

## ACF Regionals 2020

Packet J by Georgia Tech B, Illinois B, Waterloo A, and Pitt B

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Tossups

1. Molecules are substituted with this element through electrolysis at 6 volts by a nickel anode in the Simons process. Sulfur, oxygen, and this heteroatom are found in Nafion, a copolymer commonly used as a proton-exchange membrane. An octanoic acid derivative substituted with this element is called C8 and is a known carcinogen. An acid containing three atoms of this element is commonly used to cleave Boc in a solid-phase peptide synthesis. That derivative of acetic acid is about 30,000 times as acidic as acetic acid as a result of the inductive effect. Ethylene is fully substituted by this element in the monomer of teflon. This element is found with chlorine and carbon in a group of refrigerants banned because they depleted the ozone layer. For 10 points, name this most electronegative element.

ANSWER: **fluorine** [or **F**]

<Chemistry>

2. This novel hints at the selfish personality of one character in a scene during which she complains about farmers being unwilling to transport her beloved harp in their carts. A character in this novel is ignored in favor of news about the *Thrush* leaving harbor when she returns to her cramped family home. This novel's protagonist goes to a ball wearing a cross she got from her brother on a gold chain gifted by her love interest. Both that love interest and a woman who mocks his plans to become a minister come to this novel's protagonist for help rehearsing for a play, which is cancelled when Sir Thomas returns from Antigua. After Maria elopes with Henry Crawford, the main character marries her cousin Edmund Bertram. For 10 points, Fanny Price is sent to live at the title estate in what Jane Austen novel?

ANSWER: ***Mansfield Park***

<British Literature>

3. This concept titles a Bryan G. Norton book about the lexical shortcomings in discourse about it. Approaches for defining this concept include Daly Rules and the Natural Step framework. McDonough and Braungart's book *The Upcycle* is subtitled "beyond" this concept. Systems are evaluated for this concept in triple bottom line accounting. The 1987 Brundtland report, which focused on this concept, influenced the adoption of UN Agenda 21 and the Rio Declaration. Circular graphs named for this concept are used to grade urban areas on economic, political, cultural, and ecological grounds. This concept is evaluated for products in life cycle analysis. For 10 points, name this framework that seeks to maintain homeostasis between human civilization and the environment.

ANSWER: **sustainability** [accept **sustainable** development; prompt on **environmentalism**; prompt on **conservation** prompt on **steady-state** economics or development; prompt on **green** development]

<Social Science (Political)>

4. This architect was inspired by the woodworking technique "quirking" to add more corners to his 1990s skyscrapers, like the Key Tower in Cleveland. This architect's affinity for non-load-bearing curtain walls can be seen in his designs for the Overture Center in Madison and 40 Bank Street, London. This architect, inspired by a bamboo grove, used steel beams for the entrance to the National Museum of Art in Osaka. The final "red" building of a complex designed by this architect and completed in 2013 joined the "Blue Whale" and "Green Center" as part of the Pacific Design Center. In 2004, Taipei 101 became the world's tallest building by surpassing two of this man's creations, which feature a skybridge connecting their 41st and 42nd floors. For 10 points, name this Argentine-American architect who designed the Petronas Towers in Malaysia.

ANSWER: César **Pelli**

<Other Arts (Architecture)>

5. Missionary William Colenso discovered a bell inscribed with the script of these people that Māori women used to boil potatoes. Lower-class people of this ethnicity participated in Periyar's Self-Respect Movement, which inspired the DMK political party. These people's "Three Crowned Kings" were united by the builder of the Brihadishvara Temple. Scholars produced these people's earliest literature in three *sangam* assemblies held in the Pandya Kingdom, which inspired their Five Great Epics. Rajaraja I ruled these people's Chola Empire, and Vellupillai Prabhakaran ("VEH-loo-pill-eye prahb-HAH-kah-rah") organized these people into his militant "Tigers." For 10 points, name this ethnic group that names India's southernmost state and fought a secessionist war in Sri Lanka.

ANSWER: **Tamils** [prompt on Dravidians; prompt on Indians]

<World History>

6. The noise from these entities is calculated as responsivity times the square root of the quantity four times thermal conductance times Boltzmann's constant times temperature squared. These particles were recently found to "tunnel" across nanometer-wide vacuum gaps via evanescent electric fields. Materials with metallic behavior can demonstrate a phenomenon in which the dispersion relations of these particles exhibit lowered frequency, known as the Kohn anomaly. Rudolf Peierls ("PIE-earls") named a phenomenon in which a collision of two of these particles moving to the right can create a leftward-moving wave in a process called Umklapp. The frequency of these particles goes to zero at long wavelengths in their acoustic case, unlike their optical type. For 10 points, name these quasiparticles that represent quantized lattice vibrations.

ANSWER: **phonons** [do not accept or prompt on "photons"]

<Physics>

7. The premiere of a poorly-received piece in this key that was dedicated to Mstislav Rostropovich was the only known instance of pianist Sviatoslav Richter conducting. A piece in this key contains a theme that its composer would "whistle around the Malvern Hills" even "after I'm dead." Victor Herbert's Cello Concerto No. 2 in this key inspired a B minor cello concerto by Antonín Dvořák. Sergei Prokofiev's *Symphony-Concerto* and Brahms's Cello Sonata No. 1 are in this key. A piece in this key was premiered with Felix Salmond as the soloist and was first recorded with Beatrice Harrison as the soloist. John Barbirolli and Jacqueline du Pré popularized Edward Elgar's Cello Concerto in this key, which is G major's relative minor. For 10 points, name this minor key with one sharp.

ANSWER: **E minor** [prompt on E until "minor" is read, but accept it afterwards]

<Classical Music>

8. This author wrote about how a "housecat's lover visits her frequently through the burnt-out oven." This author also punned on a word meaning both "wait" and "pine" in a poem in which he repeatedly exclaims, "Pine Islands!" This author formerly used the pen name "Green Peach." A children's activity inspired a work by this author in which he compares pairs of similar poems by different authors. The assertion that "the months and days are the travellers of eternity" opens another work by this author of *The Seashell Game*. This poet described a "miscanthus bud" near a banana tree from which he took his most famous pen name. *Narrow Road to the Deep North* was written by, for 10 points, what poet who described the sound of a frog jumping into a pond in a haiku?

ANSWER: **Matsuo Bashō** [accept either name; accept names in either order; or **Matsuo** Kinsaku or **Matsuo** Chueemon Munefusa or **Matsuo** Toshichiro or **Matsuo** Munefusa; prompt on Sobo or Tosei]

<World/Other Literature>

9. This organization promoted experiential and project-based learning for disadvantaged students through its schools such as the Intercommunal Youth Institute, which was led by Brenda Bay and Ericka Huggins. Yale President Kingman Brewster spoke in support of this organization when sympathizers slept in dormitories during the New

Haven trial of suspects accused of murdering Alex Rackley. The Mulford Act was passed by Ronald Reagan to ban public carrying of loaded firearms in California in response to this organization's practice of copwatching. The memoir *Soul on Ice* was written by a leader of this organization named Eldridge Cleaver. This organization, which was referred to by J. Edgar Hoover as "the greatest threat to internal security," started the Free Breakfast for Children program. For 10 points, Bobby Seale and Huey Newton founded what black revolutionary party?

ANSWER: **Black Panther** Party [or **Black Panthers**; prompt on **BPP**]

<American History>

10. An Orphic hymn ends by hoping that this condition's fetters break from the power of the "all-powerful, pleasant, vigilant, and strong" addressee. According to Pausanias, priests induce this condition before visitors enter the scary oracle of Trophônios at Lebadeia. In a motif from *The Clouds*, Socrates accuses Strepsiades of having this condition, using the term "epilimon." *The Republic* describes a warrior marching on the hot, barren plain of this condition, which he avoids, and thus wakes up on his funeral pyre. This condition names a mythical site that Strabo put near the Spanish home of the Artabri. Orphism taught that this condition caused metempsychosis. This condition names a counterpart of Cocytus, Acheron, and Styx. For 10 points, souls in Hades develop what condition by drinking from the River Lethe ("LEE-thee"), the opposite of Mnemosyne ("nuh-MOSS-in-ee")?

ANSWER: **forgetfulness** [or **memory loss**; or **obliviousness**; or **amnesia**; or **unmindfulness**; accept word forms or equivalents; accept **Lethe** until read; accept **Limæa** or **Belio** or **Ovliouióna**] (The first sentence is from the Orphic Hymn to Mnemosyne.)

<Mythology>

11. It's not the Riemann integral, but iteratively applying this procedure to a function yields a similar operation named for Thomas Stieltjes ("steel-chiss"). The Bromwich integral is a general technique for [emphasize] *inverting* this operation, though it can be easily inverted by finding partial fraction decompositions of rational functions. This operation yields a unique output for any causal ("CAUSE-al") input. Performing it on a system's impulse response yields its transfer function, whose poles can be used to analyze the stability of a system. For the bilateral variant of this operation, substituting in a purely imaginary variable reduces this operation to the Fourier transform. For 10 points, a real-valued function is converted into a complex-valued function in the *s*-domain by what "transform" named for a Frenchman?

ANSWER: **Laplace** transform [accept **Laplace**-Stieltjes transform]

<Other Science (Math)>

12. A story by this author describes the virus-like effects of a jingle that instructs conductors to "punch in the presence of the passenjare!" In a story by this writer, a fisherman notes "providence is off duty today" upon seeing the happy families of nineteen "principal citizens." This author created a character who owns a horse nicknamed "the fifteen-minute nag" and a dog with sawn-off hind legs. In a story by this author, the title place's residents falsely claim to have told a stranger "You are far from being a bad man. Go, and reform" in order to receive a sack of gold. In one of his stories, a teaspoon of quail shot is fed to the title character to make Jim Smiley lose a bet. For 10 points, name this author of "The Man That Corrupted Hadleyburg" and "The Celebrated Jumping Frog of Calaveras County."

ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**] (The story in the first sentence is "A Literary Nightmare.")

<American Literature>

13. The Mekhilta ("meh-kheel-TAH") of Rabbi Ishmael glosses this practice's different rules for women and men by citing possible damage to the 24 chief external organs. It's not farming, but in Jeremiah 34, King Zedekiah changes his mind about ending this practice in accordance with the shmita ("shmee-TAH"), or sabbatical year. Genesis 37:28 ("chapter 37, verse 28") describes Midianites and Ishmaelites engaging in this practice, whose law

code in Exodus 21 marks its permanent form with ear piercing. Statistics about this practice were manipulated to push antisemitism in the pamphlet *The Secret Relationship* by the Nation of Islam. The Haggadah (“ha-ga-DAH”) uses the “bread of affliction” and the bitter herb *maror* (“ma-ROAR”) to remind Seder (“SAY-der”) guests of Jews suffering this practice in Egypt. For 10 points, the Curse of Ham was cited to justify what atrocity in the antebellum South?

ANSWER: **slavery** [accept the **slave** trade or similar; prompt on **commerce** or **trade**, etc.; prompt on **labor** or **work**, etc.; prompt on **kidnapping** by asking “kidnapping someone in order to do what to them?”; accept indentured **servants** or **servitude** or debt **bondage** or **bonded labor**]

<Religion>

14. After the Iapygian-Tarentine Wars, this man’s followers were expelled from Taras, where his admirer Xenophilus helped Aristoxenus write many books about him. An ally of Pharaoh Amasis II upgraded a naval structure named for this man to conquer Delos. Diodorus Siculus claims that this man got his friend, the wrestler Milo, to defend rich exiles from his city’s rival Sybaris. The tyrant Polycrates built the Eupalinian aqueduct at this man’s namesake stone harbor on his home island of Samos. The naturalist Alcmaeon and astronomer Philolaus helped this man found a vegetarian commune in Croton. This thinker proposed a universal harmony called the “music of the spheres.” For 10 points, what Greek thinker names a “theorem” about right triangles?

ANSWER: **Pythagoras** of Samos [accept the **Pythagoreion**; accept the **Pythagorean** theorem]

<European History>

15. The profile obtained from plotting fluorescence intensity against this quantity can be used to infer the presence of SNPs in a technique called HRM analysis or mC SNP. This quantity is held constant in a “loop-mediated” technique called LAMP. In the hyperchromic effect, absorbance increases as this quantity increases. This quantity is decreased over each iteration in a certain procedure’s touchdown variant. The value of this quantity at which unwinding occurs depends positively on the GC-content. Pfu and Taq (“tack”) are enzymes that are stable at high values of this quantity. This quantity starts from a large value, then decreases, then increases, during the steps of denaturation, annealing, and elongation. For 10 points, name this quantity varied in polymerase chain reaction using a thermocycler.

ANSWER: **temperature** [or **T**; accept melting **temperature**; accept **T**-sub-*m*; accept annealing **temperature**; do not accept or prompt on “melting point”]

<Biology>

16. In a 1999 book, Valerie Hardcastle advocated for an eliminative stance on this phenomenon by isolating its sensory-discriminative and affective-motivational components. Joseph Levine used a sentence that attempts to define this phenomenon in a paper that introduced the term explanatory gap. David Lewis defended a functionalist theory of mind against partisans of phenomenal qualia in a paper that introduced “mad” and “Martian” varieties of this phenomenon. Hilary Putnam used the fact that a wide variety of animals seem to experience this phenomenon as evidence for multiple realizability, and argued that the qualia associated with this phenomenon was not identical with the firing of C-fibers. Thought experiments in the philosophy of mind often discuss, for 10 points, what unpleasant physical experience?

ANSWER: **pain** [accept **suffering**; accept *The Myth of Pain*; accept mad **pain** or Martian **pain**]

<Philosophy>

17. A princess from this non-Italian region who was canonized as Saint Agnes founded a military order of nurses known as the Knights of the Cross with the Red Star. The pagan Drahomira ordered the murder of this region’s Saint Ludmila because of her influence over Drahomira’s son, who himself was murdered by his brother Boleslav the Cruel. A university in this region’s New Town was founded by Charles IV, who was crowned after his blind father John died at the Battle of Crécy. Frederick V lost the Battle of White Mountain in this region, where a Second

Defenestration in its capital sparked the Thirty Years War. For 10 points, Good King Wenceslaus ruled what historical region in the Czech Republic?

ANSWER: **Bohemia** [or Kingdom of **Bohemia**; or Duchy of **Bohemia**]

<European History>

18. The protagonist of this work recalls a story about the secret wine-drinking habit that his mother developed as a teenager, and later describes a conversation they had by a garden window shortly before her death. A character in this work vows, “you cannot force me to give my mind... to these shows” when his friends bring him to watch a blood sport, but nonetheless immediately becomes addicted to the spectacle. T. S. Eliot’s “The Waste Land” quotes the line “O Lord Thou pluckest me out” from Edward Pusey’s translation of this work. In a moment of anguish, this work’s protagonist hears a child’s voice saying “Take up and read,” and obeys. This work’s narrator steals a pear as a child and is later turned from Manichaeism by St. Ambrose. For 10 points, name this autobiography of St. Augustine.

ANSWER: **Confessions** [or *The Confessions of St. Augustine*; or **Confessiones**]

<European Literature>

19. A woman holds a note addressed to this person with “all my love” in a painting sometimes known as *Between the Curtains*. This person was not an artist, but is the likely author of an essay signed by André Breton, the Manifesto for an Independent Revolutionary Art. In a painting, this man is the leftmost and youngest of three figures holding a banner beneath a headless Nazi statue. After staying at the Blue House, this man moved to a house that the artist of *The March of Humanity*, David Siqueiros, strafed with machine gun fire in an effort to kill him. This person is the dedicatee of a self-portrait by his lover Frida Kahlo, whose husband Diego Rivera painted him along with Marx, Engels, and Lenin in *Man at the Crossroads*. For 10 points, name this Soviet revolutionary who was assassinated in Mexico.

ANSWER: Leon **Trotsky** [or Lev Davidovich **Bronstein**]

<Painting/Sculpture>

20. A district of this Asian city was settled by African entrepreneurs in the '90s, earning it the nickname “Chocolate City.” According to a proverb, in an ideal life you should eat in this city, while being born, marrying, and dying in three other cities written with the same final character. Five immortals saved this city by introducing rice according to a legend shown on the Five Goats Statue on Yuèxiù (“y’weh-sh’yoh”) Hill. Old people speak the Xīguān (“shee-gwahn”) dialect in a district of this city that contains Lychee (“lee-chee”) Bay and the 13 Factories, which controlled most western trade before the Opium Wars. Zaha Hadid designed the opera house in this city, which names a language with “nine sounds, six tones” that gave English the loanwords “bok choy” and “dim sum.” For 10 points, name this capital of Guǎngdōng, the namesake of Cantonese.

ANSWER: **Guangzhou** [or **Guǎngzhōu** shì; accept **Canton** until “Cantonese” is read, but prompt after; or **Kwangchow** or **Gwongzau** or **Guōngciǔ** or **Kóngchū** or **Kuaantseu**; accept the historic names **Nánwǔchéng** or **Pānyú** or **Shěngchéng** or **Xìngwáng** or **Khanfu**]

<Geography>

21. During development, this molecule is biosynthesized ectopically in mutants lacking Wnt-4, which normally antagonizes its elevation by Sox9. SHBG has the largest binding affinities for derivatives of this molecule. In plasma, this molecule is categorized into SHBG-bound, albumin-bound, and free forms. 5-alpha reductase prevents the conversion of this molecule into a more potent dihydro derivative. Digit ratio is a common proxy for prenatal levels of this hormone, which promotes Wolffian duct formation in the presence of anti-Müllerian hormone. Polycystic ovary syndrome causes hyperproduction of this hormone, whose elevation has disqualified athletes like Caster Semenya. For 10 points, name this male sex hormone.

ANSWER: **testosterone** [accept **T**; accept **androgens**; accept the precursor **androstenedione** or **DHEA** or **dehydroepiandrosterone**; prompt on steroid hormones (either underlined portion)]  
<Biology>

## Bonuses

1. In an oft-quoted speech, the title character of this play describes her mother wearing makeup to “repair the irreparable ravages of time.” For 10 points each:

[10] Name this play that Voltaire called the “supreme achievement of the human mind,” in which Joad and Jehosheba agree to dethrone the title character for her worship of Baal.

ANSWER: **Athalie** (“ah-tah-LEE”)

[10] *Athalie* was written by this author of *Andromaque*. The title woman poisons herself after Hippolyte’s (“ee-po-LEET’s”) death in this French tragedian’s play *Phèdre* (“FED-ruh”).

ANSWER: Jean **Racine** (“rah-SEEN”)

[10] Racine wrote plays like *Athalie* in lines of this meter, which is also used for the last line of a Spenserian stanza. Named for the hero of the medieval romance that first used it, this form features two hemistichs of six syllables each separated by a caesura (“suh-ZHUR-uh”).

ANSWER: **alexandrine**

<European Literature>

2. Answer the following about American journalism during World War II. For 10 points each:

[10] Edward R. Murrow reported during the Blitz on his program titled for this city “After Dark.” Murrow gained fame for broadcasts from this city like “This is Trafalgar Square. The noise you hear at the moment is the sound of the air-raid siren.”

ANSWER: **London** [accept *London After Dark*]

[10] During World War II, Ansel Adams photographed Japanese-Americans in this most famous internment camp and documented his pictures in the photo-essay *Born Free and Equal*.

ANSWER: **Manzanar**

[10] This beloved World War II reporter’s advocacy prompted Congress to award a combat pay bonus to soldiers. This man died accompanying infantry on Ie Shima (“ee-eh shee-ma”) during the Battle of Okinawa.

ANSWER: Ernie **Pyle**

<American History>

3. Mohammad Hassan Khalil examined this concept’s development by Ibn Taymiyya and Rashid Rida in a book subtitled for the “question” of this concept, which is encouraged, but not guaranteed, by Jacobus (“yah-koh-boos”) Arminius’s idea of “prevenient grace.” For 10 points each:

[10] Name this concept that could apply to a “Buddhist monk” living in God’s grace, according to Karl Rahner’s “anonymous Christian” doctrine. Soteriological (“so-TEER-ee-oh-logical”) Christology focuses on the “work” of Jesus, meaning his role in this process.

ANSWER: **salvation** [or being **saved** or the **savior**; or **salvatio**; accept **deliverance**; accept **redemption** or word forms; prompt on entering **heaven** or similar] (The book is *Islam and the Fate of Others: The Salvation Question.*)

[10] Hans Conzelmann developed the concept of “salvation history” from his work on the theology of this Gospel. The parables of the friend at night, lost coin, and barren fig tree appear in this Gospel, attributed to the same author as Acts.

ANSWER: Gospel of **Luke** [or Gospel According to **Luke**; or Euangélion katà **Loukân**]

[10] Luke’s account of the Presentation of Jesus at the Temple describes a fasting “prophetess” of this name venerated alongside Simeon “the God-receiver.” Another saint with this name was often painted with her husband in the “Meeting at the Golden Gate.”

ANSWER: **Anne** [or **Anna**; accept **Anna** the Prophetess; accept Saint **Anne**; prompt on the **mother of the virgin** or **mother of Mary** by asking “what’s her name?”]

<Religion>

4. Kamyar Kalantar-Zadeh proposed this condition's namesake paradox, in which people with this condition may counterintuitively be less susceptible to disease. For 10 points each:

[10] Identify this medical condition. The Zucker rat and ob/ob ("O-B-O-B") mouse, which have defects in leptin signalling, are common animal models of this condition.

ANSWER: **obesity** [or **obesity** paradox; prompt on answers referring to being **overweight**; prompt on, but DO NOT REVEAL, (type 1 or type 2) **diabetes** mellitus or **DM** by asking "what medical condition related to diabetes?"]

[10] Obesity is commonly associated with the type 2 adult-onset form of this disease, which is caused by insulin resistance.

ANSWER: **diabetes** [or type 2 **diabetes** mellitus; prompt on **DM**; do not accept or prompt on "diabetes insipidus" or "DI"]

[10] To explain the prevalence of insulin resistance and obesity, James Neel proposed this hypothesis, which states that some people are genetically predisposed to diabetes by genes that were at one point advantageous, but are now detrimental.

ANSWER: **thrifty** gene hypothesis [or **thrifty** genotype hypothesis; or **Gianfranco**'s hypothesis]

<Biology>

5. This author wrote that "altars of money... best describe the detours of grace" in a poem that ends after the speaker instructs the reader, "You must make your own map." For 10 points each:

[10] Name this poet of "A Map to the Next World" and "She Had Some Horses." She published the collection *An American Sunrise* after taking a certain position in 2019.

ANSWER: Joy **Harjo** [or Joy **Foster**; or Joy **Harjo-Sapulpa**]

[10] Joy Harjo became the first Native American to hold this position after she was appointed to it in 2019 by the Library of Congress.

ANSWER: United States **Poet Laureate** [or **Poet Laureate** Consultant in Poetry to the Library of Congress]

[10] In a poem by Harjo, the speaker speculates, "Perhaps the world will end" in this location "while we are laughing and crying." The speaker of Langston Hughes's poem "I, Too, Sing America" states that he is sent to this location "when company comes."

ANSWER: **kitchen** [accept **kitchen** table; prompt on **table**]

<American Literature>

6. The second part of this book presents two apparent paradoxes: one of "purposiveness without purpose," and another concerning the overwrought nature of certain works drawing attention to their artificiality. For 10 points each:

[10] Name this book whose second section presents its thinker's notions of teleology. This book states that things "embody their own purpose," distinct from a creator's purpose.

ANSWER: **Critique of Judgment** [or **Kritik der Urteilskraft**; accept **Critique of the Power of Judgment**; prompt on Kant's **Third Critique**]

[10] The first part of Kant's *Critique of Judgment* concerns judgments of this kind. This branch of philosophy studies the nature of beauty and art.

ANSWER: **aesthetic** [accept **aesthetic** judgments]

[10] The central goal of Kant's *Critique of Judgment* was to determine whether the faculty of judgment has a principle described by this term. Knowledge described by this Latin term can be known by reason alone.

ANSWER: **a priori** [accept **a priori** judgments]

<Philosophy>

7. This prime minister wrote to Rajiv Gandhi after the bombing of Air India Flight 182, prompting Gandhi to respond that he should be the one offering condolences because most of the victims were Canadians. For 10 points each:



[10] Name this Conservative prime minister who pushed the failed Meech Lake Accord recognizing one province as a “distinct society.”

ANSWER: Brian **Mulroney**

[10] The Meech Lake Accord and the later Charlottetown Accords were both attempts by Mulroney to have this French-speaking province of Canada consent to the country’s 1982 constitutional changes.

ANSWER: **Quebec**

[10] In a 1984 debate, Mulroney famously told this Liberal prime minister that “you had an option, sir” to withdraw patronage appointments made by the recently-retired Pierre Trudeau; the Conservatives went on to win 211 seats.

ANSWER: John **Turner**

<European History>

8. Charles I used a special gallery at Hampton Court to house a series by this artist that includes a depiction of a man holding an armor trophy on a staff in the *Corselet Bearers*. For 10 points each:

[10] Name this Italian Renaissance artist who was commissioned by the Gonzaga family to paint a series of nine large paintings of Romans in a victory procession, his *Triumphs of Caesar*.

ANSWER: Andrea **Mantegna** (“ahn-DRAY-ah mahn-TANE-yah”)

[10] Piero della Francesca painted a much more fanciful “triumph” scene in which an angel stands on the back of this man’s chariot while his wife Battista Sforza’s chariot is pulled by unicorns. This Duke of Urbino is distinguished in Piero’s paintings of him by his bridgeless nose.

ANSWER: **Federico** da **Montefeltro** [accept either name; or **Federico** III]

[10] Dürer’s absurdly huge prints depicting a triumphal procession for Maximilian I include a 36-sheet depiction of one of these structures. Roman emperors like Titus built these structures to commemorate their triumphs.

ANSWER: **arches** [accept **Triumphal Arch** or **Ehrenpforte Maximilians I.**]

<Painting/Sculpture>

9. Nicki Collen, the head coach of a team based in this city, was selected as the Women’s National Basketball Association Coach of the Year in August 2018. For 10 points each:

[10] Name this Southern city whose WNBA franchise is the Dream. This city’s NBA franchise is the Hawks.

ANSWER: **Atlanta**, Georgia [accept **Atlanta** Dream; accept **Atlanta** Hawks]

[10] In the 2018 WNBA season, the Atlanta Dream were knocked out in the semifinals by the 2019 WNBA-winning Mystics, who represent this city. This city’s NBA team is currently coached by Scott Brooks.

ANSWER: **Washington, D.C.** [accept either underlined part; or **District of Columbia**; accept **Washington** Mystics or **Washington** Wizards]

[10] This two-time WNBA MVP and small forward for the Washington Mystics played an integral role in their 2019 WNBA championship run. In 2019, she became the ninth member and the first woman to join the prestigious “50–40–90 club” of basketball players.

ANSWER: Elena **Delle Donne** [prompt on partial answer]

<Pop Culture>

10. Issues that have persisted with this general type of network include the “hidden terminal problem,” in which distant nodes are unable to communicate, as well as a degradation of signals called “fading.” For 10 points each:

[10] Name this type of network in which information is transmitted by radio waves rather than by electrical conductors. The “W” in the acronyms WLAN and WAP stands for this technology.

ANSWER: **wireless** network [or **wireless** communication; anti-prompt on **Wi-Fi** by asking “can you be less specific?”]

[10] Small-scale fading in cell phones is usually a result of either Doppler shifting or this other effect, which is caused by interfering obstacles between transmitters and receivers. It distorts signals in either a “flat” or “frequency-selective” manner.

ANSWER: **multipath** propagation [or **multipath** delay; or **multipath** fading; or **multipath** interference]

[10] This common wireless standard combats fading via adaptive frequency hopping, which allows every device in each of its piconets to share one channel. This standard's low signal power of about 1 milliwatt restricts it to a range of 10 meters.

ANSWER: **Bluetooth** [or Class 2 **Bluetooth**]

<Other Science (Computer Science)>

11. The cortical stimulation that occurs during this situation is explained by the affective arousal model and the communication intention detector model. For 10 points each:

[10] Identify this form of communication that names an "effect" postulated by Senju and Johnson, in which cognitive processes are modulated when this occurs.

ANSWER: **eye contact** [accept **eye contact** effect; prompt on **directed gaze**; prompt on **ocular** communication or communicating with one's **eyes**]

[10] Infants with this disorder are often diagnosed by atypical responses to eye contact. This disorder is characterized by difficulty in social interaction and communication and is usually described as a spectrum.

ANSWER: **autism** spectrum disorder [accept **ASD**; accept **Asperger** syndrome]

[10] Studies disagree about whether or not this component of the limbic system is activated during prolonged eye contact. This region is responsible for processing fear and threat detection.

ANSWER: **amygdala**

<Social Science (Psychology)>

12. Enrique Metinides took thousands of photos of grisly murder scenes and car crashes in this city. For 10 points each:

[10] Name this city where John Dominis took a photo of two athletes raising their fists in a black power salute during the 1968 Olympics. Many tourists take photographs in this city's massive Chapultepec Park.

ANSWER: **Mexico City** [or **Ciudad de México**]

[10] The work of Enrique Metinides is often compared to this American street photographer who collected his pictures of violent New York City life in *Naked City*.

ANSWER: **Weegee** [or Arthur **Fellig**]

[10] Christopher Bonanos, who wrote a recent biography of Weegee, also wrote a book about the artistic uses of this company's products. Edwin Land co-founded this company, which produced the popular SX-70.

ANSWER: **Polaroid** Company

<Other Arts (Photography)>

13. In a closing paragraph, the title time period of one novel is referred to as the conclusion of the "uncountable time of eternity" and is likened to objects of this color. For 10 points each:

[10] Name this color. The author of that novel was inspired by his grandmother's stories of a man surrounded by butterflies of this color to create the character of Mauricio Babilonia in another novel.

ANSWER: **yellow** [accept **golden**]

[10] Those novels, *The Autumn of the Patriarch* and *One Hundred Years of Solitude*, were written by this Colombian author.

ANSWER: Gabriel **García** Márquez [or Gabriel José de la Concordia **García** Márquez; prompt on **Márquez**]

[10] In *One Hundred Years of Solitude*, Colonel Aureliano Buendía continuously makes miniature golden-yellow decorations resembling these animals before melting them down and remaking them again.

ANSWER: **fishes**

<World/Other Literature>

14. The most common versions of this type of test are the Charpy (“shar-PEE”) V-notch and Izod tests. For 10 points each:

[10] Name this type of test that typically involves dropping a heavy weight onto a material specimen, which measures a material’s resistance to rapidly applied loads.

ANSWER: **impact** test [accept Charpy **impact** test or Izod **impact** strength test]

[10] The Charpy impact test built on the work of S. B. Russell, who proposed a fracture test in which one of these objects with known mass and length swings from a known height onto a material specimen to measure the rebound.

ANSWER: **pendulum**

[10] The results of an impact test will differ based on the material’s temperature in relation to this quantity. This quantity for metals is equivalent to the glass transition temperature for polymers.

ANSWER: **ductile–brittle** transition temperature [or **DBTT**; or **nil ductility** temperature; or **nil ductility** transition temperature; or **NDT**; or **NDTT**]

<Physics>

15. In 1975, armed rebels belonging to the ARC occupied a wine cellar cave near Aléria to bring attention to the separatist movement in this region. For 10 points each:

[10] Name this place that was traded for debt relief in the 1768 Treaty of Versailles. James Boswell discussed *An Account of [this place]*, whose namesake crisis brought down the Duke of Grafton’s ministry.

ANSWER: **Corsica** [or **Corse**]

[10] The occupied wine cave belonged to some of these people, whose resettlement in Corsica exacerbated separatist grievances. These colonial French residents of Algeria returned to metropolitan France after Algerian independence.

ANSWER: **pieds-noirs** (“pyay-nwarr”) [or **pied-noir**; or **black feet**; prompt on **colons**]

[10] Protests against proposed testing of these devices in Corsican silver mines generated support for Corsican nationalism. The *force de dissuasion* includes these weapons, which were tested in the Algerian Desert and South Pacific islands.

ANSWER: **nuclear** weapons [or **atomic** weapons; or **atomic** bombs; or **nukes**; or equivalents]

<European History>

16. In a work in this genre, an elderly woman injures her leg while attempting to clean a wedding photo that she believes her housekeeper Zulem has neglected. For 10 points each:

[10] Name this genre of “A Cream Cracker under the Settee,” “Bed Among the Lentils,” and other entries in a popular series of works in this form that Alan Bennett wrote for BBC Television.

ANSWER: dramatic **monologues** [or **soliloquies**; or **Talking Heads**; accept equivalents of **one-actor** play; prompt on TV **plays**]

[10] Bennett’s *Talking Heads* includes a play of this name about the clerk Peggy. The Oscar Wilde play of this name climaxes with the title character, Mrs. Arbuthnot, slapping Lord Illingworth before he can call their son a “bastard.”

ANSWER: *A **Woman of No Importance***

[10] Bennett also made several allusions to Wilde in the scene of Toad’s trial for reckless driving in his stage adaptation of this Kenneth Grahame novel, which follows the anthropomorphic animals Mole and Rat.

ANSWER: *The **Wind in the Willows***

<British Literature>

17. Answer the following about landmark American women composers, for 10 points each.

[10] Ruth Crawford Seeger, the first woman composer to receive a Guggenheim Fellowship, composed a dissonant 1931 work for this type of ensemble. This type of chamber ensemble consists of two violins, a viola, and a cello.

ANSWER: **string quartets** [accept “**String Quartet** 1931”; prompt on **string** ensembles; prompt on **quartets**]

[10] Amy Beach’s *Gaelic Symphony*, the first symphony composed and published by an American woman, was premiered by this symphony orchestra. Its past music directors include Serge Koussevitsky and Seiji Ozawa.

ANSWER: **Boston** Symphony Orchestra [prompt on BSO; do not accept or prompt on “Boston Pops Orchestra”]

[10] In 1933, the Chicago Symphony Orchestra premiered this composer’s First Symphony, making her the first African-American woman composer to have a symphony performed by a major American orchestra.

ANSWER: Florence **Price** [or Florence Beatrice **Smith**]

<Classical Music>

18. This hero defeats a frog that drinks all the world’s water and captures game animals in a bag made from woodchuck fur. For 10 points each:

[10] Name this monster-slaying hero who turns some dancers into rattlesnakes after they ignore his flood warning in a Passamaquoddy myth. This figure’s evil twin Malsumis the wolf is born from their mother’s armpit.

ANSWER: **Glooskap** [or **Klooskap**; or **Glooscabe**]

[10] One creature that Glooskap cannot defeat is the Wasis, who is this fearsome type of human. In the Sphinx’s riddle to Oedipus, this is the stage when humans walk on four legs.

ANSWER: a **baby** [or **infants** or **newborns** or other clear-knowledge equivalents; prompt on children or equivalents]

[10] According to Shawn Smallman, young Anishinaabe (“uh-NISH-in-AH-bay”) kids learn social roles by pretending to be these cannibalistic ice giants. Similar to the Wabanaki Chenoo, these wintry creatures arise from starving people who eat human flesh.

ANSWER: **wendigos** [or **wetikos**]

<Mythology>

19. One goal of bioorthogonal chemistry is to develop catalyst-free versions of reactions in this paradigm. For 10 points each:

[10] Identify this paradigm that includes the Staudinger ligation and thiol-ene reactions. It was pioneered by Karl Barry Sharpless and involves conjugating small molecules into a synthetic target.

ANSWER: **click** chemistry

[10] The canonical example of a click chemistry reaction is the Huisgen (“HOUSE-khin”) cycloaddition, which occurs between an azide and this functional group. This group consists of a carbon–carbon triple bond.

ANSWER: **alkynes**

[10] While the phrase “Huisgen cycloaddition” usually refers specifically to the azide-alkyne cycloaddition, it more generally refers to a class of cycloadditions named after this type of molecule. Nitrones act as this type of molecule in the alkyne-nitrone cycloaddition.

ANSWER: **1,3-dipoles** [or **1,3-dipolar** molecules; or **1,3-dipolar** cycloadditions]

<Chemistry>

20. Supporters of this man rioted on Black Thursday when his country’s Supreme Court suspended his presidential campaign because the constitution barred coup leaders from running for president. For 10 points each:

[10] Name this dictator who sought to stamp out an insurgency with his “beans and guns” campaign. Rigoberta Menchú testified against this dictator’s genocide of her K’iche’ (“KEE-chay”) people and the Ixil (“ee-sheel”) people.

ANSWER: Efraín **Ríos Montt** [or José Efraín **Ríos Montt**]

[10] In 1954, Ríos Montt participated in the CIA Operation PBSUCCESS, which overthrew this president who redistributed land from huge estates to peasants in Decree 900.

ANSWER: Jacobo **Árbenz** [or Juan Jacobo **Árbenz** Guzmán]

[10] One of the reasons for the 1954 Guatemalan coup was pressure from the United Fruit Company, which primarily traded these fruits. O. Henry used these fruits to nickname unstable Latin American republics.

ANSWER: **bananas** [or **banana** republic]

<World History>

21. Answer the following about the radio station RTLM, for 10 points each.

[10] RTLM's full name, Thousand Hills Free Radio and Television, alludes to its location in this African country. It encouraged the 1994 massacres of the Tutsi ethnic group that occurred in this country.

ANSWER: **Rwanda**

[10] Roméo Dallaire, a Lieutenant-General in the Canadian forces deployed during the genocide, described his interview with RTLM in this book. This book details the failures of the UN's intervention in Rwanda.

ANSWER: ***Shake Hands with the Devil*** [or ***Shake Hands with the Devil: The Failure of Humanity in Rwanda***]

[10] Along with the phrase "Crush the cockroaches," RTLM used a code phrase calling for the destruction of "tall" objects of this sort to signal the start of the genocide.

ANSWER: **trees**

<World History>