**VHSL States 2016-2017 - Round 01 - First Period, Fifteen Tossups**

1. In a story in this collection, Little Chandler becomes increasingly embittered with his life after meeting a friend who has become a success in London. In another story in this collection, a boy who goes to the bazaar to buy a gift for Mangan's sister is disappointed when he finds that most of the shops are closed. Gretta recalls a boy she loved in her youth, much to the surprise of her husband Gabriel Conroy, in this collection's final story, "The Dead." For 10 points, name this short story collection by James Joyce about the title residents of the Irish capital.
ANSWER: ***Dubliners***

2. In this film's post-credits scene, a character wonders whether folks would like him more if he was a Jamaican crab named Sebastian. Two characters in this movie retrieve a magic hook from a singing crab in the Realm of Monsters. Lin-Manuel Miranda contributed to the score for this movie, in which the protagonist restores the heart of Te Fiti with the help of the demigod Maui (MOWW-ee). For 10 points, name this 2016 Disney animated movie about the sea-faring adventures of the title Polynesian girl.
ANSWER: ***Moana***

3. The Phaeceans (FAY-see-UNZ) arose from where an object used to attack this god was buried. A group of ash tree nymphs called the Meliae (MELL-ee-AY) were born from the blood of this god, whose Roman equivalent was Caelus. A part of this god's body was used as a raft by Aphrodite. After imprisoning several of his children in Tartarus, this god was attacked by Cronus and castrated using a flint sickle. For 10 points, name this father of the Titans and husband of Gaia (GUY-uh), the god of the sky in Greek mythology.
ANSWER: **Ouranos** [or **Uranus**; or **Caelus** until it is read]

4. Members of the government of this country's former president Alvaro Uribe were convicted of colluding with the paramilitary group AUC. This country's president won the 2016 Nobel Peace Prize for a peace agreement negotiated in Havana, although it was rejected in a national referendum held in October. That peace agreement would have ended the guerrilla war that has continued for over 50 years in this country and allowed the left-wing FARC (FARK) to become a political party. For 10 points, name this South American country led by Juan Manuel Santos.
ANSWER: Republic of **Colombia**

5. Gustav Mahler's symphony of this number has no proper key and begins with a trumpet solo opening a funeral march in C-sharp minor. Felix Mendelssohn's symphony of this number is in D major, was written for an anniversary of the Augsburg Confession, and is known as the "Reformation" Symphony. Beethoven's symphony of this number in C minor features what is popularly known as the "fate" motif. For 10 points, give this symphony number, exemplified by Beethoven's beginning with an iconic "short-short-short-long" motif.
ANSWER: **5**

6. A king during this dynasty deposed his queen in favor of the beautiful commoner Bao Si. During the reign of this dynasty, numerous philosophies emerged during the Hundred Schools of Thought period. The longest-reigning dynasty in Chinese history, it invented the concept of the Mandate of Heaven and its later Eastern phase was marked by the "Spring and Autumn" and "Warring States" periods. For 10 points, Confucius was active during what Chinese dynasty that supplanted the Shang dynasty?
ANSWER: **Zhou** (JOE) dynasty [or Western **Zhou**; or Eastern **Zhou**]

7. This biome is home to the only C4 plants that do not exhibit Kranz anatomy. Animals adapted to live here are called xerocoles. They are classified on the Koppen scale as BWh or BWk. Rocky areas in this biome are called hamadas. This biome is often found near mountains as a result of the rain-shadow effect. Salt pans are found in this biome, and a natural spring or aquifer can create an oasis here. For 10 points, name this biome characterized by very low amounts of precipitation, exemplified by the Sahara.
ANSWER: **desert**s

8. This man's failed presidential campaign was managed by future Vice-President Dick Cheney. He introduced the "WIN" or "Whip Inflation Now" program. Upon becoming President, this man announced "our long national nightmare is over." This President's wife founded a namesake center to treat drug addiction. This man was named to one position after the resignation of Spiro Agnew, and achieved a higher position in 1974 following another resignation. For 10 points, what U.S. President pardoned his predecessor, Richard Nixon?
ANSWER: Gerald **Ford** Jr. [or Leslie Lynch **King** Jr.]

9. A wildly unpopular tram service linking this city's centre to its airport has a depot at Gogar and was opened in 2014. The Salisbury Crags can be found on the west side of this city's tallest hill, Arthur's Seat. A valley between this city's Old and New Towns holds the Waverley Railway Station. This city's Royal Mile runs from Holyrood Palace up to a castle built on an extinct volcano. The Water of Leith drains towards the Firth of Forth through this city. For 10 points, name this capital city of Scotland.
ANSWER: **Edinburgh**

10. Manfried Eigen proposed that the early products of this process could have overcome the "error threshold" via hypercycles. Hypotheses on this process involve pH gradients from alkaline (AL-kuh-line) vents and polymerization (puh-LIM-uh-rye-ZAY-shun) in a reducing atmosphere. Water, ammonia, methane, and hydrogen were mixed in a spark chamber to test the Oparin-Haldane hypothesis of this process in the Urey-Miller experiment, which yielded *de novo* amino acids. For 10 points, name this event in which life arose from non-living matter.
ANSWER: **abiogenesis** [or the **origin of life**; or **abiotic synthesis**; or **biopoesis**]

11. Autosplenectomy (auto-splen-EK-toh-me) most often occurs as a complication of this disease. Hydroxyurea (hye-DROX-ee-yuh-REE-uh) can increase expression of the fetal form of a protein to help control this disease. It arises from a glutamic acid-to-valine substitution that persists in the gene pool since heterozygosity (het-uh-ro-zy-GOSS-ih-tee) for it confers resistance to malaria. In this disease, hemoglobin clumps into fibers and deforms cells. For 10 points, name this disease in which red blood cells take on a namesake curved shape.
ANSWER: **sickle-cell** anemia

12. A character with this profession is attracted to a woman who derives her romantic ideas from her fervent novel-reading, but he is trapped in a loveless marriage to Heloise Dubuc. Another character with this profession falls in love with a woman who shoots at but fails to kill Komarovsky (ko-mah-ROFF-skee) at a party. The aforementioned character with this profession becomes the lover of Lara Antipov. Emma Bovary's husband Charles has this profession. For 10 points, what is the profession of Boris Pasternak's character Yuri Zhivago?
ANSWER: **doctor** [or **physician**; or obvious equivalents]

13. The existence of this quantity was posited after a beam of silver atoms passed through an inhomogenous magnetic field and generated discrete spots on a detector in the Stern-Gerlach experiment. This quantity takes on integer values for bosons and half-integer values for fermions. If two electrons are in the same orbital, they must have different values for this quantity according to the Pauli exclusion principle. For 10 points, what is the fourth quantum number, which is plus or minus one-half for electrons?
ANSWER: **spin** angular momentum [or **m**-sub-**s**]

14. Leaders of this tribe included a man known as Billy Bowlegs. It signed the controversial Treaty of Payne's Landing with the United States. Zachary Taylor earned the nickname "Old Rough and Ready" when fighting this tribe. It carried out the Dade Massacre and claimed a victory in the Battle of Lake Okeechobee. From 1835 to 1842, this tribe fought such generals as Andrew Jackson and followed a chief named Osceola (OSS-ee-OH-la). For 10 points, what American Indian tribe fought three wars against the U.S. in modern-day Florida?
ANSWER: **Seminole**s

15. This opera's main male character is protected by the corrupt police chief Tiger Brown. It begins with a "moritat singer" discussing the "pearly white" teeth of a shark. In different stagings of this opera, a song about a heavily armed black freighter destroying London is sung by either Polly Peachum or Jenny Diver. The creators of this opera labeled it a "play with music" and based it on John Gay's *Beggar's Opera*. It is the source of the jazz standard "Mack the Knife." For 10 points, name this 1928 opera by Kurt Weill and Bertolt Brecht.
ANSWER: *The* ***Threepenny*** *Opera* [or *Die* ***Dreigroschen****opera*]

 **VHSL States 2016-2017 - Round 01 - Directed Period**

1A. What piano suite by Modest Mussorgsky was inspired by the sketches of Viktor Hartmann and orchestrated by Maurice Ravel?
ANSWER: ***Pictures at an Exhibition*** [or ***Kartínki s Výstavki***]

1B. In what Virginia Woolf novel are Charles Tansley and Lily Briscoe guests of the Ramsay family?
ANSWER: ***To the Lighthouse***

2A. If all you knew about a teacher was that she was a "neophyte" (NEE-oh-FIGHT), what is the only thing you know about that teacher?
ANSWER: she is **new** [or **inexperienced**; or a **rookie**; or obvious equivalents]

2B. What ancient people fought the Egyptians at the Battle of Kadesh?
ANSWER: **Hittite**s

3A. This is a 20-second calculation question. ABCD is a square with side length 3. EFGH is a square inscribed in ABCD in such a way that point E is on segment AB one unit away from A. What is the area of EFGH?
ANSWER: **5** [By the Pythagorean Theorem, the area(EFGH)=EF^2=1^2+2^2=5.]

3B. This is a 20-second calculation question. Find all solutions between zero and two pi to the equation (sine of 2x) minus one equals zero. (Moderator: be clear that this is subtracting one from the sine of 2x, not the sine of [2x-1] in total)
ANSWER: x = **pi/4, 5 pi/4** [or **45 degrees, 225 degrees**; both answers required in each case] [sine equals one at pi/2, 5pi/2, etc; to solve for x we then divide by 2. Only the first two answers are smaller than two pi.]

4A. Muscle Shoals is on what southern U.S. river, on which a namesake "Valley Authority" built several dams starting in the 1930s?
ANSWER: **Tennessee** River

4B. What Colonial American poet wrote "Verses upon the Burning of Our House"?
ANSWER: Anne **Bradstreet**

5A. What force is the combination of electric and magnetic forces on a moving, charged particle?
ANSWER: **Lorentz** force

5B. What former astronaut and Senator died in December of 2016?
ANSWER: John **Glenn** Jr.

6A. What Asian city was once known as Edo (EE-doh)?
ANSWER: **Tokyo**

6B. Amharic is a Semitic language that is the official language of what African country?
ANSWER: Federal Democratic Republic of **Ethiopia**

7A. What reality show was once hosted by Donald Trump, who used the catch phrase "You're fired"?
ANSWER: *The* ***Apprentice*** [or *The Celebrity* ***Apprentice***]

7B. What principle, sometimes named for Erwin Madelung (AIR-vehn MAH-duh-lung), states that electrons preferentially fill lower energy levels before higher energy levels?
ANSWER: **Aufbau** (AUWF-bauw) principle [or **diagonal** rule; or **Janet** rule; or **Klechkowsky** rule]

8A. This is a 30-second calculation question. One factor of the polynomial x^3-37x-84 ("x cubed minus 37 x minus 84") is x-7. What are the other two factors?
ANSWER: **x+3** and **x+4** (accept in either order) [Using long division, we see that (x^3-37x-84)/(x-7)=(x^2+7x+12), so we factor (x^2+7x+12) as (x+3)(x+4).]

8B. This is a 30-second calculation question. Consider the data set consisting of the first 6 powers of 2 starting from 1. What is the positive difference between the mean of this data set and the median?
ANSWER: **4.5** or **9/2** [The median is the average of the middle two, 4 and 8. The mean is (1+2+4+8+16+32)/6=63/6=10.5. The difference is 10.5-6.]

9A. What American author wrote about the death of Gary Gilmore in *The Executioner's Song*?
ANSWER: Norman **Mailer**

9B. What railroad owner and so-called "robber baron" was known as the Commodore?
ANSWER: Cornelius **Vanderbilt**

10A. What culture's mythology includes spirits that live in waterholes called bunyips, and creator beings that moved along songlines during the Dreamtime?
ANSWER: Australian **aborigines** [or **aboriginal** culture; or native **Australian**s]

10B. What geometric inequality states that for any three points A, B, and C, the sum of the distances from A to B and from B to C is *at least* the distance from A to C?
ANSWER: **triangle** inequality

 **VHSL States 2016-2017 - Round 01 - Third Period, Fifteen Tossups**

1. In this religion, the gaze of a dog was considered to be purifying. In the eschatology of this religion, a saoshyant (SAWSH-yunt) figure will bring about the final revolution of the world. This religion reinforces the motto "good thoughts, good words, good actions." The common household book of prayer in this religion is called the Khordeh (CORE-duh) Avesta, and this religion pits the "evil" Angra Mainyu against the "good" Ahura Mazda. For 10 point, name this dualistic Persian religion that worships in fire temples.
ANSWER: **Zoroastrian**ism [or **Mazda**ism until "Mazda"]

2. This shape can be drawn by fixing the ends of a piece of string and moving a pencil that keeps the string taut. The square root of the quantity one minus a-squared over b-squared, end quantity, is this shape's eccentricity when its equation in written in the standard form x-squared over a-squared plus y-squared over b-squared equals one. The area of this shape is pi over four times the product of its major and minor axes. For 10 points, name this conic section shaped like an elongated circle.
ANSWER: **ellipse**

3. A ruler of this empire adopted the foreigner Khosrau (KOSE-roww) II after helping to place him on the throne. That leader of this empire, Maurice, was assassinated by Phocas (FOE-cuss). In 628, this empire ended a perpetual series of wars with the Sassanid Empire. It was led by such dynasties as the Heraclians and Isaurians (eye-SORE-ee-anz), whose emperors included Leo III. A ruler of this empire dispatched the general Belisarius to reclaim Africa from the Vandals. For 10 points, what empire was ruled by such men as Justinian the Great?
ANSWER: **Byzantine** Empire [or **Eastern Roman** Empire; do not accept "Roman Empire"]

4. An enzyme that synthesizes this vitamin, GULO, was inactivated in some primates 63 million years ago. This vitamin is required for the function of dopamine beta-hydroxylase (hy-DROX-uh-lace), which creates norepinephrine (nor-ep-uh-NEF-rin), and is a cofactor for the enzymes that hydroxylate (hy-DROX-uh-late) lysine (LY-seen) and proline as part of collagen synthesis. Deficiency of this vitamin causes muscle pain, easy bruising, and gum bleeding. For 10 points, name this vitamin found in citrus fruits, whose deficiency causes scurvy.
ANSWER: vitamin **C** [or **ascorbic acid**; or **ascorbate**]

5. In a work on "Elements of" this linguistic concept, Lucien Tesniere (TEZ-nee-AIR) introduced the ideas of 'connections' and 'stemmas.' Noun-verb agreement and noun-number agreement are rules that pertain to this linguistic concept. "Colorless green ideas sleep furiously" is an example of a sentence that is correct with respect to this, but has no semantic meaning, and was published by Noam Chomsky in a book about its namesake structures. For 10 points, give this set of rules in linguistics that govern the order of words.
ANSWER: **syntax**

6. In Hindu mythology, these events are caused by the yawning of Sesha or when one of the Mahapadma (MAH-ah-POD-mah) gets tired. In another myth system, these events occur when Kashima is unable to prevent the thrashing of a giant catfish called Namazu. When Sigyn (SIG-unn) is unable to catch the venom dripping on Loki's face, one of these events results. For 10 points, name these natural disasters, which in Greek mythology occurs when Poseidon strikes the ground with his trident and shakes the world.
ANSWER: earth**quake** [or **tremor**]

7. On this show, Mari McCabe makes a cameo after the protagonist's illegitimate son William is kidnapped. One character on this show jokes that it "must be May" when the city is attacked by a figure empowered by the Kushu idol; that character, Damien Dahrk, is the leader of H.I.V.E. and fatally stabbed Laurel Lance during a prison break. The protagonist of this show spent two years trapped on the island of Lian Yu, where he learned archery. For 10 points, name this CW show about the millionaire crimefighter Oliver Queen.
ANSWER: ***Arrow***

8. For a process in which this quantity is held constant, the heat is equal to the change in enthalpy. This quantity is kept constant in a calorimeter created using two Styrofoam cups. The boiling point is the temperature at which the "vapor" type of this property is equal to its ambient value, which explains boiling point elevation. This quantity is equal to number of moles times gas constant times temperature, all over volume, according to the ideal gas law. For 10 points, name this quantity that is measured in pascals and atmospheres.
ANSWER: **pressure** [or **P**]

9. This is the only state that celebrates Victory over Japan Day as an official holiday. The original Quonset huts were manufactured in this state, which is also home to several coastal mansions, including The Breakers built for the Vanderbilt family. A large jazz festival is held every summer in this state's city of Newport. Narragansett Bay mostly juts into this state, whose capital is home to Brown University. For 10 points, name this small state whose official name includes the phrase "Providence Plantations."
ANSWER: State of **Rhode Island** and Providence Plantations

10. A sniper from this country killed over 500 men and was known as "White Death." NATO members used this country's name in a term referring to the domination of an independent country by an outside nation. During a conflict, this country maintained the defensive Mannerheim Line and invented the "Molotov cocktail" weapon. An invasion of this country resulted in the expulsion of the attacker, Joseph Stalin's country, from the League of Nations. For 10 points, what country lost the Winter War to its eastern neighbor, the Soviet Union?
ANSWER: Republic of **Finland**

11. In a play by this author, a man who loves gambling is told that he must meet with the "Queen of Fairy" to bring him fortune. In that play by this man, Abel Drugger is instructed to purchase a Spanish costume so he can woo the rich widow Dame Pliant. This playwright created the con artists Face and Subtle. In another of his plays, the title character pretends to be dying so that Voltore, Corbaccio, and Corvino will pander to him. For 10 points, name this Elizabethan comic playwright of *The Alchemist* and *Volpone.*
ANSWER: Ben **Jonson**

12. This artist included the wire-and-cloth *Fanni, the Belly Dancer* in his namesake animatronic "circus." This man's grandfather sculpted the statue of William Penn on top of Philadelphia City Hall. He created the red painted-steel *Flamingo* for Chicago's Federal Plaza. For the main stairwell of New York City's MoMA, he suspended one of his earliest examples of kinetic sculpture, the wire-and-steel *Lobster Trap and Fish Tail.* For 10 points, name this American sculptor of stabiles and mobiles.
ANSWER: Alexander **Calder** [or Sandy **Calder**]

13. This policy was the primary goal advocated for by Wayne Wheeler and the ASL. Places known as "blind pigs" were created to oppose this policy. The Volstead Act helped define this policy, which had long been advocated for by crusading women like Carrie Nation and groups like the WCTU. In order to get around this policy, many Americans went to speakeasies or engaged in bootlegging. For 10 points, what American policy was created by the 18th Amendment in 1920, which banned the sale of alcoholic beverages?
ANSWER: **Prohibition** [or the **Eighteenth Amendment** until it is read; prompt on temperance]

14. This poem's speaker describes how a man who was "imperially slim…was always human when he talked." This poem's last stanza describes how "we…went without the meat, and cursed the bread." This poem's speaker is one of the "people on the pavement" who admire a man who "fluttered pulses when he said, 'Good morning'" and "glittered when he walked." "One calm summer night," the title character of this poem "went home and put a bullet through his head." For 10 points, name this short poem by Edwin Arlington Robinson.
ANSWER: "**Richard Cory**"

15. In this novel, an affair with Dmitri Desjardins causes the protagonist to divorce his wife, who is nicknamed "Mouse." In this novel, the protagonist dates Kim and Ruth as a student, but marries his childhood acquaintance Moushumi after his father's death. A missing letter from Ashima's grandmother delays the naming of this novel's protagonist until he is finally named for his father's favorite Russian author. For 10 points, name this novel about Ashoke and Gogol Ganguli written by Jhumpa Lahiri.
ANSWER: *The* ***Namesake***

 **VHSL States 2016-2017 - Round 01 - Tiebreaker Questions**

1. George Berkeley's proof of this idea relied on the fact that ideas are passive and require constant perception in order to exist. An argument involving a watch found on a heath was advanced by William Paley in support of this idea. Anselm of Canterbury's argument about this idea involved considering a maximally perfect being, and was excluded from the proofs of another thinker, which included the unmoved mover and first arguments. For 10 points, name this subject of five arguments collected by Thomas Aquinas, the idea that a deity is real.
ANSWER: the existence of **God** [or obvious equivalents]

2. The NumPy package adds these data structures to Python. Associative examples of these items are use to store key-value pairs. Java requires that their index variables be in-bounds, catching many errors caused by looping through these structures starting at one instead of zero. Curly braces are used to define their values in Java. Appending the name of these items with a number in square brackets allows one to access their individual elements. For 10 points, what structures contain elements of the same data type, often stored contiguously in memory?
ANSWER: **array**

3. The protagonist of this novel has a dream inside a glass paperweight in which he realizes he did not murder his mother. In this novel, the protagonist has coughing fits that disturb his Physical Jerks. Its protagonist saw Jones, Aaronson, and Rutherford eating at the Chestnut Tree Cafe, where he later spends his afternoons drinking Victory Gin. After being tortured by O'Brien in Room 101 of the Ministry of Love, this novel's protagonist realizes that he loves Big Brother. For 10 points, name this dystopian novel about Winston Smith written by George Orwell.
ANSWER: ***Nineteen Eighty-Four***

4. This event was investigated by a commission chaired by former Secretary of State William Rogers. In response to this event, lines about people slipping "the surly bonds of Earth to touch the face of God" were read on television by Ronald Reagan. A New Hampshire teacher named Christa McAuliffe died during this event, which was caused by a failure in the O-rings sealing a joint on the right solid rocket booster. For 10 points, what January 1986 disaster resulted in seven deaths when a NASA Space Shuttle exploded?
ANSWER: The ***Challenger*** disaster

5. In a painting by this artist, a man sitting atop a giant book on a column surveys a scene including a Gothic cathedral, Greek and Roman temples, and an Egyptian pyramid. This artist of *The Architect's Dream* was depicted conversing with William Cullen Bryant in Asher Durand's *Kindred Spirits.* This artist painted a view from Mount Holyoke of a bend in the stormy Connecticut River. For 10 points, name this American artist from the Hudson River School who painted *The Oxbow.*
ANSWER: Thomas **Cole**

Find the area of a right triangle with a hypotenuse of 7 and a leg of length 4.
ANSWER: **2** times the square **root** of **33** (2sqrt33) [By the Pythagorean Theorem, the other leg is sqrt(7^2-4^2)=sqrt(33). The area is half the product of the legs.]

What ancient Greek philosopher posited the construction of all matter from the four classical elements in his *On Nature* and who supposedly died by throwing himself into Mount Etna?
ANSWER: **Empedocles** (emm-PEH-duh-KLEEZ)