|  |  |
| --- | --- |
| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Conference Tournament 2015****Round 2****First Period, Fifteen Tossups** |

1. This country is the site of the Wikki Warm Spring in its Yankari National Park. This country's capital city is located near two large monolithic rocks called Aso Rock and Zuma Rock. A type of scam often run through email is called a 419, named for an article number from this country's law code. This country's former capital city, which lost that status in 1991, is still the largest city in Africa. For 10 points, name this African country that moved its capital to the planned city of Abuja from Lagos.
ANSWER: Federal Republic of **Nigeria**

2. This data type is most commonly represented using two's complement notation. Operations on this data type are performed by an ALU. Variables of this type can be modified by the words "short" and "long". If a variable is of this type and "unsigned", it cannot be negative. The "float" data type was developed because variables of this data type cannot represent most reals. For 10 points, name this data type used to represent whole numbers in computer science.
ANSWER: **int**egers [or u **int** ; or **integral** data type; prompt on **binary**number]

3. As a state legislator, this man sponsored an anti-British resolution requiring his colleagues to wear American-made suits, leading to a duel with Humphrey Marshall. This man advocated national financing of the Maysville Road as part of his "American System." He was the runner-up in the Presidential elections of 1832 and 1844, after dropping out of the 1824 race in an alleged "Corrupt Bargain." For 10 points, name this "Great Compromiser" and leader of the Whigs in Congress during the 1830s and 40s as a Senator from Kentucky.
ANSWER: Henry **Clay**

4. Radiation of these particles causes the displacement of atoms in the Wigner effect. These particles, which are the only non-elements represented on the table of nuclides, can undergo beta-minus decay when isolated. These particles are made of one up quark and two down quarks. In nuclear reactors, these particles are used to strike uranium-235 atoms, creating chain reactions. These particles were discovered by James Chadwick. For 10 points, name these subatomic particles which are found in the atomic nucleus with protons.
ANSWER: **neutron**s

5. After this person retrieved two hundred foreskins, he was given Michal's hand in marriage. Before dying, he ordered the execution of his general Joab. The prophet Nathan condemned this person for the death of Uriah following his affair with Bathsheba. He succeeded Saul as king, and had sons such as Absalom and Solomon. As a young boy, he used a sling to kill a Philistine giant. For 10 points, name this king of Israel who killed Goliath.
ANSWER: **David** [or **Dawud** ]

6. During this king's reign, he guaranteed Huguenots and Jews civil and legal status in the Edict of Versailles. This king's attempt to flee to Montmedy ended when Jean-Baptiste Drouet recognized him from a picture on paper money near Varennes. The debt that resulted from this king's support of the American Revolution led him to call an assembly that hadn't met since 1614, the Estates General. The National Convention voted to execute this king. For 10 points, name this King of France who was executed by guillotine during the French Revolution.
ANSWER: **Louis XVI** [prompt on **Louis**]

7. This artist created a portrait of the astronomer Nicholas Kratzer, who may have inspired the reference to Good Friday in another of his paintings. A grotesque, decaying corpse is depicted in this artist's *The Body of the Dead Christ in the Tomb.* This painter created portraits of humanists like Erasmus and Thomas More. In one of his paintings, objects like a sundial and a lute rest on shelves behind two men, and an anamorphic skull is visible in the foreground. For 10 points, name this court painter in Tudor England who created *The Ambassadors.*
ANSWER: Hans **Holbein** the Younger

8. During a succession crisis at the end of this man's reign, one of his sons defeated Dara Shikoh at the Battle of Samugarh. This man, as Prince Khurram, led a failed 1622 revolt against his father. This man, who commissioned the Peacock Throne, was succeeded by Aurangzeb. This man ordered the construction of a marble mausoleum in Agra for his wife, Mumtaz. For 10 points, name this Mughal emperor who built the Taj Mahal.
ANSWER: **Shah Jahan** [or Prince **Khurram** before it is read]

9. The title character of one of this man's poems is chased by witches after he shouts "Weel done, cutty-sark!" This poet of "Tam o' Shanter" noted that "the best-laid schemes o' mice an' men gang aft agley" in another poem. His most famous poem asks, "Should old acquaintance be forgot, and never brought to mind?" For 10 points, name this Scottish poet of "To a Mouse" and "Auld Lang Syne."
ANSWER: Robert **Burns**

10. This performer claims "I would be the sunlight in your universe" in one of his songs. While in a band with Jack Bruce and Ginger Baker, he sang about a "white room with black curtains near the station." This man, who won a Grammy Award for "Change the World," performed the guest guitar solo on "While My Guitar Gently Weeps" and wrote "Tears in Heaven" after the death of his son. He claimed that the title character "got me on my knees" in "Layla." For 10 points, name this guitarist for Cream and Derek and the Dominoes, nicknamed "Slowhand."
ANSWER: Eric **Clapton** [Eric Patrick **Clapton** ]

11. While confined to a country manor due to the plague, this scientist extended the binomial theorem to work for fractional and negative exponents. The recursive definition x-sub-n-plus-one equals x-sub-n minus f of x-sub-n over f-prime of x-sub-n is used to approximately find the roots of a polynomial in a method named for this scientist and sometimes Joseph Raphson. In *Method of Fluxions* , he introduced the dot notation for denoting derivatives with respect to time. For 10 points, name this English inventor of calculus.
ANSWER: Isaac **Newton**

12. A character in this play is criticized for straightening her hair by a man with whom she travels to Nigeria named Joseph Asagai. In this play, Willy embezzles money that Walter had planned to invest in a liquor store. This play focuses on the black Younger family's move to a white neighborhood. For 10 points, name this play by Lorraine Hansberry that takes its title from a Langston Hughes poem.
ANSWER: *A* ***Raisin in the Sun***

13. Elizabeth Warren chided this man's policies by saying "we want to be led by science" and not "politics." He joked that he had been "sued lots of times before" when defending his decision to keep a woman in a tent. This Governor recently was criticized for his insistence that nurse Kari Hickox be forcibly quarantined to prevent the spreading of ebola. Earlier in 2014, this man's administration was linked to the closure of traffic lanes accessing the George Washington Bridge. For 10 points, name this current Republican Governor of New Jersey.
ANSWER: Christopher "Chris" **Christie**

14. Like smaller structures in its system, this organ has transitional epithelium. The walls of this organ contain the detrusor muscle. Analogs of ADH keep this organ from exceeding capacity. Interstitial cystitis is a chronic inflammation of tissues in this organ, and girls are more likely to get infections in it called UTIs. In males, prostate cancer can prevent this hollow organ from emptying into the urethra. The ureters transport fluid from the kidneys to this organ. For 10 points, name this organ that stores urine.
ANSWER: urinary **bladder**

15. The protagonist of this opera is freed from jail after singing a seguidilla in D major and 3/8 time. When a soldier in this opera is forced to return to his quarters, he shows his lover a flower to prove that he still loves her, and sings the "Flower Song." A character in this opera declares that "love is waiting for you" in the "Toreador Song." This opera focuses on a love triangle between Don Jose, Escamillo, and the title woman, who declares that love is a rebellious bird in the "Habanera." For 10 points, name this opera about a Spanish gypsy girlÂ­, by Georges Bizet.
ANSWER: ***Carmen***

|  |  |
| --- | --- |
| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 2****Directed Round** |

1A. What city, formed in 1873 from the unification of two cities on opposite banks of the Danube River, is the capital of Hungary?
ANSWER: **Budapest**

1B. What modernist American poet wrote the lyric sequence "Voyages" and the long poem *The Bridge?*
ANSWER: Hart **Crane**

2A. What medium of art was used by Alfred Stieglitz to depict lower-class passengers on a ship headed for Europe in *The Steerage?*
ANSWER: **photo**graphy [accept synonyms, such as **taking picture**s]

2B. What country's parliament buildings were attacked in October 2014 by Michael Zehaf-Bibeau who shot two people before being killed by the Sergeant at Arms?
ANSWER: **Canada**

3A. This is a 20-second calculation question. Angle theta subtends an arc that connects the point (-1,0) to the point (7/25, -24/25) on the unit circle. What is the cosecant of theta?
ANSWER: **25/24** [or **1 and 1/24** ]

3B. This is a 20-second calculation question. If the absolute value of quantity 2x plus 3 equals 7, then what are the two possible values of x?
ANSWER: x = **-5** and x = **2**

4A. What contemporary British author has written such novels as *Atonement* and *Saturday?*
ANSWER: Ian **McEwan**

4B. What Margaret Atwood novel details Offred's service under The Commander in the dystopian Republic of Gilead?
ANSWER: *The* ***Handmaid's Tale***

5A. Which French term meaning "untie" describes the post-climactic resolution of a plot?
ANSWER: **denouement** (DAY-nu-mah)

5B. What pitcher, recently the president of the Texas Rangers, holds the major league baseball record with seven career no-hitters and 5,714 strikeouts?
ANSWER: Nolan **Ryan** Jr. [or Lynn Nolan **Ryan** Jr.]

6A. What scandal, which led to the arrest of Oliver North, featured the sale of arms to an embargoed Middle Eastern nation to fund anti-Sandanista rebels in Nicaragua?
ANSWER: **Iran-Contra** affair

6B. What mythical Greek musician lost his wife Eurydice forever when he turned around to look at her before both of them had exited the underworld?
ANSWER: **Orpheus**

7A. Plutonium belongs to what series of elements that begins with atomic number 89 and, with the exception of Lawrencium, is comprised of elements filling out the 5f electron shell?
ANSWER: **actinide** [or **actinoid** ]

7B. Name the General Secretary of the Soviet Union who signed the Strategic Arms Limitation Treaty with the United States, as well as the Helsinki Accords.
ANSWER: Leonid **Brezhnev** [Leonid Ilych **Brezhnev** ]

8A. This is a 30-second calculation question. Suppose that 100 samples are taken from a normal distribution with known population mean 80 and known population standard deviation 4. What are the mean and standard deviation of the distribution of the mean of those 100 samples?
ANSWER: mean of **80 and** standard deviation of **0.4** [or mean of **80** and standard deviation of **2/5** ; or mean of **80** and standard deviation of **4/10** ]

8B. This is a 30-second calculation question. Traveling east on A Street, Brent first encounters Maple Street at a 20 degree angle to A Street, and then Birch Street at a 30 degree angle to A Street. Traveling east on J Street, Kim reaches the intersection with Birch Street before the one with Maple Street. If all streets are perfectly straight, what acute angle is formed by the intersection of Maple and Birch Streets?
ANSWER: **50** degrees

9A. What Platonic solid has the fewest faces?
ANSWER: **tetrahedron**

9B. What Cambodian Communist regime left its victims in "killing fields" and was led by Pol Pot?
ANSWER: **Khmer Rouge** [or **Khmer Kraham** ]

10A. What is the Spanish translation of the English word "book"?
ANSWER: **libro**

10B. The Laws of Segregation, Independent Assortment, and Dominance comprise a theory of inheritance originally devised by which monk following his experiments with peas?
ANSWER: Gregor **Mendel**

|  |  |
| --- | --- |
| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 2****Third Period, Fifteen Tossups** |

1. The Poynting vector represents the density of this quantity for electromagnetic energy. The displacement current equals the permittivity of free space times the time derivative of a type of this quantity. The EMF generated by a magnetic field is equal to the negative time derivative of the magnetic type of this quantity, according to Faraday's law. Gauss's law related the electric type of this quantity to the charge over the permittivity of free space. For 10 points, name this quantity that represents the amount of flow through a given area.
ANSWER: **flux** [or electric **flux** ; or magnetic **flux** ; prompt on **flow** until it is read]

2. This leader faced the Scissors Crisis after implementing the Prodnalog food tax. This man authored the pamphlet *What is to be Done?* and penned the April Theses during his journey to Finland station in a sealed train. This man introduced the New Economic Policy after the Kronstadt Rebellion. This leader put "Iron Felix" in charge of the Cheka secret police and opposed the Mensheviks after leading the October Revolution. For 10 points, name this rival of Leon Trotsky, the first leader of the Soviet Union.
ANSWER: Vladimir **Lenin** [or Vladimir Ilyich **Ulyanov** ]

3. This poet lampooned his rival Colley Cibber by making him the king of the dunces in his poem *The Dunciad.* This poet wrote about the failure of a group of sylphs to protect Belinda's hair from being cut by the Baron in another poem written in heroic couplets, a form he perfected. For 10 points, name this Augustan poet of *An Essay on Criticism* and the mock-epic *The Rape of the Lock.*
ANSWER: Alexander **Pope**

4. In the *Ramayana* , Sita marries Rama after the latter breaks one of these weapons. The Chinese hero Hou Yi cools the earth by using this type of weapon to strike down nine suns. The constellation Sagittarius depicts a centaur using one of them. The Trojan prince Paris uses one to hit Achilles directly in the heel; another is used by a Roman god to strike both Apollo and Daphne. For 10 points, name this weapon which Cupid uses to make people fall in love.
ANSWER: **bow** s and **arrow** s [accept either underlined part]

5. This author wrote a story dedicated to Silvina Ocampo whose title character never attempted chapter twenty-six in his rewriting of a classic text. Another of this writer's stories discusses men in search of the "Crimson Hexagon" as they traverse a universe composed of rooms that hold every book that could ever be written. This author of "The Library of Babel" ended another story with Yu Tsun's murder of Dr. Albert. For 10 points, name this Argentinian author of short stories like "The Garden of Forking Paths."
ANSWER: Jorge Luis **Borges**

6. The most common of these things for ice is labelled one-h. The eutectic point represents the lowest temperature at which three of these things intersect for a solid solution. The number of components, minus the number of these things, plus two, equals the intensive degrees of freedom for a system. Latent heat is the enthalpy difference between two of these things. Beyond the critical point, these things are indistinguishable. Three of them intersect at the triple point. For 10 points, name these states of a compound that include solid, liquid, and gas.
ANSWER: **phase** s of matter [or **state** s of **matter** ]

7. A ruler of this kingdom lost the Battle of the Standard. This kingdom was known as the Kingdom of Alba between the reigns of Donald II and Alexander III. The Auld Alliance was forged between this kingdom and France. Monarchs of this kingdom were the first to be crowned with the Stone of Scone. Robert the Bruce and William Wallace attempted to restore the holdings of this kingdom. The life of a ruler of this kingdom was fictionalized in the play *Macbeth.* For 10 points, name this kingdom that often warred with its southern neighbor, England.
ANSWER: Kingdom of **Scotland** [or Kingdom of **Alba** until it is read]

8. This character leaves Earth after the death of Maya Hansen and joins the Guardians of the Galaxy. This character's alcoholism was portrayed during the "Demon in a Bottle" storyline. This superhero was the leader of the pro-Superhuman Registration Act side during the "Civil War." He built his armour after being injured and kidnapped by the Vietcong, although a 2008 film adaptation updated his kidnappers to Middle Eastern terrorists. For 10 points, name this Marvel superhero and member of the Avengers whose alter-ego is the billionaire Tony Stark.
ANSWER: **Iron Man** [or Tony **Stark** until mentioned]

9. This city is served by the TRAX light rail system, which extends south to the suburb of Draper, and its Avenues neighborhood was its first deviation from the original planned grid. Its downtown is located just south of Ensign Peak. This city, located on the Wasatch Front, was laid out with streets wide enough for a wagon team to make a U-turn without "resorting to profanity and was built around Temple Square. For 10 points, name this city founded by Brigham Young and Mormon settlers southeast of a namesake body of saline water, the capital of Utah.
ANSWER: **Salt Lake City**, Utah

10. The reaction between guaiacol and oxygen results in this process, which is used to quantify turnip peroxidase activity. This phenomenon occurs when a triiodide ion complex reacts with amylose in starch. This process indicates that oxalate has reduced potassium permanganate to the equivalence point in titration. The reaction of phenolphthalein with a base produces this process, which can also be indicated with litmus paper. For 10 points, name this process in which a quality of visible light is altered, such as from blue to green.
ANSWER: **color change** [accept reasonable equivalents; prompt on **color**]

11. This composer wrote the most famous nonet for nine strings. He wrote a piece for brass and percussion in which trumpets enter with an ascending "F - B-flat - F" motif. He composed a two-movement clarinet concerto for Benny Goodman. Sections titled "The Open Prairie" open and close his ballet *Billy the Kid.* Another of this composer's ballets includes variations on the Shaker hymn "Simple Gifts." This composer depicted the Wild West in his ballet *Rodeo.* For 10 points, name this American composer of *Fanfare for the Common Man* and *Appalachian Spring.*
ANSWER: Aaron **Copland**

12. This concept's "deepening" explains long-run growth in the Solow model. Robert Putnam described the decline of its "social" type. A recent work claimed that when its rate of return exceeded g, or overall economic growth, the result is widening inequality. This concept is, along with land and labor, one of the traditional factors of production, and it refers to financial assets or durable goods used in production. For 10 points, name this concept discussed by Thomas Piketty "in the twenty-first century" and which titles the magnum opus of Engels and Marx.
ANSWER: **capital**

13. When a character in this story is frightened by a series of screams, he replies by drowning them out with his own. A character in this story holds up a trowel to indicate his affiliation with the Freemasons before using that trowel to wall up his drunken enemy Fortunato in the catacombs. For 10 points, name this story by Edgar Allan Poe titled for the container of wine promised to Fortunato by Montresor.
ANSWER: "The **Cask of Amontillado**"

14. Dionysus's epithet "Omazios" likely references this activity. Procne tricked Tereus into doing this after he raped her sister, Philomela. Antiphates rules a race of giants who engage in this activity in the *Odyssey* , the Laestrygonians. Lycaon was turned into a wolf after trying to trick Zeus into engaging in this action. Pelops received an ivory shoulder after Demeter discovered she had done this to him, leading to the condemnation of Tantalus. For 10 points, identify this grisly act that Cronus was unable to engage in after a baby Zeus was replaced with a stone.
ANSWER: **cannibalism** [prompt on human **sacrifice** or equivalents]

15. This politician created the Economic Policy Board and printed red-and-white buttons as part of a public relations campaign. He appointed John Paul Stevens to the Supreme Court, and his denial of Abe Beame's request for a bailout prompted the *Daily News* headline "[This President] to City: Drop Dead." This President, who pledged to Whip Inflation Now, narrowly lost his attempt to be elected for a full term to a peanut farmer from Georgia. For 10 points, name this Republican who was succeeded by Jimmy Carter and pardoned Richard Nixon.
ANSWER: Gerald **Ford** [or Gerald Rudolph **Ford** , Jr.]

|  |  |
| --- | --- |
| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 2****Tiebreaker/replacement questions** |

1. This city enacted the world's first congestion pricing program in 1974, and its petroleum industry is found on the artificial Jurong Island. Over eighty percent of its population lives in HDB-provided public housing. Its dominant People's Action Party was led by Prime Minster Lee Kuan Yew. This city punishes some criminals with caning, and banned chewing gum in 1992. It is separated from its northern neighbor by the Straits of Johor and was founded by Stamford Raffles. For 10 points, name this densely-populated Asian city-state south of Malaysia.
ANSWER: Republic of **Singapore**

2. Functions of this type are often chosen as integrating factors. The quantity one plus x over n, to the nth power, converges to this function of x, a result that explains this function's appearance in the formulas for both compound interest and radioactive decay. This function of x equals its own derivative, and its inverse is the natural logarithm. For 10 points, give this function whose base is a number approximately equal to 2.718.
ANSWER: **exponential** function [or **exponentiation** with base e]

3. In a play by this author, the title woman agrees to marry Pyrrhus in order to save her son Astyanax from execution. In another play of his, Hippolytus fears to reveal his love for Aricia to his father Theseus. The title character of that play by this writer refuses to defend Hippolytus, her stepson, from the charge that he attempted to rape her, leading to his death. For 10 points, name this French playwright of the neoclassical tragedies *Andromaque* and *Phedre.*
ANSWER: Jean **Racine**

4. This deity transforms into a fly and bites a dwarf in the eye, and later has his lips sewn shut by the same dwarf. When this deity eats a bunch of meat but fails to eat the bones and the trough, he ends up losing an eating contest against fire. This deity transforms into a mare and sleeps with a workhorse to produce the eight-legged horse Sleipnir. This deity is bound to a rock with the entrails of his son Narfi as punishment for tricking the blind god Hoder into shooting a spear of mistletoe at his brother Balder. For 10 points, name this Norse trickster deity.
ANSWER: **Loki**

5. One member of this project, George Kistiakowsky, stole some plastic explosive and wrapped it around trees to create a make-shift ski slope to satisfy its European participants. Leslie Groves oversaw this effort, whose divisions included the so-called "Met Lab" built near Stagg Field at the University of Chicago and overseen by Enrico Fermi. This effort resulted in the Trinity device and two other objects that were deployed on August 6 and 8, 1945. For 10 points, name this project directed by J. Robert Oppenheimer that developed the first nuclear weapons.
ANSWER: **Manhattan** Project [prompt on "attempts to develop the **atomic bomb** " or other equivalents]

What composer of *Transfigured Night* and *A Survivor from Warsaw* founded the Second Viennese School and developed the twelve-tone method of composition?
ANSWER: Arnold **Schoenberg**

This is a calculation question. If two fair dice are rolled, what is the probability their sum will be less than or equal to three?
ANSWER: **1/12** [or **3/36** ]