

## ROUND 3

Tossup 1. **One of this artist's works was the Anglo-Japanese style Peacock room commissioned by Frederick Leyland. This artist painted his mistress Joanna Hiffernan – a woman with red hair dressed in all-white standing on a wolf-skin in front of a white curtain with a lily in hand. Besides his (\*)** *Symphony in White, No. 1: The White Girl*, this man depicted fireworks in London in his *Nocturne in Black and Gold*. His most famous work is a portrait of his mother seated facing left, with her hands in her lap, and is painted with the two title colors. For 10 points, name this artist of *An Arrangement in Grey and Black*.  
ANSWER: James Abbott McNeill Whistler <TB>

Bonus 1. Jet-lag occurs when these cycles are disrupted. For 10 points each,  
[10] Name these routine physiological and behavioral changes that just about follow a 24-hour schedule, regulated by your internal “biological clock”. Feeling drowsy at 10 PM every night is an example of them.  
ANSWER: circadian rhythms

[10] The suprachiasmatic nucleus directs the pineal gland to produce this hormone which induces drowsiness and helps our circadian rhythms. Production of this hormone is most effective in the absence of (blue) light.

ANSWER: melatonin

[10] In plants, melatonin helps regulate these cycles which can be classified as “long-day” or “short-day”. A phytochrome is often used to sense changes in night length which then produces a physiological response.

ANSWER: photoperiodism

T2. **A cocktail of three antibodies from Mapp Biopharmaceuticals was used to treat this condition. Although Samaritan's Purse would not pay for the drug, it covered the cost of evacuating Nancy Writebol and Dr. Kent (\*)** Brantly to an Emory University hospital after they were treated for this condition. It was suspected that five students in Dallas may have contracted this illness from a man who also gave it to the nurse Nina Pham. While Pham recovered, Thomas Duncan died of this illness. For 10 points, what deadly virus has, according to the CDC, killed over 8,000 people in Western African countries over the course of its 2014 outbreak?

ANSWER: Ebola <FK>

B2. Give the following about the works of Gustav Holst, for 10 points each,

[10] This suite which includes “Mars: the Bringer of War” and “Jupiter: The Bringer of Jollity” was one of Holst's most influential and popular compositions.

ANSWER: *The Planets*

[10] The last piece from *The Planets* was named after this planet, the “Mystic”. It was the farthest known planet in 1918, and the piece named for it called for an offstage choir slowly away.

ANSWER: Neptune

[10] Holst composed two suites for this type of ensemble, the first in E-flat and the second in F, the latter of which includes the Song of the Blacksmith and the Fantasia on the Dargason.

ANSWER: Military Band (prompt Concert Band, do not accept Brass Band)

**T3. This novel's protagonist "wouldn't mind calling up Isak Dinesen...or Thomas Hardy" but "not Somerset Maugham". The protagonist irritates his next-door roommate by calling him "Ackley-kid" and is irritated to learn that his roommate (\*) Stradlater's date is Jane Gallagher. This novel's protagonist writes an essay on his brother Allie's baseball mitt and prizes a red deer-hunting hat. The protagonist wonders, "Where do the ducks go in the winter?" on a visit to the Central Park Zoo with his sister Phoebe. For 10 points, Holden Caulfield leaves Pencey Prep. and wanders around New York City in what novel by J. D. Salinger?**

ANSWER: *The Catcher in the Rye*

B3. His great-uncle was Julius Caesar. For 10 points each,  
[10] Name this first Roman Emperor, who established the Praetorian Guard and whose armies defeated Marc Antony at the Battle of Actium.

ANSWER: Gaius Julius Caesar Augustus or Gaius Octavius or Octavian

[10] According to Roman historians, Augustus told Quintilius Varus to "give [him] back [his] legions" after the Roman defeat at this battle, fought against various Germanic Tribes under the leadership of Arminius.

ANSWER: Battle of the Teutoberg Forest [prompt on partial answer]

[10] Augustus and Marc Antony formed the Second Triumvirate with this man, who also served as the last Pontifex Maximus of Rome.

ANSWER: Marcus Aemilius Lepidus

**T4. In one memorandum, this man described how Kansas City bosses from the "goat" faction offered him the position of Eastern Judge for the County Court, starting his political career. That incident began this president's association with the Pendergast Machine. This president who enunciated the (\*) "Fair Deal" issued Executive Order 9981 to desegregate the military. Foreign policy actions during this man's presidency include the Berlin Airlift and the Potsdam Conference, which discussed war reparations against Nazi Germany. For 10 points, name this president who also dropped atomic bombs on Hiroshima and Nagasaki.**

ANSWER: Harry S. Truman

B4. For 10 points each, name some patriotic American painters.

[10] Parodies of this man's most famous painting depict its two figures as Legos and as Mickey and Minnie Mouse. This artist's original painting depicts a man holding a pitchfork standing next to his daughter in front of a Iowa farmhouse and is titled *American Gothic*.

ANSWER: Grant Wood

[10] A black girl is escorted past a racial slur in this artist's *The Problem We All Live With*. He also painted his reflection smoking a pipe in *Triple Self-Portrait* as well as the Four Freedom Series.

ANSWER: Norman Rockwell

[10] This painter included a Scot and an African American in the boat along with another man who holds an American flag in the center behind the title figure in his *Washington Crossing the Delaware*.

ANSWER: Emanuel Gottlieb Leutze <TB>

**T5. Primary oocyte development is arrested at this stage by follicular OMI in humans. One process that occurs in this stage is facilitated by the *meiosis*-specific DMC-1, and Holliday junctions can form during that process which occurs in this stage's pachytene sub-stage. (\*)** Four tetrads are clearly visible during diakinesis, which is the final sub-stage of this stage of the cell cycle. Chiasmata form during the aforementioned process, crossing over, which occurs after synapsis, or the pairing of homologous chromosomes, in this stage of the cell cycle. For 10 points, name this first stage of meiosis which precedes metaphase I.

ANSWER: **prophase I** [do not accept or prompt on just "prophase"; do not accept "prophase II"; prompt on "meiosis" until mention]

**B5. For 10 points each, name these early Poet Laureates from the UK.**

[10] Duessa represents the Catholic Church, while Gloriana represents Elizabeth I in a work which also features the Redcross Knight, *The Faerie Queen*, which is by this third British Poet Laureate.

ANSWER: Edmund **Spenser**

[10] This man wrote "To Celia", requesting the title character to "Drink to me only with thine eyes". This author of *Bartholomew Fair* also wrote a play about Subtle and Face using Lovewit's house for their mockery and deception.

ANSWER: Ben **Jonson**

[10] This Restoration poet wrote "MacFlecknoe" to mock his successor as Poet Laureate, Thomas Shadwell, as well as "Annus Mirabilis" to commemorate events such as the Great Fire in London in the year 1666.

ANSWER: John **Dryden**

**T6. This religion uses the ship *Freewinds* as a classroom for its exclusive OT VIII instruction. Practitioners of this religion can experience a setback or "ARC break", and move up the "Bridge to Total Freedom" through the therapy-like "auditing", which often involves use of an (\*) E-meter. One central theory of this religion divides the mind into "somatic", "analytic" and "reactive" components. Discontented Thetans linger from "Incident II" during which hydrogen bombs were detonated inside a volcano by the "Galactic Dictator" Xenu. For 10 points, name this religion which evolved out of L. Ron Hubbard's theory of dianetics.**

ANSWER: **Scientology**

**B6. Since the fall of the Soviet Union 25 years ago, the NHL has been populated by many players from central and eastern European countries. For 10 points each,**

[10] This player was one of the first to come to the US after being drafted 53<sup>rd</sup> overall out of Sweden by the Red Wings in 1989, and won 4 Stanley Cups and 6 Norris Trophies as the League's Best Defensemen.

ANSWER: Nicklas **Lidstrom**

[10] This player was the first Russian drafted first overall in 2004, a year before Sidney Crosby. He starred in a SportsCenter commercial as a spy, and has led the Washington Capitals in goals every post-lockout year.

ANSWER: Alexander **Ovechkin** [accept **Ovie**, prompt on Great Eight]

[10] This player played with both Ovechkin and Lidstrom. He was a member of the Russian 5, and scored more goals in the NHL than any other Russian. He now acts as a player and General Manager for CSKA Moscow.

ANSWER: Sergei **Federov** <BK>

**T7. In one work, this poet answers "the peach blossom flows downstream and is gone into the unknown" when he is asked "why [he] dwells on the green mountain". Another poem by this man**

**proclaims, “At fourteen [he] married [his] Lord”, the title character, before promising to come out and meet her “as far as (\*) Cho-fo-sa”. This poet “lowers his head and thinks of his hometown” in *Quiet Night Thought*, and Ezra Pound translated his poem *The River Merchant’s Wife*. For 10 points, name this Chinese “Immortal of the Wine Cup”, a contemporary of Du Fu who supposedly drowned while trying to grasp the moon.**

ANSWER: Li **Bai** [accept Li **Po**]

**B7. You really want to become a hacker. For 10 points each,**

**[10] This process is used to convert plaintext data into ciphertext data. Files that have gone through this process need to be “decrypted”.**

ANSWER: **Encryption**

**[10] These functions take data and give an almost unique ID to verify that data was transferred safely. Rainbow tables can be used to break them, and common ones include MD4 and MD5.**

ANSWER: **Hash** functions/algorithms

**[10] This cipher was used during Roman times by its namesake. It involves shifting every letter of a message down three letters.**

ANSWER: **Caesar** cipher <TC>

**T8. In one novel from this region, Augusto consults the author himself, who reveals that because Augusto is a character he cannot commit suicide. That work from this region is *Niebla* by Miguel de Unamuno. This region’s namesake language is one of the most prominent and widely-spoken ergative-absolutive languages, and this region’s namesake people were victorious at the Battle of (\*) Roncevaux [ron-suh-VOH] Pass against the legendary Roland. This region is home to the separatist ETA, as well as the city of Bilbao. For 10 points, name this autonomous region that spans from northern Spain to Southern France.**

ANSWER: **Basque Country** [accept Pais **Vasco** or **Euskadi**] <FK/TC>

**B8. Controversy surrounding the disputed election of this man led to the Compromise of 1877. For 10 points each,**

**[10] Name this president, who upon entering office ended military occupation of the South and the Reconstruction Era.**

ANSWER: Rutherford Birchard **Hayes**

**[10] This financial crisis during Reconstruction was one of the background causes of the end of Reconstruction. Rampant speculation in railroads was one cause of this crisis in the US.**

ANSWER: **Panic of 1873**

**[10] During Reconstruction, Ulysses S. Grant passed these three acts as criminal codes to protect the rights of African-Americans. Among them was the Klu Klux Klan Act.**

ANSWER: **Force Acts** [or **Enforcement** Acts]

**T9. Hel supposedly has one of these creatures named Garmr, and the Mayans believed that these animals were psychopomps. One of these animals, Laelaps, was given to Europa by Zeus, and the death of Cu Chulainn, who is (\*) named for this animal, was precipitated by him breaking a taboo by eating meat from this animal. During the Great Race, this animal played in the river and thus finished second-to-last to meet the Jade Emperor. Orpheus got into the underworld by lulling one of these creatures to sleep. For 10 points, Cerberus is a three-headed example of what animal?**

ANSWER: **dogs**

**B9. Nimaj Yooshij is considered the father of modern poetry in this language. For 10 points each,**

[10] Give this language used by the poet Hafez and studied by linguist Ahmad Kasravi. The seminal 20<sup>th</sup> century fiction writer in this language was Sadeg Hedayat, who used it in his *The Blind Owl*.

ANSWER: **Persian** [accept **Farsi**]

[10] Edward Fitzgerald translated this work from Persian to English. It contains the lines, "The Moving Finger writes; and having writ, Moves on" and "A Jug of Wine, and Loaf of Bread – and Thou/ Beside me singing in the wilderness".

ANSWER: **Rubaiyat** of Omar Khayyam

[10] This Persian writer of multiple "Diwans", including one dedicated to Shams ad-Din Tabrizi, is best remembered for the mystical Sufi poetry collected in his masterpiece, the *Mathnavi*.

ANSWER: Jalal ad-Din Muhammad **Rumi** [accept **Balkhi** in place of Rumi; accept **Mawlana** and **Mawlawi**]

**T10. In 2014, BICEP2 detected gravitational-wave-induced "B-mode" polarization in this entity, which is the strongest evidence yet for cosmic inflation. The inverse Compton Effect explains how electrons scatter this entity. This phenomenon's temperature fluctuations are studied by WMAP. Its (\*) anisotropies were detected by COBE, which also showed that this entity is a near-perfect fit to the blackbody spectrum at 2.7 Kelvin. It was discovered at Bell Labs by Arno Penzias and Robert Wilson. For 10 points, name this universe-pervading radiation, sometimes called the "echo" of the Big Bang.**

ANSWER: **CMBR** [accept **cosmic microwave background** radiation]

**B10. You are on a tightly-packed plane.**

[10] Your flight left from this US international airport that sees significantly less passenger traffic than the nearby O'Hare International Airport, which serves the same city as it.

ANSWER: Chicago **Midway** International Airport [prompt "the other Chicago airport" and such]

[10] Your flight is headed towards this Asian city, whose airport leads the world in cargo traffic by weight. It is located on Kowloon Peninsula on the eastern side of the Pearl River delta. It was transferred from the UK in 1997.

ANSWER: **Hong Kong**

[10] Your flight has a layover at this city, whose airport is the largest in the Middle East by passenger traffic. From this city's airport, you can easily hitch a cab to the nearby cities of Sharjah or Ajman.

ANSWER: **Dubai** International Airport

**T11. In 2013, NASA studied microbes on Mars by examining the Kobuk Sand Dunes in the northern part of this state. Wasilla and Homer are two cities in this state, and Mount Chamberlin is located in this state's Brooks Range. This state owns St. Lawrence Island, one of the last exposed regions of (\*) Beringia, as well as Kodiak Island located off the coast of the Katmai peninsula. Denali National Park is home to this state's largest mountain, Mt. McKinley, which can be seen from its largest city, Anchorage. For 10 points, name this largest state in the US.**

ANSWER: **Alaska** <SM>

**B11. Being poor sucks. For 10 points, name some things about a poignant representation of it.**

[10] In this photo taken on the SS *Kaiser Wilhelm II*, the lower class are in the foreground on the title part of the ship, separated from the upper class by a white drawbridge with chain railings.

ANSWER: **The Steerage**

[10] *The Steerage* was a photograph by this man who also led the Photo-Secession movement and owned the 291 gallery. He took also nude photographs of his wife.

ANSWER: Alfred **Stieglitz**

[10] That aforementioned wife is this painter who drew flowers in vivid color in paintings such as *Oriental Poppies* and *Cow's Skull with Calico Roses*.

ANSWER: Georgia O’Keeffe

T12. In one work by this man, two characters come across a 12-foot tall prehistoric human, and their compass points in the wrong direction after it is struck by lightning. In another novel by him, Passepartout rises from a funeral pyre to rescue Aouda, who is about to commit *sati*. In that novel, (\*) Phileas Fogg wins a bet because he gained a day by travelling eastward. Professor Aronnax and harpoonist Ned Land are captured aboard Captain Nemo’s *Nautilus* in another novel by this man. For 10 points, name this author of *Around the World in Eighty Days*, *Journey to the Center of the Earth*, and *20,000 Leagues Under the Sea*.

ANSWER: Jules Verne

B12. Subshells are denoted by the azimuthal quantum number, also known as this quantum number. For 10 points each,

[10] Give this quantity defined as the cross product of position and its linear analogue. This quantity is equal to moment of inertia times angular velocity, and is symbolized L.

ANSWER: angular momentum

[10] The angular momentum quantum number should not be confused with this other quantum number, which is a measure of particles’ intrinsic angular momentum. Fermions can only have half-integer values for this quantum number.

ANSWER: spin quantum number

[10] This third quantum number describes the orientation of an orbital in space. The range of possible values for this quantum number is plus or minus the angular momentum quantum number.

ANSWER: magnetic quantum number [accept m]

T13. Among the leaders at this meeting were Diego Laynez and Charles Borromeo, who heavily contributed to this meeting’s namesake catechism. During it, the *Index Liborum Prohibitorum* was confirmed, and Palestrina’s *Pope Marcellus Mass* is often falsely associated with this council. Pope Pius IV issued the (\*) *Benedictus Deus* bull during this meeting, which demanded strict obedience for all Catholics. This council, which was concurrent with the wars of Charles V, defined transubstantiation and rejected justification by faith alone. For ten points, name this Church Council that was a driving force of the Counter-Reformation.

ANSWER: Council of Trent [accept just “Trent” after “council”, prompt partial beforehand]

B13. The title character’s namesake stanza has the rhyme scheme “ABAB CCDD EFFE GG”. For 10 points each,

[10] The title character of this 390 stanza work initially rejects Olga’s timid sister Tatyana and is later rejected by her. That title character reluctantly kills Lensky in a duel.

ANSWER: Eugene Onegin

[10] Evgenii curses the titular equestrian statue of Peter the Great in this author’s “The Bronze Horseman”. This man also wrote *Boris Godunov* and *Eugene Onegin*.

ANSWER: Alexander Pushkin

[10] In this Pushkin novel, Pyotr gives his hareskin coat to a man who saves him in a blizzard and later turns out to be Pugachev. Pugachev spares Pyotr, who eventually marries the title character, Masha.

ANSWER: The Captain’s Daughter [accept Kapitanskaya dochka]

T14. In one work by this artist, a round, reflective bottle is juxtaposed with a carved bird that has a human head, while in another, this artist downsizes apartments to fit next to books and playing cards on top of a table. This artist’s (\*) tessellations include one where birds at the top transition to fish

toward the bottom, while in another work, a self-portrait of this artist can be seen in a sphere. He drew large red ants on a Mobius strip in one work and an endless “waterfall” in another. For 10 points, name this artist of trippy works such as *Relativity*, of an endless staircase, and *Drawing Hands*, of two hands drawing each other.

ANSWER: M (aurits) C (ornelis) Escher <FK>

**B14. For 10 points each, name some feminist philosophers.**

[10] This female existentialist author and lover of Jean-Paul Sartre wrote that women have constructed themselves as “the Other” and that “One is not born, but rather becomes, a woman” in *The Second Sex*.

ANSWER: Simone de Beauvoir

[10] This British feminist and husband of William Godwin advocated for women’s education in a work set during the French Revolution titled *A Vindication of the Rights of Women*.

ANSWER: Mary Wollstonecraft

[10] This man collaborated with his wife Harriet Taylor on a work that supported gender equality and woman’s suffrage called *The Subjection of Women*, although he is better known for works *On Liberty* and *Utilitarianism*.

ANSWER: John Stuart Mill

**T15. Materials exhibiting this property follow a relation between permeability and intensity of the applied magnetic field, as shown in a curve named after Stoletov. Areas of aligned magnetic moments called Weiss domains form spontaneously in this type of material. A series of (\*) clicks can be produced by increasing the magnetic field applied to materials that exhibit this; those clicks are called Barkhausen noise, and they occur due to the lag in acquiring it, which is called hysteresis. This phenomenon disappears above the Curie temperature. For 10 points, give this property, a form of ‘permanent’ magnetism that occurs in iron.**

ANSWER: ferromagnetism [accept word forms]

**B15. The term “*qarin*” refers to the personal one of these creations that, according to one interpretation, “whispers” suggestions into the mind of its human companion. For 10 points each,**

[10] Name these supernatural creations that are made of “smokeless fire” according to their namesake *surah* in the Qur’an. The prophet Sulayman was notably gifted with the power to control these creatures.

ANSWER: jinn [be lenient on pronunciation]

[10] Although not all *jinn* are evil, this evil *jinn* refused to bow before Adam and thus disobeyed God. This figure is canonically depicted as the serpent who convinced Adam and Eve to eat the Forbidden Fruit.

ANSWER: Satan [accept Devil, Lucifer, Beelzebub, Azazel, Iblis, Shaiytan and other clear-knowledge equivalents]

[10] The only mention of Satan in the Hebrew Bible is in this book. Satan is allowed to take away the title figure’s wealth and children, but that figure is consoled by Eliphaz, Bildad and Zophar, and remains patient with God.

ANSWER: Book of Job

T16. **The term for this economic condition first appears in Aristotle's *Politics*, referring to the olive industry. In this market condition, the Herfindahl index is 10,000. A firm in this condition will shut down only if price is less than average variable cost at every output level. A perfectly price-discriminating firm in this condition will cause consumer surplus to go to (\*) zero.** The natural form of this condition can be caused by high entry costs or singular control of certain natural resources. For 10 points, name this economic condition in which efficiency is not reached since a product market is dominated by one firm, such as Standard Oil historically.

ANSWER: monopoly <BK>

B16. Answer the following about creation myths. For 10 points each,

[10] In Greek mythology, this first-generation sky god mated with Gaia and was castrated by his son Cronus.

ANSWER: Uranus or Ouranos

[10] These people's creation myth involves a character known as "Rainbow Serpent" or "Old Woman", who is evoked during Dreamtime.

ANSWER: Australian Aboriginal Peoples [accept clear-knowledge equivalents]

[10] This avian figure from Northwest Native American myth systems is said to have turned into a speck of dust or dirt and then birthed as a baby, who released the moon, stars, and sun.

ANSWER: Raven [do not accept "Crow"]

T17. **This leader's associations with his country's Communist Party led to the failure of the Defiance Campaign. Born to a royal Thembu family, this leader created the Umkhonto we Sizwe in his country, and later he established the Truth and Reconciliation Commission. He was arrested and prosecuted during the (\*) Rivonia Trial, and titled his autobiography *Long Walk to Freedom*. As a prisoner on Robben Island, this man negotiated his release with the help of F. W. de Klerk.** For 10 points, name this leader who, as head of the African National Congress, was the first black president of post-Apartheid South Africa.

ANSWER: Nelson Rolihlahla Mandela [accept "Madiba" or "Tata"]

B17. This character kills himself beneath a pine tree and leaves his epitaph written on a 2 of clubs. For 10 points,

[10] Name this character who is stranded along with "The Innocent", Piney, The Duchess, Mother Shipton, and Uncle Billy on his way from Poker Flat to Sandy Bar.

ANSWER: John Oakhurst [accept either underlined name]

[10] Oakhurst ultimately names the title character of this short story, who is known as "the Kid" or "the Cayote" after Cherokee Sal dies giving birth to him. That character is also called "Stumpy's boy".

ANSWER: *The Luck of Roaring Camp*

[10] *The Outcasts of Poker Flat* and *The Luck of Roaring Camp* are by this American author.

ANSWER: Francis Bret Harte

T18. **This composer scored a ballet whose original title was "The Tale of the Buffoon who Outwits Seven Other Buffoons", *Chout* [SHOOT]. His first symphony was composed to match the style of Haydn, leading it to be dubbed Classical. This composer scored a film about a military officer that exists only on paper due to a copying error, and in another work, (\*) Fata Morgana curses a prince for laughing at her fall.** This composer of *Lieutenant Kije* also composed one work where the Duck is represented by an oboe and the Wolf by French horns. For 10 points, name this Russian composer of *The Love for Three Oranges* and *Peter and the Wolf*.

ANSWER: Sergei Prokofiev



B18. This archaeological site was once the largest city in North America not in Mexico. For 10 points each:  
 [10] Name this historic site located just outside of St. Louis, which includes over 120 mounds such as Monk's Mound and the American Woodhenge.

ANSWER: **Cahokia Mounds State Historical Site**

[10] Cahokia was inhabited by people from this North American culture, whose other sites include Kincaid Mounds and Angel Mounds. Their name is taken from the major river that flows through St. Louis.

ANSWER: **Mississippian Culture**

[10] The Anasazi culture, in pre-Columbian times, created buildings of this type into cliffside, as enshrined in Mesa Verde National Park. They are created from adobe mud and feature living units stacked on top of one another accessible by ladder.

ANSWER: **Pueblo**

**T19. One character in this play eats cucumber sandwiches prepared for his Aunt Augusta. Two characters in this play are scheduled to be baptized on the same day by Dr. (\*)** Chauncey. Mr. Thomas Cardew finds one character in this play, who was left in a handbag in the cloakroom of Victoria Station by Miss Prism. The inscription "From little Cecily, with her fondest love to her dear Uncle Jack" on a cigarette case confirms Algernon's suspicions that Jack is "Bunbury-ing". For 10 points, Jack Worthing's given name turns out to be Ernest in what play with a punny title by Oscar Wilde?

ANSWER: *The **Importance of Being Earnest***

B19. The collapse of one of these causes the set of all probabilities to randomly assume one possible value. For 10 points each,

[10] Give these functions that contain all the information about the quantum state of a system, such as the probability of finding a particle at a given position and time. They are usually represented by *psi*.

ANSWER: **wavefunctions**

[10] This man's namesake equation describes how wavefunctions change over time in a given system. In a thought experiment named for this man's cat, the cat is simultaneously alive or dead depending on random, earlier events.

ANSWER: Erwin **Schrodinger**

[10] This approximation applies the Schrodinger equation to calculate the wavefunction of a molecule. It adds the separately-computed electronic and nuclear components of a wavefunction.

ANSWER: **Born-Oppenheimer** approximation

**T20. One of these particles can be ejected after it absorbs the energy of a "falling" one in the Auger effect. The wave nature of this particle was accidentally discovered in the Davisson-Germer experiment, the first experiment to prove (\*)** wave-particle duality. J. J. Thomson discovered these

particles in cathode rays. Hund's rule and Aufbau concern the placement of these particles within an element's orbitals. These particles' charge was first measured in the oil drop experiment conducted by Robert Mulliken. For 10 points, give this negatively-charged subatomic particle that orbits the nucleus.

ANSWER: **electrons**

B20. He founded the House of Orange-Nassau. For 10 points each,

[10] Name this stadtholder [STAHT-hold-er] who led an insurrection against Spainist rule in his country at the onset of the Eighty Years' War, and was assassinated by the Jesuit Balthasar Gérard.

ANSWER: **William I** or **William the Silent** [prompt on "William of Orange," prompt on "William"]

[10] The Eighty Years' War is considered to be a War of Independence for this modern-day nation with capital at Amsterdam.

ANSWER: Kingdom of the **Netherlands**

[10] During the Eighty Years' War, this governor-general of the Hapsburg Netherlands instituted the Council of Troubles, also known as the Council of Blood, to quell the insurrections against Spanish rule.

ANSWER: Fernando Álvarez de Toledo, 3rd Duke of Alba [accept either underlined portion, accept Duke of Alva]

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**TB. In one work by this author, Octave de Malivert goes through a tumultuous relationship with the title character, while in another, a power-hungry character and his mistress forge a letter that incriminates M. Valenod, whose informant is the mistress' jealous maid, Elisa. In addition to (\*) *Armance*, this author wrote about Gina who helps Celia Conti's future baby daddy, Fabrizio del Dongo, get out of prison in *The Charterhouse of Parma*. Mme. de Renal prevents Julien Sorel from marrying Mathilde de la Mole in one aforementioned novel by him. For 10 points, name this French author of *The Red and the Black*.**

ANSWER: Stendhal [Marie-Henri Beyle]