Spring Undergraduate Novice 2020

“Neo-Tournament Arrives from the Future”

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Packet 9

Tossups:

1. **A pulverized form of this rock is used in WFGD absorbers to remove the alkalinity of a reaction with Sulfur Dioxide. One specific light-colored variety of this rock is formed by the evaporation of spring waters and is commonly used in floor tiling. In the Dunham classification, subtypes of this rock are classified based on their mud content and texture. This rock, examples of which include (\*)** travertine, is a marker of the hydrocarbon-rich karst topography along with gypsum and dolomite. Commonly made of skeleton fragments of aquatic animals, this rock is primarily composed of the minerals aragonite and calcite. For 10 points, identify this sedimentary rock common in caves which is made of calcium carbonate.
ANSWER: **limestone** [accept **travertine** before mention; prompt on calcium carbonate before mention; accept specific instances of **limestone** such as "**dolomitic limestone**"] <Bunker, Earth Science>

2. **After his aunt reprimands a boy in this novel for speaking cynically, he asks "Tellin' the truth's not cynical, is it?" That character in this novel declares that he'll be a clown when he grows up, standing in the middle of the ring and laughing at the audience. That precocious character in this novel may have been based on it's author's childhood friend (\*)** TrumanCapote. In this novel, only four people at First Purchase Church know how to read, and are confined to the balcony at this novel's climatic conviction. Calpurnia's relation to Jean Louise is further explored in this novel's sequel *Go Set a Watchman*. For 10 points, name this Harper Lee novel featuring Dill, as well as Atticus and Scout Finch.
ANSWER: ***To Kill a Mockingbird*** <Kirksey, American Literature>

3. **This country's Sea Monster Museum documents its many aquatic cryptids like the Shore Laddie and the Shell Monster. Until the UK passed it, this country had the highest number of books published per person, with one-in-ten of its citizens being published authors. The fairy-like "hidden people" are central to the folklore of this country, whose national dish is a type of (\*)** fermented shark called Hákarl. This nation's notoriously hard to learn national language is closely related to Faroese. This nation is home to a famous geothermal spa called The Blue Lagoon and the original geyser, after which all of those landforms are named. For 10 points, this Nordic island nation, with a capital at Reykjavik.
ANSWER: **Iceland** <Harvey, Geography>

4. **In this sport, NERD is a statistic that measures the expected aesthetic value of watching a player. Merkle's Boner and TOOTBLAN describe embarrassing mistakes performing one action in this sport, in which some websites have started to estimate the value of "framing." The 2019 book *The MVP Machine* documents player development in this sport, whose infamous (\*)** three-true-outcomes players include Adam Dunn and Joey Gallo. Fangraphs calculates statistics for this sport such as FIP (**"fip"**) and Wins Above Replacement. The book *Moneyball* chronicles Billy Beane's sabermetrically-inclined management of a team that plays this sport. Two-way players like Shohei Ohtani play, for 10 points, what "national pastime" of the USA?
ANSWER: **baseball** <Zhou, Trash>

5. **The spherical harmonics are eigenfunctions ("eye-gen-functions") of a differential operator where this function multiplies *d* d theta and is squared in the denominator of both terms. When it is assumed that the *u* function is multiplicatively separable, the one dimensional heat equation is solved by a sum of exponential terms times this function. Multiplying a position vector *r* by this function gives (\*)** r-perpendicular. Snell's law relates the index of refraction to this function. For an object on an inclined plane, the net force parallel to the surface is "m times g times" this function of theta. The magnitude of the cross product is defined using this trig function. For 10 points, name this function defined as "opposite over hypotenuse."
ANSWER: **sine** [or **sine**-theta, or **sin**, accept any answer replacing "theta" with a different variable as long as **sine** is mentioned] <Maharjan, Physics>

6. **The *L.A. Variations* were written by a composer from this country who at the time was the conductor of the Los Angeles Philharmonic. It's not Italy, but one composer from this country included taped recordings of birdsong in his *Cantus Arcticus*. This country's best-known composer wrote a nationalistic second symphony while on a trip to Italy and included a swan-call theme in his fifth symphony. A tone poem (\*)** named for this country evokes its struggle for independence from Russia. A composer from this country explored his country's mythology in works like *The Swan of Tuonela and the Lemminkainen Suite*. For 10 points, name this Nordic country home to Esa-Pekka Salonen and Jean Sibelius.
ANSWER: **Finland** [or **Suomi**] <Sims, Music>

7. **A hypothetical future person with this job titles a 2014 play by Mike Bartlett, in which he considers passing a censorship bill. A man with this job pithily concludes "I wasted time, and now doth time waste me" in a play where he earlier declares "let us sit upon the ground / And tell sad stories of the death of" people with this job. A play titled for a man with this job features a speech in which he admits "I am determined to (\*)** prove a villain." A man who eventually gains this job seduces Lady Anne over the body of her dead husband and declares "A horse! a horse! my kingdom for a horse" while fighting at Bosworth Field. For 10 points, give this position held by Richard II and Richard III in Shakespeare plays.
ANSWER: **King** of **England** [accept **king** of the **U**nited **K**ingdom or **Britain**; prompt on monarch prompt on just king by asking "of what country?"] (The Mike Bartlett play is *Charles III*)
<Harvey, British Literature>

8. [NOTE TO PLAYER (to be read aloud) two answers required.] **A political cartoon by Menzel depicts these two countries as a lion encircling an elephant. One war between these two countries ended after the Battle of Chotusitz only to resume two years later. A war between these two countries began after both sides were accused of violating the Gastein Convention. That war between these two nations which featured fighting at Nachod was preceded by an alliance between the two as a result of the (\*)** November Constitution of Denmark. These two countries signed the Peace of Prague after the Battle of Koniggratz. For 10 points, name these two countries who fought each other in the Seven Weeks War as part of Bismarck's efforts for unification.
ANSWER: **Austria** and **Prussia** [or Kaisertum **Österreich** and Königreich **Preußen**; prompt on Germany; accept **Austria-Hungary** or equivalents in lieu of Austria]
<James, European History>

9. **This element is the lighter one of the two that can be detected through the use of a fluorescent indicator linked to a crown ether chelator. Aromatic rings undergo a 1,4 reduction to an unconjugated cyclohexadienes when this light, non-lithium metal is used in liquid ammonia with an alcohol. In addition to that reaction named for Birch, this element's hydroxide can, along with sulfur dioxide, be used to scrub acidic gasses produced in coal burning. That hydroxide of this element is also a (\*)** corrosive base sometimes known as lye. When lit in a flame test, this metal burns bright yellow. For 10 points, identify this highly reactive alkali metal whose cations are exchanged for Potassium ions in a namesake membrane pump.
ANSWER: **Sodium** [or **Na**] (The lead-in refers to Sodium and Potassium indicators—specifically SBFI and PBFI)
<Bunker, Chemistry>

10. [NOTE TO PLAYERS (read aloud): description acceptable.] **St. Paul addresses the Christian requirement for this action in 1 Corinthians and says it only needs to be done while "praying or prophesying." In Punjab custom, objects used to carry out this deed are exchanged with a close friend in a ceremony called *Pag Vatwani*. *Tzniut* requires that married women perform this action, it is usually done with a (\*)** tichel or a sheitel in the Orthodox Jewish community. In Sikhism, this action is more important for men than women, as it helps them adhere to the five K's; Sikh's use a Dastaar, or Turban, to do so. For 10 Points, name this action which is accomplished by wearing a Hijab in Islam or a wide brimmed hat in southern baptist convention.
ANSWER: **head covering** [accept **covering** of **hair**; accept answerline like **bind**ing or **bound**ing the **hair** or the **head**;do not accept or prompt on “cutting hair”] <Thomas, Religion>

11. **Although it has nothing to do with slavery, the book *White Gold* is the diary of an expatriate American working near this major river. The most notable natural good found near this river was collected by namesake "soldiers" by one Allied government during the Second World War. The largest city along this river is sometimes called the "Paris of the (\*)** Tropics" and boasts a major late 19th-century opera house. Percy Fawcett spent many years searching for a theorized Lost City of Z located near this river. It's not in Africa, but an innovation by Charles Goodyear was a key catalyst for an economic boom that exploited the abundant sources of rubber near this river. For 10 points, name this river home to cities like Manaus, the longest in South America.
ANSWER: **Amazon** River [accept Rio **Amazonas**] <Sims, World History>

12. **Battus is turned to stone after witnessing a crime committed by this deity. During the Gigantomachy, this deity slays the giant Hippolytus while wearing Hades' cap of invisibility. Perseus fights Medusa with a shield from Athena and an item from this deity. After Hera tasks the hundred-eyed giant (\*)** Argus to prevent Zeus from seeing Io, Zeus has this god slay him. Soon after his birth, this deity steals the cattle of his brotherApollo, but reconciles with him by giving him a lyre he invented. This god, who guides souls to the underworld, carries a staff wrapped with two snakes known as the caduceus and wears a pair of winged sandals. For 10 points, name this messenger god from Greek mythology.
ANSWER: **Hermes** [accept **Mercury**] <Maharjan, Mythology>

13. **A work of this type uses three Shepard scales at different speeds and the sound of a ticking pocket watch over a theme borrowing from Edward Elgar's Nimrod. Another work by that composer has trombones play a slow version of the instrumentals to Edith Piaf's song "Non, je ne regrette rien" to simulate a dream. A work in this genre uses over 100 leitmotifs, including a 5/4 theme representing a tower and the main theme (read slowly) A, G, G-G-A; that work is by (\*)** Howard Shore. A work in this genre by Michael Giacchino draws on another composer's work in this genre that includes a G minor march led by the brass, the "Imperial March," and a "Duel of the Fates'' that plays during lightsaber duels. For 10 points, name this genre that includes John Williams's compositions for *Star Wars*.

ANSWER: **film score** [prompt on score or soundtrack with "of what?"; accept anything indicating **music from a movie or film**] (the first two clues are about Hans Zimmer's scores for *Dunkirk* and *Inception*, respectively.)
<Fleisig, Other Auditory>

14. **A poet from this country said she "prefer[s] Dickens to Dostoyevsky" in a poem where almost every line starts with "I prefer" called "Possibilities." Another author from this country described the mentally-ill and homeless Toyua in the short story "August"; that author of the novel *The Street of Crocodiles* was murdered during World War II. This country is home to a novelist who wrote a about the love between the Christina (\*)** Lygia and the Roman patrician Marcus Vinicius while under the rule of Nero in *Quo Vadis*. For 10 points, identify this home country of the Nobel Prize-winning authors Wisława Szymborska
(“**Shy'm-bosch-kuh**”)and Henryk Sienkiewicz.
ANSWER: **Poland** [or **Polska**] <Bunker, European Literature>

15. **The "sexual" form of this behavior may be explained by the "adaptive foraging" and "aggressive spillover" hypotheses. A form of oophagy occurs when shark embryos engage in this practice, which in other organisms, may be deterred with successful phenotype matching. Tiger salamander larvae may adopt a particular morph for this behavior as a commonly studied condition-dependent trait. High-intensity light exposure and a methionine-deficiency may influence (\*)** chickens to display this behavior. Female cats sometimes display the "filial" form of this behavior when their offspring are stillborn or weak. Food stressed conditions may lead to, for 10 points, what act of consuming an individual of the same species as food
ANSWER: **cannibalism** [prompt on descriptive equivalents; prompt on aggression before "aggressive spillover" is read]
<Puppala, Biology>

16. **In 2018, the National Gallery of Canada reversed a controversial decision to sell a work by this artist to raise money to purchase a Jacques-Louis David painting. This artist included a battalion of men with red flags charging a small town that is engulfed in flames. This artist's work in stained glass includes a set of windows in Reims Cathedral and his *America Windows*. His painting *Over the Town* depicts his wife, Bella Rosenfeld, (\*)** flying. In one of his best-known works, a group of refugees flee by boat and a burning synagogue surrounds the central figure. This artist painted a green man staring intensely at a goat. For 10 points, name this Russian-French artist of *The White Crucifixion* and *I and the Village*.
ANSWER: Marc **Chagall** <Oung, Visual Arts>

17. **In this decade, which in several Latin American countries is known as the "Lost Decade", Mexico nationalized its banks to fight historic inflation. During this decade in the U.K., the "Big Bang" led to an increase of activity on the London Stock Exchange. Financier Charles Keating's company American Continental went bankrupt at the end of this decade after trying to make deals with Michael Milken's "junk bonds." Black Monday, the largest one-day stock market drop in U.S. history by percentage, occurred in this decade, during which the (\*)** savings and loan crisis began. The term "voodoo" was used in this decade to describe the policies of a president who emphasized supply-side, or trickle-down, economics. For 10 points, name this decade in which economic deregulation was championed by Ronald Reagan.
ANSWER: **1980s** [prompt on 80s] <Maharjan/Cheyne, Other History>

18. **In one scene, this character states that "Pain marks you, but too deep to see." This character has the Latin phrase "Nolite te bastardes carborundorum" on her bedroom wall, which translates to "Don't let the bastards grind you down." This character is called a "wanton woman" because she had married a man who was divorced, but she is later labelled an adulteress when all divorces are (\*)** nullified. The last time this character is seen, she is entering a van with Nick, unsure if it will lead to her escape or capture. This character plays Scrabble in secret and serves in the Republic of Gilead as a "two-legged womb" for The Commander. For 10 points, name this narrator and protagonist of Margaret Atwood's *The Handmaid's Tale*.
ANSWER: **Offred** [prompt on descriptive answers indicating the narrator, main character or protagonist of *The Handmaid's Tale*] <Grossman, World/Other Literature>

19. **A 2008 book on *The Enterprise* of this book's author tries to resurrect a pluralist argument which supposedly argued for a more egalitarian and secular state. The author of this book chooses not to differentiate between "good laws" and "good arms" and hence suggests that authority is entirely inherited from its coercive force. This book compares the Ottoman and Achaemenid empires to argue the Ottomans would be easier to conquer than the French. This book advises "being a (\*)** fox to recognize traps" and a "lion to frighten wolves." Caesare Borgia is cited as a ruler blessed by fortune in this book which praises his political maneuvers. For 10 points, in what foundational text of political science does Niccolò Machiavelli claim "it is better to be feared than loved?"
ANSWER: ***The Prince***[accept ***Il Principe*** or ***De Principatibus***] <Bunker, Other Social Science>

20. **In a speech at Lincoln University, this man called racism "a disease of white people," and he criticized capitalism's "crippling of individuals" in his essay "Why Socialism?" With Bertrand Russell, this man penned a manifesto against nuclear weapons, although he had earlier co-signed a letter with Leó Szilárd (“Sea” lard) that led to FDR's creation of the Manhattan Project. A believer in Spinoza's pantheistic god and a strong (\*)** Zionist, in 1952 this man was offered the presidency of Israel. After this man's 1955 death, Thomas Stoltz Harvey infamously stole his brain for study. For 10 points, name this former patent clerk, a German physicist known for his theory of relativity and "*E* equals *m*-*c*-squared."
ANSWER: Albert **Einstein** <Zhou, American History>

Bonuses:

1. *Middlemarch* was published in 1871, but the events of the story take place four decades earlier. For 10 points each:
[10] This disease is a major concern of Middlemarch's new hospital. John Snow traced London's 1854 outbreak of this disease to a contaminated Broad Street water pump.
ANSWER: **cholera**
[10] The construction of one of these structures through Middlemarch attracts much controversy. James Watt's steam locomotive facilitated the spread of this transportation technology during the Industrial Revolution.
ANSWER: **rail**roads [or **rail**ways; accept **train**s or equivalents]
[10] Another contentious subject in Middlemarch is the 1832 Reform Act, which would expand suffrage by eliminating rotten boroughs. The act was passed under this Whig Prime Minister, who also oversaw the 1833 Slavery Abolition Act.
ANSWER: Earl **Grey** [or Charles **Grey**] <Zhou, Other History>

2. A strict mother berates the behavior of her daughter in this author's second-person short story "Girl." For 10 points each:
[10] Name this Antiguan author who described her dissatisfaction with being forced to memorize a Wordsworth poem in her essay "Dances with Daffodils." She also wrote the novels *Lucy* and *Annie John*.
ANSWER: Jamaica **Kincaid**
[10] This other Caribbean author used second person narration in his story "How to Date a Browngirl, Blackgirl, Whitegirl, or Halfie" from his collection *Drown*. This author of *The Brief Wondrous Life of Oscar Wao* has faced numerous sexual misconduct allegations in recent years.
ANSWER: Junot **Diaz**
[10] Diaz's most recent book *Islandborn* is this type of book. Maurice Sendak mostly wrote books of this type, including *Where the Wild Things Are*.
ANSWER: **children**'s books [or **picture** books; accept books for **kids**] <Harvey, World/Other Literature>

3. This musician's 1962 album *Jazz Impressions of Black Orpheus* contained his hit single "Cast Your Fate To The Wind". For 10 points each:
[10] Name this jazz pianist whose trio composed numerous tracks for various adaptations of a Charles M. Schulz work, including the soundtrack to an iconic 1965 animated Christmas special.
ANSWER: Vince **Guaraldi** [accept Vince **Guaraldi** trio]
[10] Guaraldi produced the music to most of the animated adaptations of the comic strip *Peanuts*, which centered on this boy who's typically depicted wearing a yellow shirt.
ANSWER: Charlie **Brown**
[10] An inescapable piano riff is found in Guaraldi's song titled for these two siblings, which has gone on to become the de facto theme song of the *Peanuts* series and a popular jazz tune on its own. Give either their first names or their common last name.
ANSWER: **Linus** and **Lucy** [or the **van Pelt** siblings] <Maharjan, Other Auditory>

4. For 10 points each, answer the following about the use of Python in data science.
[10] Using the popular Pandas package allows one to construct this type of data structure in python to easily manipulate data imported from spreadsheets. In R, elements of this structure can be accessed by using a dollar sign.
ANSWER: **dataframe**
[10] The likewise essential numpy (**"num pie"**) package allows the use of this numerical data structure in Python. This data structure, similar to a list, holds variables of the same type at each index and can be accessed by using square brackets.
ANSWER: **arrays**
[10] Pandas and numpy are often used alongside packages such as Seaborn to do this task in Python. Another package that does this task in Python supports raster and vector output.
ANSWER: **plotting** [accept any of **graphics**, **graphing**, **Matplotlib**, **displaying data**, etc.] <Bunker, Computer Science>

5. The original version of a portrait of this man was destroyed in a 1698 fire, though its image is preserved in one of the Whitehall murals.
[10] Name this subject who, in that painting, clutches a glove and reaches for a dagger at his waist. That iconic portrait of this man features him standing with a wide stance and sporting a prominent codpiece.
ANSWER:King **Henry VIII** [prompt on Henry]
[10] That portrait of Henry VIII was painted by this German-born painter of the Northern Renaissance. He also painted a portrait of Erasmus.
ANSWER: Hans **Holbein** the Younger
[10] Holbein created a series of works depicting the *Danse Macabre* by carving an image into a block of this substance. This natural substance is called a "cut" technique of relief printing.
ANSWER: **wood** [accept **wood**cut] <Harvey, Painting>

6. Before this poet's collection *Poems on Various Subjects, Religious and Moral* could be published, she had to undergo an inquiry to prove that she actually wrote it. For 10 points each:
[10] Name this first published African American writer of many poems praising men named George, such as King George III and George Washington.
ANSWER: Phillis **Wheatley**
[10] Another George that Wheatley praised was George Whitefield, the itinerant Methodist preacher who led this evangelical revival movement.
ANSWER: **First Great Awakening** [do NOT accept or prompt on “Second Great Awakening”; prompt on Great Awakening]
[10] The men who attested to Wheatley's authorship included this Loyalist who governed Massachusetts during the Boston Massacre and Boston Tea Party. This man has the same last name as a Free Grace advocate who had been banished with John Wheelwright a century earlier.
ANSWER: Thomas **Hutchinson** <Zhou, American History>

7. These specific locations title a book by Laud Humphreys about impersonal homosexual encounters in public spaces. For 10 points each:
[10] Identify these locations where so-called “cottaging” would occur between gay men. This slang word often referred to the toilet stalls where the men would have sex which were analyzed by Humphreys using very dubious and duplicitious research methods.
ANSWER: **tearoom**s
[10] Humphreys did most of his research on homosexuality in this city. More than half the sociology department at this Midwestern city’s Washington University left in response to his study.
ANSWER: **St. Louis**, Missouri
[10] Humphrey's work helped lead to the creation of IRBs in social science research. His research also increased the proliferation of this two-word phrase which says that the respondent is to be aware of the potential outcomes and is a willing participant in research.
ANSWER: **informed consent** [prompt on just “consent”] <Kirksey, Other Social Science>

8. Answer the following about food in American poetry, for 10 points each:
[10] Wallace Stevens wrote a poem titled "The Emperor Of" this foodstuff. That poem opens with the lines "Call the roller of big cigars, / The muscular one, and bid him whip."
ANSWER: **ice cream** [accept "The Emperor of **Ice Cream**”]
[10] In "After Apple-Picking", this poet wrote "There were ten thousand fruit to touch, / Cherish in hand, lift down, and not let fall. / For all." This poet also wrote the poem "Nothing Gold Can Stay."
ANSWER: Robert **Frost**
[10] This American poet opened one of his poems with the lines "I have eaten / the plums / that were in / the icebox."
ANSWER: William Carlos **Williams** <Grossman, American Literature>

9. The winning general at this battle abandoned the Pratzen Heights to induce his enemies to attack his right flank. For 10 points:
[10] Name this "Battle of the Three Emperors" that ended with a disastrous defeat for a combined Austrian and Russian force.
ANSWER: Battle of **Austerlitz**
[10] This Russian field marshal was unfairly blamed for the loss at Austerlitz by Tsar Alexander I. He would later inflict heavy losses on the French during the Battle of Borodino.
ANSWER: Mikhail **Kutuzov**
[10] The victor at the Battle of Austerlitz was this French emperor and military leader who would later lose the Battle of Waterloo.
ANSWER: **Napoléon** Bonaparte [prompt on Bonaparte] <Sims, European History>

10. Answer these questions about the Russian-American animator Genndy Tartakovsky, for 10 points each:
[10] Tartakovsky's 2019 miniseries *Primal* focuses on a paleolithic hunter's relationship with one of these creatures. Wallace Shawn voices a green toy one of these in the *Toy Story* series.
ANSWER: **T**yrannosaurus **Rex** [accept **dinosaur**]
[10] Tartakovsky gained acclaim for this Cartoon Network series that follows the title warrior's conflict with the shape-shifting demon Aku. Its fifth season ran in 2017 following a thirteen year hiatus.
ANSWER: ***Samurai Jack***
[10] Tartakovsky also created this 2003 miniseries from a major franchise that introduced General Grievous and the dual wielding Asajj Ventress. It is set in between episodes two and three of a major film series.
ANSWER: ***Star Wars: Clone Wars*** [prompt on just Star Wars] <Harvey, Trash>

11. Gram Stains are traditionally used to quickly classify these organisms into two broad categories according to their cell wall. 10 points each:
[10] Name the domain which contains single-celled prokaryotes which are distinct from Eukarya and Archaea.
ANSWER: **bacteria**
[10] Bacteria share these short segments of DNA that are exchanged between bacteria in order to share traits like antibiotic resistance. These circular loops of genetic information contain ORI sites and Primer Binding Site used to start PCR amplification.
ANSWER: **plasmid**
[10] A common high school experiment involves transforming E. coli with the pGLO plasmid which will cause them to produce this protein. This protein was isolated from the jellyfish *Aequorea victoria*.
ANSWER: **green fluorescence protein** [or **GFP**] <Oung, Biology>

12. This piece's famous opening was taken directly from improvisation by the virtuoso Ross Gorman. For 10 points each:
[10] Name this piece for piano and orchestra that was premiered by Paul Whiteman's band at a concert titled "An Experiment in Modern Music".
ANSWER: ***Rhapsody in Blue***
[10] *Rhapsody in Blue* was written by this versatile American composer who included taxicab horns in his *An American in Paris*.
ANSWER: George **Gershwin** [or Jacob Bruskin **Gershowitz**]
[10] Among Gershwin's pieces for solo piano are three pieces of this type, including "Blue Lullaby" and "Spanish". Claude Debussy's pieces of this type include "What the West Wind Has Seen".
ANSWER: **prelude** [or **prélude**] <Sims, Music>

13. This ethnic group was ruled by supposedly democratic chieftains known as Caciques whose strength was determined by the size of their tribe and not their skill in battle. For 10 points each:
[10] Name this peaceful ethnic group of the Caribbean which Columbus encountered in the modern-day Bahamas and the island of Hispaniola.
ANSWER: **Taíno**
[10] Some residents of this American Caribbean commonwealth trace their ancestry back to the Taíno. This commonwealth was acquired after the Spanish American War.
ANSWER: **Puerto Rico** [accept **PR**]
[10] One theory about Taíno suggests they came from the basin of this South American river in Columbia and Venezuela. The mouth of this river was documented by Columbus on his third voyage.
ANSWER: **Orinoco** River <Bunker, World History>

14. This civilization borrowed many of their myths from the nearby Qulla people, including one in which a god transforms into a bird and gives a fruit to a beautiful woman, resulting in a virgin birth. For 10 points each:
[10] Name this culture that revered the creator god Viracocha, who disappeared into the sea after creating mankind.
ANSWER: **Inca**n civilization [accept **Inca**n Empire of **Inca**n culture]
[10] The Incas referred to themselves as children of this celestial body, which was represented by Inti. The Egyptian god Ra was closely associated with this body.
ANSWER: the **Sun**
[10] In one part of the Inca master narrative, Manco Capac and his siblings emerge from one of these places to guide the people to their home. In Shinto myth, Amaterasu plunges the world into darkness when she hides in one of these places.
ANSWER: **cave** [or a **cavern**] <Harvey, Mythology>15. If these quantities do not change over time, a system is in equilibrium. For 10 points each:
[10] Identify these variables common in thermodynamics which can help describe a dynamical system. Examples include internal energy, pressure and entropy.
ANSWER: **state** variables
[10] This state variable multiplies the change in entropy in the common derivation of Gibbs Free Energy. This quantity can be measured from absolute zero on the Kelvin scale.
ANSWER: **temp**erature [prompt on *T*]
[10] The state variable of particle number is conjugate to this quantity also known as the partial molar free energy. This quantity, oft-symbolized mu, is the derivative of internal energy with respect to particle number and thus represents the free enthalpy change associated with an additional particle.
ANSWER: **chemical potential** <Bunker, Chemistry>

16. The schlubby comedian Daniel joins a cloning cult and becomes effectively immortal in this author's novel *The Possibility of an Island*. For 10 points each:
[10] Name this contemporary French novelist who drew controversy for his 2015 novel *Submission*, in which a secular intellectual is forced to become religious following a surprising election result.
ANSWER: Michel **Houellebecq** (**“Howell-beck”**)
[10] A "brotherhood" named for this religion wins the 2022 French election in *Submission*. In Andre Gide's *The Immoralist*, Michel is attracted to young boys who practice this religion in Tunisia.
ANSWER: **Islam** [accept **Muslim** Brotherhood]
[10] Houellebecq's novel *The Map and the Territory* focuses on the artist Jed Martin. Another artist from French fiction appears in "The Unknown Masterpiece," part of this earlier author's *Human Comedy*.
ANSWER: Honoré de **Balzac** <Harvey, European Literature>

17. This concept of "thisness" was proposed by Johns Duns Scotus to be a non-qualitative property of a substance that is opposed to its "whatness." For 10 points each:
[10] Identify this philosophical concept which is defined as the essence of a particular thing. William of Okham denied the existence of these concepts through his attack on universals.
ANSWER: **haecceity** **(hack-see-ity)** [accept **haecceities** or **haecceity** of being]
[10] The Jesuit Jesuit Peter Fonseca was a notable believer of haecceities though his views were probably more aligned with this scholastic philosopher. This philosopher outlined proofs for God in his *Summa Theologica*.
ANSWER: St. Thomas **Aquinas**
[10] This later American pragmatist used the term haecceity to explain the experience of "secondness." He developed three notions of clearness in his essay "How We Make Our Ideas Clear."
ANSWER: Charles Sanders **Pierce** ("**Purse**") [or C.S. **Pierce**] <Bunker, Philosophy>

18. The earliest known synagogues outside of Jerusalem were known as *proseuche*, which literally means "places of [*this practice*]." For 10 points each:
[10] Name this general type of public worship in which Jews may recite the *Amidah or the Kaddish*. Following the destruction of the Second Temple, Rabbinic scholars formalized this form of worship due to the impossibility of animal sacrifice.
ANSWER: **prayer** [accept **pray**ing]
[10] In the morning and evening services, recitations of the *Amidah* are preceded by readings from Leviticus and this fourth book of the Torah, which is named for a census taken in its first chapter.
ANSWER: Book of **Numbers** [accept **Bəmiḏbar**; accept **Arithmoi**]
[10] In Judaism, public prayer requires a quorum of this many people known as a *minyan*. Practitioners of Kabbalah study this many Sephirot, or emanations of God.
ANSWER: **ten** (**10**) <Harvey, Religion>

19. This novel opens with Archie Jones attempting suicide by gassing himself in his car on New Year's Day after his wife leaves him. For 10 points each:
[10] Name this novel that focuses on the lives of Jones, his wartime friend Samad Iqbal, and their respective families.
ANSWER: ***White Teeth***
[10] *White Teeth* was written by this contemporary English novelist who also wrote *Swing Time* and *NW*.
ANSWER: Zadie **Smith**
[10] Like many British novels, *White Teeth* is set in this English large city, also the setting of Monica Ali's *Brick Lane*. This city’s Thames River is described in poems such as Spencer’s “Prothalamion.”
ANSWER: **London** <Grossman, British Literature>

20. A matrix element central to this equation is similar to an expectation where the integral has wave functions representing the eigenstate one both the left and right sides. For 10 points each:
[10] What equation arises when the transition probability is constant in time? This equation says that the transition probability is equal to 2 pi over h bar times the square of the matrix element corresponding to the state times the final state density.
ANSWER: **Fermi's Golden Rule**
[10] Like for many particles, the decay width for these second generation leptons can be found using Fermi's Golden rule. These unstable leptons can penetrate thousands of miles below the Earth's surface when emitted in cosmic radiation.
ANSWER: **muon** [do NOT accept or prompt, but do NOT otherwise reveal, "muon-neutrino"]
[10] One of these particles named after the muon and the muon itself comprise the second generation leptons. The oscillation of these neutrally-charged fermions can cause the lepton family number to be measured differently.
ANSWER: **neutrino** [accept any of **neutrino oscillation**, muon **neutrino**, tau **neutrino**, electron **neutrino**] <Bunker, Physics>