

FACTS

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PACKET 14

Downingtown STEM A: (Vishwa Shanmugam, Rohan Vora, Saahas Yechuri, Sashwat Venkatesh, Anish Gadgil)

TOSSUPS

1. **In one of this man’s works, a former soccer star is driven to Australia after running for public office on a platform of equality. In another work, the disfigured narrator Sophie details how her nephew deceives his wife and sleeps with Stephanie; that nephew, a secretive police lieutenant, is then punished for breaking the Immorality Act. In addition to writing about Pieter Van Vlaanderen in *Too* (*) *Late the Phalarope*, he set one work in Ndotsheni which describes the trial of Johannes Pafuri and two accomplices; in that novel, Mr. Carmichael agrees to defend the Reverend’s son Absalom Kumalo. For 10 points, name this South African author of *Cry, the Beloved Country*.**

ANSWER: Alan **Paton**

2. **One leader of this movement founded the People’s International League, and later released a book known as “The Duties of Man”. One event in this movement was ended after the Battle of Voltturnus and led to the conquering of a state ruled by the Bourbon king Francis II. One leader, a veteran of the Ragamuffin War, created a foundation for this movement while fighting in the (*) Uruguayan Civil War. Red Shirt volunteers served as part of this movement, whose leader launched the Expedition of the Thousand. The state of Sardinia-Piedmont was reformed after this movement, which was led by Count Cavour and Giuseppe Garibaldi. For 10 points, name this movement also known as the Risorgimento that led to the formation of a modern-day country with capital at Rome.**

ANSWER: **unification of Italy** [accept **Risorgimento** before mention; accept clear equivalents]

3. **This state was home to a rally organized by Ron Jones for the fascistic “Third Wave” political movement. An event in this state called “Pirandellian” by its main perpetrator was the subject of the documentary *Quiet Rage*; during that event *here*, preceded by a similar one led by David Jaffe and funded by the Office of Naval Research, David Eshelman emulated Strother Martin while wearing mirrored (*) sunglasses. A “privilege cell” was opened to non-rioting inmates of a makeshift prison in the basement of Jordan Hall in this state. For 10 points, “guards” in Palo Alto such as ““John Wayne”” worked at Philip Zimbaro’s Stanford County Prison in what state?**

ANSWER: **California**

4. **This artist drew a spiral and three lines in his “portrait” of James Joyce, and represented the baroness Renee Irana Frachon using marble in his “The Sleeping Muse”. This artist represented a Hungarian artist with an egg-like head in his sculpture of Mademoiselle (*) Pogany. Twelve hourglasses line his “Table of Silence”, which makes up a war memorial along with his “The Gate of the Kiss” and a work that consists of 17 stacked rhomboid-like figures, known as “Endless Column”. Those three aforementioned works are located at Targu Jiu. His most famous work was taxed by US customs while being imported to the US and depicts the motion of the title avian. For ten points, name this Romanian sculptor of “Bird in Space”.**

ANSWER: Constantin **Brâncuși** [BRAN-koosh]

5. **One senator from this state was nicknamed “Pitchfork Ben” for his advocacy of lynch mobs; that senator was Ben Tillman. Another segregationist senator from this state fathered Essie May Washington Williams with a black woman and founded the splinter Dixiecrat Party. Strom (*) Thurmond represented this state, as did the congressman who beat Charles Sumner on the Senate floor, Preston Brooks. A Confederate battle flag was removed from this state’s capitol grounds by its former governor, Nikki Haley, after a mass shooting in its largest city, Charleston. For 10 points, name this state where the Civil War began with the attack on Fort Sumter.**

ANSWER: South Carolina

6. **A group of characters in this novel confiscate a textbook on snowflakes for being obscene, though the protagonist is later assaulted by a group of old men in a library in retribution. The protagonist of this novel is beaten by Dim and Billyboy after they become cops and is often visited by (*) P.R. Deltoid. That protagonist attempts suicide after hearing a piece by Skadelig, and he realizes he was being manipulated by a group that includes F. Alexander. The protagonist of this work is disgusted by Beethoven’s Ninth Symphony after undergoing the Ludovico technique, A group of Droogs and their ultraviolent leader Alex appear in, for ten points, what novel by Anthony Burgess?**

ANSWER: A Clockwork Orange

7. **A movement marked *Precipitato* ends the highly dissonant seventh piece in this genre by Prokofiev, one of three that he composed during World War II. Descending tritones open a “quasi-[one of these pieces]” based on the *Divine Comedy*. The final section of a single-movement piece in this genre is a fugato marked *Allegro energico*; that massive work in B minor was written by (*) Franz Liszt. A funeral march is the third movement of Chopin’s B-flat minor piece of this type. One of these pieces by Mozart imitated the sound of Turkish janissary bands in the third movement “Rondo alla turca”. For ten points, name this type of composition for solo piano exemplified by Beethoven’s “Moonlight”.**

ANSWER: piano sonata [prompt on “sonata”]

8. **This figure created a set of *Praecepta*, or Maxims, for his son, and explained how to create Coan wine in a tract titled “On Agriculture”. This politician passed laws granting the right of appeal to citizens sentenced to flogging, as well as citizens who lived in outlying territories, known as the Porcian Laws. This politician vehemently opposed Hellenic influences within Rome, earning him the title of “The Censor” . He is also known as the first Roman (*) historian for his history of Italy titled *Origenes*. For ten points, name this Roman politician who ended every speech with “Carthage must be destroyed!” and, like Pliny, shares his name with a “younger” descendant.**

ANSWER: (Marcus Porcius) Cato the Elder [prompt on “Cato”; accept anything about the older or senior Cato; do not accept “Cato the Younger”]

9. **This polymer was first synthesized in vitro by Kobayashi and Shoda. Schweizer’s reagent is used to make derivatives of this compound by dissolving it. A substance made mostly of this protein is formed in the Kraft process. This polymer is built from a repeated structure of (*) Beta 1-4 glycosidic bonds, which is a reason for its high tensile strength. During cytokinesis, this polymer is secreted from the cell membrane after pectin is secreted, and the middle lamella is formed. This structure’s function is fulfilled by murein, or peptidoglycan, in bacteria. For 10 points, name this difficult to digest polysaccharide made of glucose, which is primarily found in plant cell walls.**

ANSWER: cellulose

10. **One of this city’s largest slums has a name translating as “Complex of Germany”. After losing its status as its country’s capital in 1960, this city made up the entirety of the state of Guanabara. Barra de Tijuca is an upscale neighborhood of this city whose inhabitants are referred to by the Tupi-derived word (*) “carioca”. Sugarloaf and Corcovado Mountains overlook this city in which the beach of Ipanema is located. This city is home**

to the Cristo Redentor statue and is its country's second largest after Sao Paulo. For 10 points, name this Brazilian city that hosted the 2016 Summer Olympics.

ANSWER: Rio de Janeiro

11. "Second" ceremonies of this name are sometimes performed a "standard lifetime" of seventy years after the first. Gifts at one of these events are often given in multiples of eighteen. These events may feature a speech about a "project" to learn one of 613 commands in depth. The name for these events signifies one becoming "subject" to a (*) law code. Men begin to wear the *tefillin* on their arm and forehead after this ceremony. After this event, participants can be members of a prayer quorum called a *minyan*. For 10 points, name this coming-of-age ceremony for 13 year old Jewish boys.

ANSWER: bar mitzvah [accept bat mitzvah before "tefillin", even though the clues are mostly male-specific]

12. Reports of this event included a story about Margaret Wheeler killing her rapist and then committing suicide. Nine soldiers blew up an armory while still inside of it in the "defense of the magazine" during one battle in this event; that battle also saw 3 men shot at the "bloody gate". Shortly after this event, the Doctrine of Lapse was rescinded. (*) Bahadur Shah Zafar was declared as emperor of a region central to this event. Sir Colin Campbell relieved a siege at Lucknow during this event. This revolt was partially caused because Enfield rifles used pig and cow grease in their cartridges. For ten points, name this rebellion carried out by namesake soldiers, which resulted in the transfer of the rule of India from the East India Company to the British Crown.

ANSWER: Sepoy Mutiny of 1857 [accept reasonable equivalents of "mutiny"; accept "Indian" in the place of "sepoy"; accept Indian Rebellion of 1857 or First Indian War of Independence; accept siege of Delhi or equivalents before "one battle in this event" and anti-prompt after]

13. One work on this topic describes how "matron and maid / The speechless babe, and the gray-headed man" all gather. A work about this topic opens as the speaker walks "on the sunny pavement of Greenwich Village." Home is defined as the place "where, when you have to go there, They have to take you in" in a poem whose title figure travels home to experience this phenomenon. Another poem about this topic invokes a figure "who in the love of (*) Nature holds / Communion with her visible forms." One poem named for this event sees Mary and Warren discuss Silas. Allen Ginsberg wrote *Kaddish* after this event happened to his mother. For ten points, *Thanatopsis* is a meditation on what event, which occurs to a Hired man in a Robert Frost poem?

ANSWER: death [accept word forms and reasonable equivalents; accept deaths of specific figures like "death of Naomi Ginsberg" or "death of a hired man"; prompt on "Thanatopsis" or "Kaddish" with "What is that poem about?"; prompt on "meditation" with "About what?" before "Greenwich Village" is read]

14. In one reaction, heating one of these compounds creates a gamma delta-unsaturated carbonyl, and in another reaction, nucleophiles react with aryl halides to create these compounds. Those reactions are the Claisen Rearrangement and the Ullmann condensation, respectively. One cyclic version of this functional group is oxolane, which was formerly known as tetrahydrofuran. These groups can be synthesized by SN2 reactions between (*) alcohols and alkyl halides in the Williamson reaction. These compounds come in "crown" varieties. For ten points, name this functional group consisting of an oxygen bonded to two alkyl or aryl groups.

ANSWER: Ethers

15. This figure planted the first rose garden under Mount Bermion, whose bushes Herodotus noted bore sixty blossom each. This figure donated his throne to the Delphic Oracle. He spread the worship of Cybele, his mother. He washed off in the Pactolus River and threw its water on his daughter Zoe. This son of Gordius wore a Phrygian cap after he choose Marsyas over (*) Apollo and received a punishment only revealed after reeds grew from the hole his barber whispered in. Before he was given donkey ears, this Phrygian received Silenus

into his palace, for which he gained a power he enjoyed until it prevented him from eating or drinking. For 10 points, name this king whom Dionysius gave the ability to turn whatever he touched into gold.

ANSWER: King Midas

16. **The first aria of this opera's final act usually ends with a sustained B4 note, even though this opera's score does not instruct the orchestra to sustain that note. In that aria, the male protagonist proclaims "Vanish, o night! Fade, you stars!" Franco Alfano finished the composition of this opera after its composer died in 1924. This opera's title character is represented by the traditional Jasmine Flower Song. An (*) "unknown prince" declares that the title character won't know his name before dawn in this opera's aria, "Nessun Dorma". Ping, Pong, and Pang are ministers from the court of the title royalty in this opera. For 10 points, name this work in which Calaf attempts to solve riddles in order to marry the title Chinese princess, an opera in three acts by Giacomo Puccini.**

ANSWER: Turandot

17. **One character in this film says "Do you think I'd be working in a place like this if I could afford one?" when asked if her pet snake is real. Another character in this film kills his examiner while taking the Voight-Kampff test. Those characters, Zhora Salome and Leon Kowalski, were built by the (*) Tyrell Corporation. The protagonist of this film falls in love with Rachael, whose memories were falsified. The antagonist of this film gives the "tears in the rain" speech, which begins "I've seen things you people wouldn't believe." That character, Roy Batty, is one of four replicants that the protagonist of this film must "retire". For 10 points, name this science-fiction film that stars Harrison Ford as Rick Deckard, which recently had a sequel set in 2049.**

ANSWER: Blade Runner [do not accept or prompt on "Blade Runner 2049"]

Note to moderator: group the words in the first sentence as "The derivative of this order (slight pause) of position"

18. **The derivative of this order of position is found in the numerator of the formula for the Abraham-Lorentz force. In the formula for the power radiated by an accelerating point charge, the denominator contains this power of the speed of light; that is the Larmor formula. The Nernst-Simon statement is a version of a law of this number that is usually stated with the unattainability principle; that law originally concerns the (*) entropy of a perfect crystal at absolute zero. This many non-time dimensions are present in Minkowski space, and the action-reaction law is Newton's law of this number. For ten points, name this number of laws in both Kepler and Newton's sets of laws.**

ANSWER: three [or third derivative /power / law of thermodynamics, or Newton's third law; accept cube(d); prompt on "jerk" with "Which is how many derivatives of displacement?"]

19. **A kidney illness causes one character in this play to "stink of garlic" and prevents him from telling a joke about a drunk Englishman. In another scene of this play, a character who forgot how to dance the farandole, the fling, and the jig decides to act like he's caught in a net. The second act of this play features a song about a dog being beaten to death with a (*) ladle and ends with one of the protagonists attempting to hang himself to pass time. A slave named Lucky is introduced in this play by a man who can only speak when a bowler hat is placed on his head. For 10 points, name this absurdist play about Vladimir and Estragon, written by Samuel Beckett.**

ANSWER: Waiting for Godot [or En attendant Godot]

20. **This region was discovered by David Jewett and Jane Luu using a blink comparator. Objects in this region that have a two-to-three orbital resonance with the nearest planet are known as "plutinos", while objects from this region that are not resonant are known as "cubewanos." Kenneth (*) Edgeworth hypothesized its existence with its more famous namesake. Makemake and Eris were discovered in this region in 2005. The only man-made object to enter this region of the solar system is the NASA spacecraft New Horizons. This region of the solar system is thought to be the origin of short-period comets. For 10 points, name this region of space, a circumstellar disk of icy bodies starting past Neptune's orbit.**

ANSWER: Edgeworth-Kuiper Belt (be lenient on pronunciation) <RV> (Astro - other sci)

TB. At the start of this play, two characters express shock that an 8 year old girl killed a cat and that an 87 year old man was run over by a truck. A toilet chain is pulled multiple times throughout this play, despite the toilet not flushing. Two characters in this play argue over the proper phrase for heating a (*) kettle. Its main characters explain that they live in the basement of what was once a cafe, which serves food like Ormitha Macarounada. The unseen Wilson provides orders to the central hitmen of this play which ends with one of them pointing a gun at the other. For 10 points, name this play in which Ben and Gus take food orders from the titular conveyance, written by Harold Pinter.

ANSWER: *The Dumb Waiter*

BONUSES

1. “Into the Jaws of Death” was a photograph of American soldiers taken during this event. For 10 points:

[10] Name this event in which Allied troops stormed 5 French beaches and made their first land gain in Nazi-occupied Europe.

ANSWER: **D-Day** landings [accept equivalents of “landings”; accept invasion of **Normandy** and equivalents, accept Operation **Overlord**]

[10] D-Day led to the opening of the Western front of the European theater of WWII. This operation, which was the German invasion of Russia, led to continued fighting on the Eastern front but failed due to losses such as Stalingrad.

ANSWER: Operation **Barbarossa**

[10] This battle, which took place in Western Egypt, coincided with Operation Torch. The Allies reclaimed supply lines in Northern Africa after this battle. Unlike the first battle of its name, it was a decisive victory.

ANSWER: **Second** Battle of **El-Alamein** [Prompt on Battle of **El-Alamein**, do not prompt on or accept “First Battle of El-Alamein”]

2. Madame Koto asks the protagonist of this work to visit her bar, believing it will bring good luck. For ten points each,

[10] Name this work by Ben Okri which sees the Party of the Rich campaign against the equally corrupt Party of the Poor. It follows an Abiku named Azaro and won Okri the Man-Booker prize in 1991.

ANSWER: *The **Famished Road***

[10] This literary field emphasizes political and cultural freedoms and includes the works of Ben Okri and other Nigerian authors such as Chinua Achebe and Wole Soyinka. Advanced by thinkers such as Edward Said and Frantz Fanon, this field frequently critiques British imperial rule by drawing on themes of racism and subjugation under oppressive conditions.

ANSWER: **post-colonial** literature [prompt on “colonization”]

[10] Indigenous postcolonial authors from this country include James and David Unaipon, the latter of whom wrote the first comprehensive collection of this country’s native mythology in *Legendary Tales of the Aborigines*.

ANSWER: **Australia**

3. This philosopher proposed that analytics should stop acting as if knowledge could perfectly reflect nature, which makes most philosophical investigation into useless semantic pseudo-problems.. For 10 points each:

[10] Name this philosopher who wrote *Philosophy and the Mirror of Nature*.

ANSWER: Richard (McKay) **Rorty**

[10] Rorty advanced a “neo-” version of this school of thought to which Cornel West also belongs, named after a William James book that proposes treating truth as “what works” and taking ideas at their “cash value.”

ANSWER: **Pragmatism** [or **Pragmatism: A New Name for Some Old Ways of Thinking**]

[10] James’s “tender-minded” and “tough-minded” categorization of thinkers roughly corresponds to two earlier schools. One is exemplified by reason-emphasizing “continentals” like Descartes and the other consists of experience-emphasizing “British” thinkers like John Locke. Name both.

ANSWER: **rationalism** AND **empiricism** [accept in either order; accept either in word forms like **rationalists**]

4. This painting was originally planned to be displayed at Rockefeller Center in New York City. For 10 points:

[10] Name this fresco that depicts the meeting of science, religion, capitalism, and socialism at the title location. Nelson Rockefeller ordered this fresco to be destroyed due to its positive depiction of Vladimir Lenin.

ANSWER: **Man at the Crossroads** [accept **Man, Controller of the Universe**]

[10] *Man at the Crossroads* was painted by this Mexican muralist whose other works include *Frozen Assets* and *The Flower Carrier*. He was married to fellow painter Frida Kahlo.

ANSWER: Diego **Rivera**

[10] This Kahlo painting depicts a hybrid between the artist and the title animal which is impaled by nine arrows and leaps over a tree's severed branch.

ANSWER: *The **Wounded Deer*** [or *El **Venado Herido***]

5. One derivative of this algorithm is the Uniform Cost Search. For 10 points each:

[10] Name this algorithm, which is named for a Dutch mathematician. This algorithm updates a table of values of distances as its frontier expands, until the shortest path between 2 vertices is found.

ANSWER: **Dijkstra**'s algorithm

[10] Dijkstra's algorithm is used in this field, which also studies the Chinese Postman Problem. This field was created by Euler to solve the 7 Bridges of Königsberg problem.

ANSWER: **graph** theory

[10] This computer scientist is the first namesake of an algorithm that is used instead of Dijkstra's algorithm when negative weight cycles may be a problem. This man is also the founder of dynamic programming.

ANSWER: Richard **Bellman**

6. This work's "Saturday Night Waltz" movement quotes the folk song "I Ride an Old Paint". For 10 points each:

[10] Name this ballet whose "Hoe-down" fourth movement is a dance in 2/4 [two four] time and culminates in a kiss between the Champion Roper and the Cowgirl.

ANSWER: **Rodeo**

[10] This Martha Graham-choreographed ballet opens with the direction "Very slowly". It is best known as an orchestral suite that quotes the Shaker hymn "Simple Gifts".

ANSWER: **Appalachian Spring**

[10] *Rodeo* and *Appalachian Spring* were both written by this American composer.

ANSWER: Aaron **Copland**

7. This figure tries to sell his friend some chocolate covered cotton after cornering the Egyptian cotton market. For ten points each,

[10] Name this head of the M&M syndicate, which makes money by buying eggs for high prices and selling them for low prices. This mess hall officer eventually ends up making deals with the enemy to bomb his own camps.

ANSWER: **Milo Minderbinder** (Accept either underlined part)

[10] Milo tries to sell this protagonist chocolate covered cotton during Snowden's funeral. This character sits naked in a tree during that funeral, leading the chaplain to believe he is a ghost.

ANSWER: **Yossarian**

[10] Milo Minderbinder and Yossarian appear in this war novel by Joseph Heller.

ANSWER: **Catch-22**

8. This man carried out his most infamous action during a performance of *Our American Cousin*. For ten points each:

[10] Name this man believed that the Civil War had not truly ended after Lee's surrender to Grant, because Confederate forces were still fighting Union forces. This belief led him to assassinate Abraham Lincoln.

ANSWER: John Wilkes **Booth**

[10] This woman owned a boarding house and was introduced to Booth by Dr. Samuel Mudd. Her boarding house was used as a planning headquarters to kill Lincoln.

ANSWER: Mary **Surratt**

[10] While in a barn, Booth was shot and killed by this man. He is presumed to have died in the Great Hinckley Fire.

ANSWER: Boston **Corbett**

9. Hua Tou is the practice of meditation on single words or phrases in these texts, some of which can be found in the *Book of Serenity*. For 10 points each:

[10] Name these texts read to achieve *satori*. One by Linji advises, “If you meet the Buddha on the road, kill him,” while another asks “What is the sound of one hand clapping?”

ANSWER: **koans** [or **gong an** or **kong an**]

[10] Koans are studied in this school of Buddhism popular in Japan. Its name was paired with *The Art of Motorcycle Maintenance* in a Robert Pirsig book.

ANSWER: **Zen** Buddhism [or **Chan** Buddhism]

[10] This “blue-eyed barbarian” brought Zen Buddhism to China, from which it spread to Japan. He allegedly ripped off his eyelids to stare at a wall for nine years before he went on to invent shaolin kungfu.

ANSWER: **Bodhidharma** [or **Dharmatrata**; or **Daruma**]

15. The elementary form of this quantity was measured in Millikan’s oil drop experiment. For 10 points each,

[10] Name this quantity, two forms of which are multiplied in the numerator of Coulomb’s law. It is measured in Coulombs, and is positive in protons and negative in electrons.

ANSWER: **charge** [accept elementary or electric **charge**]

[10] The magnetic form of charge is a property of these theoretical objects, which would violate Gauss’s Law of Magnetism.

ANSWER: **magnetic monopoles**

[10] Quarks and gluons have a type of charge named after this property, which causes a namesake type of confinement. That type of confinement explains why quarks cannot be seen in isolation under normal conditions.

ANSWER: **color** [accept **color** charge or **color** confinement]

10. This object was made so its creator could marry the Maiden of Pohjola [po-hoy-ya]. For 10 points each:

[10] Name this ambiguous object, usually identified as a mill. Louhi attempted to steal it back, but dropped everything but the lid, which explains why the sea is salty.

ANSWER: (the) **Sampo** [or (the) **Sammas**; accept **Kirjokansi**]

[10] The Sampo appears in this Finnish national epic, compiled by Elias Lonrot.

ANSWER: **Kalevala** [or **Kalewala** or *The New Kalevala*; accept *The Land(s) of Kaleva* or *The Homestead of the People of Kaleva* or *Kalevia* or *Poems from the Kaleva District*; accept *The Old Kalevala* or *Old Karelian Poems from the Ancient Days of the Finnish People*]

[10] This hero leads the trip to steal the Sampo with Ilmarinen from Louhi before she tries to take it back again. This sorcerer and inventor of the Kantele is the primary protagonist of the *Kalevala*.

ANSWER: **Vainamoinen** [or **Wainamoinen**]

11. A flamenco performance inspired this man to write a piece consisting entirely of clapping. For 10 points each:

[10] Name this minimalist composer whose *Music for 18 Musicians* is based on eleven chords and divided into “Pulses”.

ANSWER: Steve **Reich**

[10] This Reich composition uses recordings from his childhood governess and Holocaust survivors in order to contrast the title objects in America and Europe. Its second movement begins with sirens and a looped voice saying “1940”.

ANSWER: **Different Trains**

[10] Heavy brass accents produce the effect of trains in this best-known work of Arthur Honegger.

ANSWER: **Pacific 231**: *Mouvement Symphonique*

12. Answer the following about the French Revolution. For 10 points each:

[10] This man headed the Committee of Public Safety during the French Revolution, during which time he campaigned against the Hébertists. The Reign of Terror ended with this leader of the Jacobin faction's death.

ANSWER: Maximilien **Robespierre**

[10] Robespierre's rule was ended by this event, which saw the arrest and later guillotining of Robespierre and 21 of his associates. It is named for a month of the French Republican Calendar that coincides with July.

ANSWER: **Thermidorian** Reaction

[10] The Storming of the Bastille, which kicked off the French Revolution, occurred after King Louis XVI fired this popular finance minister. This man supported the loaning of French money to America during the Revolutionary War.

ANSWER: Jacques **Necker**

13. The speaker of this poem cries "how clumsy this winged voyager! How weak/Comic, and ugly!" For 10 points each:

[10] Name this poem that starts by noting how often sailors will ensnare the titular bird, a "soarer of celestial snows."

ANSWER: "The **Albatross**" [or "Le **Cygne**"]

[10] "The Albatross" and "The Swan" are parts of this larger collection of Charles Baudelaire's poems, which also contains sections like "Spleen and Ideal."

ANSWER: *Les **Fleurs du mal*** [or *The **Flowers of Evil***]

[10] *Les Fleurs du Mal* begins by describing this figure as hypocritical. This figure is a "delicate monster" that Baudelaire calls "my likeness! My brother!"

ANSWER: the **reader**

14. Answer the following about big dams and the countries that build them. For 10 points each,

[10] This country's Grand Renaissance Dam will probably displace a lot of the Oromo people who inhabit most of its South.

ANSWER: **Ethiopia**

[10] This country formerly led by Enomali Rahmon, with its capital at Dushanbe, is constructing the Rogun dam, which will be the world's tallest upon completion.

ANSWER: **Tajikistan**

[10] This river is dammed by the Aswan High Dam in Egypt, which created an artificial lake that flooded several historical sites. This river's two branches meet at Khartoum, Sudan.

ANSWER: **Nile** [accept an-**Nil**]

16. This phylum consists of jointed animals with heads, thoraxes and abdomens. For ten points each:

[10] Name this phylum that contains insects and spiders.

ANSWER: **arthropods** [or **Arthropoda**]

[10] This subphylum of Arthropoda contains spiders, as well as scorpions and horseshoe crabs. This subphylum is named for the jaws that its members possess, which often inject venom from nearby glands.

ANSWER: **Chelicerata** [or **Chelicerates**; accept **Chelicerae**, but inform the player that that is the name of the jaws]

[10] Some arthropods have this distinction, meaning they have both male and female sex organs. The sequential version of this property is held by animals that only have one type of sex organ at any time.

ANSWER: **hermaphroditic** [accept word forms]

17. This author wrote about a hyena's death in "Esmé". For ten points each:

[10] Name this short story writer, who took his common pen name from the Rubaiyat. He wrote about a girl whose speciality was "Love at short notice" in his "The Open Window."

ANSWER: **Saki** [or Hector Hugh **Munro**]

[10] In “Tobermory,” Cornelius Appin successfully teaches one of these creatures to talk, and its incendiary gossip angers Appin’s guests. Alonzo, Mungojerrie, and Rumpoleteazer are all types of these creatures that appear in another poetry collection.

ANSWER: **cats**

[10] Saki was born in this modern-day country during the rule of the British Raj. More contemporary authors from this country include the author of *A Suitable Boy*, Vikram Seth.

ANSWER: **India**

18. The number of shielding electrons is subtracted from this quantity to find effective nuclear charge. For ten points each:

[10] Name this quantity, which represents the number of protons found in the nucleus of a particular atom.

ANSWER: **atomic number** [or **Z**]

[10] This representation of the atom improved upon the Rutherford Model. This model is mainly used to describe the Hydrogen atom, partially because it gives a non-zero value for angular momentum at an electron’s ground state.

ANSWER: **Bohr** model [accept **Rutherford-Bohr** model or **Bohr** diagram]

[10] The Bohr Model is used to calculate the Rydberg constant, which is the maximum value of this quantity of an emitted photon. This quantity is equal to either 1 or 2 pi divided by the wavelength.

ANSWER: angular **wavenumber** [accept **circular** wavenumber or **linear** wavenumber; accept **k** or **v**]

19. In June 2017, President Donald Trump announced that the United States would be pulling out of an agreement named for this city. For ten points each:

[10] Name this city, the namesake of a 2015 climate change deal. That agreement all signing nations must pledge to reduce carbon emissions in an effort to stall global warming.

ANSWER: **Paris** [accept **Paris** Agreement or equivalents]

[10] When the US exited the Paris accords, the two countries that hadn’t joined were Syria and this other country which believed that the accords weren’t extreme enough. In October 2017, this country signalled that it would join.

ANSWER: **Nicaragua**

[10] This French Minister of the Environment pledged that France would ban all diesel and petroleum fueled vehicles by 2040.

ANSWER: Nicolas **Hulot**

20. This Pharaoh brought control of Canaan back to the Egyptians, and an unprecedented 14 Sed Festivals were thrown in honor of him. For ten points each,

[10] Name this son of Seti I, who is known as “Ozymandias” in Greek sources. This husband of Nefertari created some temples at Abu Simbel to express just how awesome he was after winning a major battle.

ANSWER: **Ramses II** [or **Ramses the Great**; prompt on “Ramses”]

[10] Ramesses II accompanied Seti I during that aforementioned battle at this city; that battle was the largest chariot battle in history. Tutankhamun and Horemheb failed to capture this city in other campaigns.

ANSWER: Battle of **Kadesh**

[10] At the time of Kadesh, this man ruled the Hittite Empire. He moved the Hittite capital from Hattusa to Tarhuntassa.

ANSWER: **Muwatalli II** [prompt on “Muwatalli”]

21. This experiment used a semi-silvered mirror. For ten points each,

[10] Name this experiment run by 2 namesake scientists at Case Western Reserve University in 1881. It disproved the theory of luminiferous aether.

ANSWER: **Michelson-Morley** experiment

[10] The Michelson-Morley experiment used one of these devices which split 2 beams and recombined them after. One variety of this device is named for Mich and Zehnder.

ANSWER: **interferometer** [accept either **Michelson-Morley** or **Mich-Zehnder** interferometers]

[10] A similar experiment was this man's "rotor experiment". This man names an effect wherein nuclei can absorb and emit gamma rays without recoil.

ANSWER: Rudolf **Mössbauer**