim** until mention, prompt on merchants, moneylenders, equivalent answers before “little Saint Hugh”, antiprompt on answers like rabbis]
*<History European to 1400 - Myers>*

20. This artist read the *Mahabharata* and then depicted Narasimha in his painting *The Wild Man* during a period that Oskar Schlemmer referred to as the “cult of India.” Sibyl Moholy-Nagy **(muh-hoh-lee naj)** called this artist's *The Room and Its Inhabitants* a “world of lines” in her preface to one of his books. The letters 't,' 'o,' and 'd' make up parts of a face at the center of this artist's painting *Death and Fire*. This artist, whose checkerboard motif and other mystical symbols were inspired by a 1914 visit to Tunisia, published the lectures he gave while a teacher at the Bauhaus in his *Pedagogical Sketchbook*. A group of red and yellow arches appear to march towards the viewer in this painter's *Viaducts Break Ranks*. A painting by this artist depicts four stick-figure birds perched atop a wire attached to a hand-crank. For 10 points, name this Swiss painter of *The Twittering Machine*.
ANSWER: Paul **Klee**
*<Arts Painting - French>*

21. This country's “System Company” has monopolized its sale of alcohol since 1870 and rationed it until 1955. According to the informant Eugene de Kock, one leader of this country was assassinated by South African government forces in revenge for his anti-apartheid stances. One diplomat from this country was assassinated by the Lehi paramilitary group after organizing the “White Buses” expedition to save Jews from Nazi Germany and serving as a mediator in Palestine. Another diplomat from this country died in a plane crash near Ndola, Zambia while attempting to negotiate a solution to the Congo Crisis. This country was led for 23 years by Tage Erlander, who was succeeded as leader of its dominant Social Democratic Party by the assassinated Prime Minister Olof Palme. For 10 points, name this Nordic country that pursued a policy of neutrality during the Cold War along with its neighbor, Finland.
ANSWER: Kingdom of **Sweden** [accept **Sverige**]
*<History European 1914-present - Myers>*

**2019 National All-Star Academic Tournament**

**Round 18 – Bonuses**

1. A character in this play suggests that if Orwell were to arrive in his time, he would be part of the National Front. For 10 points each:
[10] Name this play in which Hector and Irwin mentor a group of schoolboys in preparation for their examinations. Hector is almost fired for groping his students on motorbike rides, but cripples Irwin in a motorbike accident at this play's end.
ANSWER: *The* ***History Boys*** (by Alan Bennett)
[10] Irwin suggests that this person may have put their head through the window instead of knocking at Coleridge's door. Stevie Smith suggested that Coleridge “was already stuck / With Kubla Khan” before receiving this person whom Coleridge blamed for his non-completion of that poem.
ANSWER: the **person from Porlock** [accept any answers mentioning someone from **Porlock**; accept “**Thoughts about the Person from Porlock**”]
[10] After losing his job, Irwin works as a presenter in this non-radio medium, in which performances of plays starring Kenneth Branagh were frequently broadcast by the BBC.
ANSWER: **television** [accept **TV**]
*<Literature British Non-Shakespeare - Shanmugam>*

2. One of these songs praising the title healer appears in the 1960 movie *Macario*, the first Mexican movie to be nominated for an Academy Award. For 10 points each:
[10] Name these ballads, many of which praised heroes of the Mexican Revolution. More recent examples of these ballads that praise drug smugglers are prefixed with the word “narco.”
ANSWER: **corrido**s
[10] One of those heroes of the Mexican Revolution was this commander of the Division of the North, who was pursued by John Pershing's Punitive Expedition after his raid on Columbus.
ANSWER: Francisco “Pancho” **Villa** [or José Doroteo **Arango** Arámbula]
[10] The song “Mulher Rendeira” is like a *corrido*; however, instead of praising a hero of the Mexican revolution it was written in honor of this *cangaceiro*. Eric Hobsbawm listed this Brazilian folk hero alongside Villa and Ned Kelly as an example of what he termed “social bandits.”
ANSWER: **Lampião** [or Virgulino Ferreira da **Silva**]
*<History World - French>*

3. This composer wrote a grand opera based on *Ivanhoe* and a cantata based on Longfellow's “The Golden Legend.” For 10 points each:
[10] Name this composer who partnered with the librettist W.S. Gilbert. Richard D'Oyly Carte used the profits from his *H.M.S Pinafore* and *The Pirates of Penzance* to create the Savoy Theatre.
ANSWER: Arthur Seymour **Sullivan**
[10] Many of Sullivan's best known songs, such as his Major General's Song, are this type of rapid song in which each syllable is matched to one note. The name for this genre came from the Catholic habit of rushing through prayers.
ANSWER: **patter** song
[10] This oft-parodied song from Gilbert and Sullivan's *The Mikado* includes “the lady novelist” and “all people who have flabby hands with irritating laughs” on a register of people who, if they were executed, would “none of them be missed”.
ANSWER: “**As Some Day It May Happen**” [or “**I've got a little list**”]
*<Arts Opera - Smith>*

4. If the players do not have access to all of this resource, then a game is called “Bayesian.” For 10 points each:
[10] Name this resource. George Akerlof's paper “The Market for Lemons” discusses the adverse selection arising from asymmetric allocation of this resource.
ANSWER: **information**
[10] Crawford and Sobel pioneered the study of these games in their 1982 paper “Strategic Information Transmission.” In this type of game, players can send unverifiable, non-binding information to each other for free.
ANSWER: **cheap-talk** games
[10] In the Bayesian form of this equilibrium, actual payoff is replaced with *expected* payoff. In this equilibrium, a player cannot increase their payoff by changing their strategy if their opponents' strategies all remain fixed.
ANSWER: **Nash** equilibrium
*<Social Science Economics - French>*

5. The display of this book inside a model prison cell during the 1982 iteration of the American Booksellers Association convention inspired Banned Books Week. For 10 points each:
[10] Name this 1969 book, the first in a seven-part autobiographical series written by Maya Angelou, in which the Angelou describes growing up in segregated Stamps, Arkansas and being sexually assaulted by her mother's boyfriend, Mr. Freeman.
ANSWER: ***I Know Why the Caged Bird Sings***
[10] The book is titled for the last line of this poem by Paul Laurence Dunbar, in which a caged bird flings “a prayer that he sends from his heart's deep core” to heaven.
ANSWER: “**Sympathy**”
[10] During a performance of this song at her eighth grade graduation, Angelou realized that she was “no longer a member of the proud graduating class” but “a member of the proud, graduating, negro race.” This song instructs the listeners to perform a title action “Till earth and heaven ring, / Ring with the harmonies of Liberty.”
ANSWER: “**Lift Ev'ry Voice and Sing**” [or the “**Black National Anthem**”] (by James Weldon Johnson)
*<Literature American - Smith>*

6. A “clock and wavefront” model is used to describe the formation of these divisions. For 10 points each:
[10] Name these divisions that are formed from the paraxial mesoderm. They flank the neural tube during development and help neural crest cells migrate to the correct location.
ANSWER: **somite**s
[10] The clock behavior of the *notch* pathway during somitogenesis is controlled by expression of a gene from this other developmental signalling pathway. Frizzled GPCRs bind to proteins from this pathway, which is named because its disruption led to mutant wingless variants of *Drosophila.*
ANSWER: ***wnt*** signalling pathway
[10] The boundaries of somites are set by a signalling protein named fibroblast *this word* factor. The epiphyseal plate is sometimes named for encouraging this action in bones, and a commonly-used anabolic agent is named human *this word* hormone.
ANSWER: **growth** [accept fibroblast **growth** factor or **growth** plates or human **growth** hormone]
*<Science Biology - Shanmugam>*

7. This religious text describes three types of yoga and advocates to act in accordance with one's dharma. For 10 points each,
[10] Name this text, narrated by Krishna to Arjuna before a battle between the Pandavas and Kauravas, part of the Mahabharata.
ANSWER: Bhagavad **Gita**
[10] When Krishna addresses Arjuna in the Gita, Krishna is serving Arjuna in this capacity. Matali serves Indra in this capacity as well.
ANSWER: **charioteer** **(accept word forms or descriptions)**
[10] The Gita, as well as the battle between the Pandavas and Kauravas, are set on this battlefield. Its namesake city can be found today in the northern Indian state of Haryana
ANSWER: **Kurukshetra**
*<RMP Non-Christian/Bible Religion - Santanam>*

8. An official investigation conducted by Vasily Shuisky concluded that instead of being murdered, this person stabbed himself in the throat after he had a seizure while playing a spear-throwing game. For 10 points each:
[10] Name this man impersonated by Grigory Otrepiev, who promised to convert Russia to Catholicism after marrying a Polish princess.
ANSWER: St. **Dmitry** Fedorovich of Uglich
[10] Dmitry was impersonated by three usurpers during this period, which ended when Michael I came to power and saw Russia invaded by Poland, Sweden, and the Tatars.
ANSWER: **Time of Troubles** [accept **Smutnoe vremya**]
[10] The succession crisis that culminated in the Time of Troubles began after this ruler murdered his son, Ivan, leaving only the mentally ill Fedor as his heir. This ruler's Russian nickname, Grozny, can be more accurately translated as “awe-inspiring”.
ANSWER: **Ivan the Terrible** [accept **Ivan IV**, prompt on Ivan]
*<History European 1400-1914 - Myers>*

9. This peninsula's Valley of the Geysers has the world's second-largest concentration of geysers after Yellowstone. For 10 points each:
[10] Name this peninsula, home to the Kronotsky nature reserve, whose largest city is Petropavlovsk. The Kuril Islands are located south of this peninsula.
ANSWER: **Kamchatka** Peninsula
[10] The word “geyser” originates from a word in this country's language, which also provides the terms for glacier-related words such as “jokulhlaup” **(yoe-cool-lowp)**. Many of those geysers are located near this country's Thingvellir National Park.
ANSWER: **Iceland**
[10] This geyser field in Chile, whose name comes from the Quechua for “oven”, is the largest in the Southern hemisphere and a major source of geothermal power in Chile.
ANSWER: El **Tatio**
*<Geography World - French>*

10. Answer some questions about the synthesis of zinc oxide nanoparticles. For 10 points each:
[10] It can be done using this process, which involves forming a colloidal suspension and drying out the solvent to produce the namesake substance.
ANSWER: **sol-gel** process
[10] Much of the solvent can be removed by filtration, which can be sped up by using this type of flask and attaching a vacuum pump. It resembles an Erlenmeyer flask with a hose barb on the side.
ANSWER: **Büchner** flask
[10] After the nanoparticles are produced, they can be imaged using one of these devices. They come in transmission and scanning types, and have higher resolution than visible light microscopes.
ANSWER: **electron microscope**s
*<Science Chemistry - Mitchell>*

11. This poet noted that “it's in [time's] nature not to stay” since “today is always gone tomorrow” in her poem “Nothing Twice.” For 10 points each:
[10] Name this poet who wrote that “after every war, someone has to clean up” in her poem “The End and the Beginning”. This author's poem “Love at First Sight” ends with the affirmation that “every beginning is only a sequel, after all, and the book of events is always open halfway through.”
ANSWER: Wisława **Szymborska** **(Vi-swa-va Shim-bor-ska)** [or Maria Wisława Anna **Szymborska**-Włodek]
[10] Szymborska won the Nobel Prize in part for a poem from the perspective of one of these animals wandering around an empty apartment. Another poet published a volume titled for *Old Possum's Book of Practical* these animals.
ANSWER: **cat**s
[10] This fellow Pole who authored an essay on Szymborska notes that people who expect “lightning and thunder” will be disappointed in his poem “A Song on the End of the World.” This author described people such as Alpha, Beta, Gamma, and Delta in his work *The Captive Mind*.
ANSWER: Czesław **Miłosz** **(chess-swaf mi-woshe)**
*<Literature European - McCullar>*

12. These paintings include a depiction of a dog staring upwards out of a dark brown mass, an unusual version of *Judith and Holofernes*, and a painting of a *Pilgrimage to San Isidro*. For 10 points each:
[10] Name this set of paintings. A controversy over their attribution has arisen due to the questionable claim that there was originally only one story in the Quinta del Sordo, where these paintings were created.
ANSWER: *The* ***Black Paintings*** [or ***Pinturas negras***]
[10] The *Black Paintings* are works by this Spanish artist, who recorded the devastation of the Peninsular War in works like *The Third of May, 1808*.
ANSWER: Francisco de **Goya** y Lucientes
[10] One of the *Black Paintings*, sometimes called *The Seductress*, is usually identified as a portrait of this companion of Goya leaning against a burial mound. Goya's painting *The Milkmaid of Bordeaux* likely depicts either this maid or his similar-looking first wife.
ANSWER: **Leocadia** **Weiss** [accept either underlined portion; accept *La* ***Leocadia***]
*<Arts Painting - Krol>*

13. For coma, the radial component of this polynomial equals “3 rho cubed minus 2 rho.” For 10 points each:
[10] Name this sequence of polynomials, which are orthogonal on the continuous unit circle. In optics, phenomena such as defocus and astigmatism are often studied using these polynomials to model the wavefront.
ANSWER: **Zernike** polynomials
[10] Coma, defocus, and astigmatism are all examples of these phenomena, which are deviations from an ideal lens. A “chromatic” example of these phenomena is caused by dispersion, which generically accounts for errors in observations through lenses.
ANSWER: optical **aberration**s
[10] Aberrations can also be thought of as deviations from this version of the small angle approximation used in Gaussian optics or ray tracing of a real optical system. This approximation states that the sine of theta is approximately equal to theta.
ANSWER: **paraxial** approximation
*<Science Physics - French>*

14. This *adagio* excerpt is the only part of the 1900 “concert” version to employ the two clarinets called for in the larger work. For 10 points each:
[10] Name this piece for solo soprano accompanied by organ. The word “*sempiternam*,” or “everlasting,” was added to the final repetition of the couplet that this piece was the first to set by itself.
ANSWER: “**Pie Jesu**” **(“PEE-ay YAY-zoo”)**
[10] That “Pie Jesu” is from a D minor piece of this type. Another D minor piece of this type that was finished by Franz von Sussmayr uses the full “*Dies Irae*.”
ANSWER: **requiem** mass [or **mass for the dead**; prompt on mass]
[10] This student of Camille Saint-Saens wrote that “Pie Jesu.” His opus 50 is an F-sharp minor *pavane* with optional chorus.
ANSWER: Gabriel Urbain **Fauré**
*<Arts Music - Smith>*

15. One never-implemented plan for dealing with this ecological catastrophe was to place junk cars throughout the Great Plains to hold down the soil. For 10 points each:
[10] Identify this term for an environmental disaster during the Great Depression that sent many farmers in the Great Plains to California.
ANSWER: **Dust Bowl**
[10] This organization was employed to spread vast quantities of molasses and arsenic to try to stop the grasshopper plagues that were widespread during the Dust Bowl. Members of this organization were required to send twenty five of the thirty dollars they made each month back to their family.
ANSWER: **Civilian Conservation Corps** [or **CCC**]
[10] The Dust Bowl largely disproved this theory about precipitation with a four-word name. As early as 1865, George Goyder had concluded that this theory did not apply to Australia.
ANSWER: **rain follows the plow**
*<History American (1865-1945) - Bentley>*

16. Shakespeare likely conflated the anthropophagi with these beings in *Othello* when he described “men whose heads do grow beneath their shoulders.” For 10 points each:
[10] Name this mythical race whose heads grow in their torsos. Pliny the Elder identified these people with a tribe from modern-day Sudan.
ANSWER: the **Blemmyes** [or **acephaloi**, accept **epiphagi**; prompt on headless men]
[10] The Blemmyes were frequently identified as living in this mythic location, which shares its name with a modern country. This location was where Perseus rescued Andromeda from the monster Cetus.
ANSWER: **Aethiopia** [or **Ethiopia**]
[10] This general encounters the Blemmyes in a medieval romance. This conqueror visited the oracle of Amun at the Siwa Oasis, where he declared himself to be a god before he invaded Persia.
ANSWER: **Alexander** the Great [or **Alexander** III]
*<RMP Non-Greek/Roman Myth - French>*

17. The tripartite slogan “[this country], one, great and free” is quoted in this country's right-wing propaganda song “Facing the Sun.” For 10 points each:
[10] Name this country. A political party from this country classified its members as “old-shirts” and “new-shirts” and used a red-and-black striped flag with a yoke and arrows in the center. That party was closely aligned with the Vertical Syndicate, this country's only permitted trade union.
ANSWER: Kingdom of **Spain** [or Reino de **España**]
[10] Spain was home to the Falange **(fa-LON-hay)** party, which supported this fascist dictator and general who defeated the republic in the Spanish Civil War.
ANSWER: Francisco **Franco** Bahamonde
[10] “Facing the Sun” was written as a counter to the popular anthem of the Second Spanish Republic, which was named for this general who staged an 1820 coup that ushered in Spain's first Republican period, the *triennio liberal*.
ANSWER: Rafael de **Riego** [accept “**El Himno de Riego**”]
*<History European 1914-present - French>*

18. In one work, this thinker outlined his doctine of syllogism using “Octagons of Opposition,” each of node of which has nine propositions. For 10 points each:
[10] Name this Parisian scholastic, the author of *Summulae de Dialectica*, who coined the term “impetus” to describe the property of motion that is transfered from one body to another.
ANSWER: Jean **Buridan** [or Johannes **Buridanus**]
[10] Buridan's *Summulae de Dielectica* was cast as an update on this standard collection of Aristotle's 6 works on logic, including the *Prior Analytics* and the *Posterior Analytics*.
ANSWER: Aristotle's **Organon**
[10] This later philosopher wrote his own update and refutation of Aristotle's *Organon*, which he titled *Novum Organum*. His formulator of the scientific method and the “four idols” appear in that work, while his utopian political views are outlined in his novel *New Atlantis*
ANSWER: Sir Francis **Bacon** 1st Viscount St Alban
*<RMP Philosophy/Thought - McLain>*

19. Answer the following about geography in early modern English drama. For 10 points each:
[10] The 1924 essay *Marlowe's Map* demonstrated that this play was informed by careful research in the geographic writings of Abraham Ortelius. Those locations include Damascus, Zanzibar, and Persepolis, which the title character sacks after Cosroe betrays his brother, Mycetes.
ANSWER: ***Tamburlaine***
[10] In contrast to Marlowe's scrupulous fact-checking, Shakespeare set this play on the non-existent “coast of Bohemia”. This play contains the famous stage direction “exit, pursued by a bear”.
ANSWER: *The* ***Winter's Tale***
[10] The reputation of the London district in which it is set contributed to the hilarity of this author's play *A Chaste Maid in Cheapside*. This author of the *Revenger's Tragedy* also may have co-written *Timon of Athens* with Shakespeare.
ANSWER: Thomas **Middleton**
*<Literature Shakespeare - Myers>*

20. Yuri Matiyasevich solved Hilbert's tenth problem by showing that a general algorithm cannot solve all equations of this kind. For 10 points each:
[10] Name this type of equation, solutions to which can be represented as a tuple of integers, one for each variable in the equation.
ANSWER: **Diophantine** equations [accept **Diophantus'** equations]
[10] This Diophantine equation takes the form “x squared minus N times y squared equals 1,” where N is a non-square integer. This equation is useful for approximating square roots because, for large solutions of x and y, x over y is approximately the square root of N.
ANSWER: **Pell**'s equation
[10] Perhaps one of the more famous Diophantine equations comes from this theorem, whose integer solutions include the triples (3, 4, 5) **(three comma four comma five)** **(pause)** and (5, 12, 13) **(five comma twelve comma thirteen)**.
ANSWER: **Pythagorean** Theorem [accept **Pythagoras'** theorem]
*<Science Math - Etzkorn>*

21. Answer the following about the political career of Josephus Daniels. For 10 points each:
[10] Daniels led a white supremacist mob to overthrow this North Carolina city's elected government in the US's only successful coup. In 1898, the Red Shirts militia overthrew this city's Fusionist governing coalition.
ANSWER: **Wilmington**, North Carolina
[10] Later, as Woodrow Wilson's Secretary of the Navy, Daniels would be in charge of managing this Assistant Secretary of the Navy, who would later serve as James Cox's running mate and governor of New York before becoming president.
ANSWER: **F**ranklin Delano **Roosevelt** [accept **FDR**; prompt on **Roosevelt**]
[10] After becoming president, Roosevelt rewarded his old boss by appointing him to this position. Other holders of this diplomatic post included flower namesake Joel Poinsett and Henry Lane Wilson, who was involved in plotting a coup against Francisco Madero.
ANSWER: U.S. **Ambassador to Mexico**
*<History American (1865-1945) - Myers>*