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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 12****First Period, Fifteen Tossups** |

1. One of this god’s sons, Vali, is destined to avenge his brother’s death by killing Hodr. In exchange for wisdom, this god gave up one of his eyes at the well of Mimir. This god hung himself from Yggdrasil for nine days to learn how to read runes, and is advised by the ravens Hugin and Munin. He is married to the goddess Frigga. For 10 points, name this chief god of the Norse pantheon.

ANSWER: **Odin**

2. A legend about a submerged building off the coast of the island Ys inspired this composer’s prelude "The Sunken Cathedral." A movement titled "From dawn to noon on the sea” begins this composer’s piece about the ocean, titled *La Mer*. A flute solo begins this composer’s *Prelude to the Afternoon of a Faun*. The third movement of his *Suite Bergamasque* is based on a poem by Paul Verlaine about moonlight. For 10 points, name this French composer of "Clair de Lune."

ANSWER: Claude **Debussy** [Achille-Claude **Debussy**]

3. This disease often breaks out in a namesake "belt" across sub-Saharan Africa, where its "A" strain is common. The fungal species *Cryptococcus neoformans* causes a type of this disease in people with HIV. This disease causes nuchal rigidity, or the inability to move the neck completely, and is much more severe when caused by bacteria as opposed to viruses. For 10 points, name this inflammation of the outer linings of the brain.

ANSWER: **meningitis**

4. In this city, a group of sailors supporting William Allen attacked a courthouse in the Election Riot. Dr. Benjamin Rush used bloodletting during a yellow fever epidemic in this city. This city was captured following the Battle of Germantown. John Dickinson proposed the Olive Branch petition at a meeting in this city. For 10 points, name this location of the two Continental Congresses, a "city of brotherly love" founded by William Penn.

ANSWER: **Philadelphia**

5. Euler's first law generalizes this equation for the center of mass of a system of particles. Ideal rockets do not obey this law. Hooke's law is combined with this equation to calculate the frequency of a mass-on-a-spring. This law was originally proposed using the time derivative of momentum, which, assuming constant mass, equals mass times acceleration. For 10 points, name this law formulated by Isaac Newton that is often written as F equals m a.

ANSWER: Newton's **second** law of motion

6. The Pink Map projected the African colonization plans of this European country, which were ended by an 1890 Ultimatum from Britain. The MPLA under Jose Eduardo Dos Santos fought a long civil war against Jonas Savimbi and Unita in a former colony of this country, Angola. This country lost control of Mozambique and the Indian colony of Goa in the 1970s. For 10 points, name this European county that sent out explorers like Vasco de Gama from Lisbon.

ANSWER: **Portugal**

7. A character in this play fervently believes that the rich Shep Huntleigh will soon save her. Set in Elysian Fields, its protagonist ruins a relationship with Mitch Hubbell before being sent to an asylum, saying that she has “always depended on the kindness of strangers.” At the beginning of this play, Blanche Dubois goes to New Orleans and moves in with Stella and Stanley Kowalski. For 10 points, name this play by Tennessee Williams.

ANSWER: *A* ***Streetcar Named Desire***

8. In 1925, this baseball player started in place of Wally Pipp, who was suffering from a minor headache. This athlete’s streak of 2,130 consecutive games played was eventually broken by Cal Ripken, Jr. After his sudden retirement due to a motor disease, he declared in a speech that he was the “luckiest man on the face of the earth.” For 10 points, name this New York Yankees first baseman, whose name is often attached to ALS.

ANSWER: Lou **Gehrig** [Henry Louis **Gehrig**]

9. In June 2014, a militant group killed around sixty people in this country’s city of Mpeketoni, near the resort island Lamu. This country’s only rainforest is its western Kakamega Forest. Its Indian ocean ports include its second-most populous city, Mombasa. The Embu and Kikuyu ethnic groups live near this country’s namesake mountain, the second-highest in Africa. For 10 points, name this African country whose capital is Nairobi.

ANSWER: **Kenya** [Republic of **Kenya**]

10. A famous work in this form describes the sound of a frog jumping into a pond and is found in the collection *The Narrow Road to the Deep North.* The author of that collection, Matsuo Basho, was considered the master of this poetic form. Derived from the renga, they often feature a kigo and kiru. For 10 points, identify this poetic form that originated in Japan, which follows a five-seven-five syllable structure.

ANSWER: **haiku**

11. This man's father won the Battle of Stangebro, or Linkoping, ending his country's rule by Poland-Lithuania. After allying with this son of Charles IX, Magdeburg was brutally sacked. This ruler often personally led his Hakkapelitta cavalry units into battle, helping win at Breitenfeld against the Count of Tilly but leading to his death while battling Wallenstein at Lutzen. For 10 points, name this commander and King of Sweden during the 30 Years War.

ANSWER: **Gustavus** Adolphus [or **Gustav** II Adolph; or **Gutav** Adolph Magnus]

12. This man was sued for alleged involvement in the kidnapping of Orlando Jorio and Franz Jalics during the Dirty War. The caption “the times they are a-changing” appeared on a January 2014 cover of *Rolling Stone* with this man on it. This man’s choice not to live in the Apostolic Palace has been praised, and his statement that atheists could be redeemed has garnered controversy. For 10 points, name this first Jesuit Pope, who replaced Benedict XVI in March 2013.

ANSWER: Pope **Francis** I [or Jorge Mario **Bergoglio**]

13. A daughter of this woman survived a flood sent by Zeus with her husband Deucalion. Though Prometheus warned his brother to never accept gifts from Zeus, Epimetheus married this woman and fathered Pyrrha with her. This woman's name reflects the fact that she was given gifts by all the gods. In one incident, she prevents *elpis,* or hope, from escaping. For 10 points, name this woman who, in Greek myth, accidentally unleashed the world's evils by opening a jar.

ANSWER: **Pandora**

14. At the beginning of a play by this writer, Colonel Pickering returns from India and is approached by a girl selling flowers. This author wrote about Vivie, who discovers that her mother’s business ventures are actually brothels, in *Mrs. Warren’s Profession.* A play by this man depicts Henry Higgins’s attempts to teach Eliza Doolittle how to act and talk like a lady. For 10 points, name this Irish playwright of *Pygmalion.*

ANSWER: George Bernard **Shaw**

15. The "nought" in "delta-G-nought" for a reaction indicates that this quantity is at its standard state. Differences in this quantity are often measured as hydrostatic heads of mercury in a manometer. This variable is plotted on the y-axis of a 2D phase diagram against temperature. A torr is a unit to measure this quantity. The "absolute" amount of it equals the "gauge" value plus one atmosphere. For 10 points, name this quantity equal to force over area.

ANSWER: **pressure** [or air **pressure**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 12****Directed Round** |

1A. What German philosopher popularized the concept of Dasein in his magnum opus, *Being and Time*?

ANSWER: Martin **Heidegger**

1B. What American novelist wrote the *U.S.A.* trilogy?

ANSWER: John **Dos Passos**

2A. What American ambassador to Libya was killed in September 2012 during violence in Benghazi?

ANSWER: J. Christopher **Stevens** [John Christopher **Stevens**]

2B. William Butler Yeats wrote the preface to what Rabindranath Tagore poetry collection, whose name means “song offerings” in Bengali?

ANSWER: ***Gitanjali***

3A. This is a 20-second calculation question. Let *n* be any integer. In terms of *n*, what are the vertical asymptotes of the graph of the function *y* equals tangent of quantity pi plus *x*?

ANSWER: ***x* = pi *n*** [or ***x* equals pi times *n***; or ***x* equals pi times quantity *n* minus 1**; prompt on **pi *n*** by itself]

3B. This is a 20-second calculation question. When the two ends of a string are taped together, the string forms a circle of radius r. How many circles of radius one-half r could be made from the same string?

ANSWER: **2**

4A. What long novel by Henry Fielding describes the life of the title foundling, who loves Sophia Western?

ANSWER: ***Tom Jones***

4B. What title was held by four "rightly guided" men during the Rashidun (RAH-shee-dun) era in the seventh century?

ANSWER: **caliph** of Islam

5A. What Press Secretary was shot in an attempt to assassinate Ronald Reagan, and names a bill that requires background checks in gun purchases?

ANSWER: James **Brady**

5B. What nine-letter word that comes from the translation of the Hebrew “azazel” refers to a person who takes the blame for the mistakes of an entire group?

ANSWER: **scapegoat**

6A. In drama, what is the term for lines a character directs at the audience, which are not heard by other characters?

ANSWER: **aside**

6B. What four-letter mnemonic is used to remember the order in which the terms of two binomials are multiplied, corresponding to applying the distributive law?

ANSWER: **FOIL**

7A. Name the DJ who has found success collaborating with Ellie Goulding on “I Need Your Love,” and with Rihanna on “We Found Love.”

ANSWER: Calvin **Harris** [or Adam Richard **Wiles**]

7B. Andre Geim and Konstantin Novoselov used Scotch tape on graphite to isolate what single-layer allotrope of carbon?

ANSWER: **graphene**

8A. This is a 30-second calculation question. What is the constant term in the polynomial with roots 1 plus *i*, 1 minus *i*, 3 plus 2 *i*, and 3 minus 2 *i*?

ANSWER: **26**

8B. This is a 30-second calculation question. A dartboard of radius 4 has an inner circle of radius 1. If two darts hit the board randomly, what is the probability that neither of them hit the inner circle?

ANSWER: **225/256**

9A. Which domain of organisms, often considered to be the oldest, includes organisms with pseudopeptidoglycan and a paracrystalline layer in their cell walls?

ANSWER: **Archaea**

9B. What Hindu and Buddhist temple complex built by the Khmer Empire is depicted on the modern-day flag of Cambodia?

ANSWER: **Angkor Wat**

10A. What rapid transit system has a series of Art Nouveau canopies designed by Hector Guimard?

ANSWER: **Paris Metro** [or **Metro de Paris**]

10B. What politician succeeded Valery Giscard d’Estaing as French president in 1981, becoming the first member of the Socialist Party to attain the office?

ANSWER: Francois **Mitterrand** [Francois Maurice Adrien Marie **Mitterrand**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 12****Third Period, Fifteen Tossups** |

1. This character’s physical movements are based on those of Keith Richards, who plays his father. In a 2011 film appearance, this character sails alongside Blackbeard in search of the Fountain of Youth. In his first film appearance, this character teams up with Will Turner to rescue Elizabeth Swann. This character is marooned twice by his rival, Captain Barbossa. For 10 points, name this pirate and sometimes-captain of the Black Pearl, played by Johnny Depp in a film series.

ANSWER: Captain **Jack** Sparrow [or Captain Jack **Sparrow**]

2. Rather than be executed after this event, Louis Lingg killed himself by putting a blasting cap in his mouth. After this event, some of the men convicted were pardoned by Governor John Altgeld, but August Spies was executed. This event took place a few days after a May Day rally which featured heavy participation from the Knights of Labor. For 10 points, name this May 1886 event in Chicago in which a labor demonstration featured a bomb thrown at the police.

ANSWER: **Haymarket** Square riot

3. In the film Kiss Me Deadly, the plot revolves around a mysterious box that contains material for one of these objects. Residents in Kansas and Missouri deal with these objects in *The Day After.* In another film, Major "King" Kong straddles one of these objects like a cowboy. Peter Sellars plays multiple roles in that film, in which the Soviets build a doomsday machine that is powered by these objects. For 10 points, identify these weapons that are "loved" in the subtitle of Dr. Strangelove, the subject of much fear during the Cold War.

ANSWER: **bomb**s [**nuclear** bombs][or **nuclear weapons**] [or **missile**s] [or **warhead**s]

4. A sacred text of this religion focuses on Avalokitesvara (AH-vuh-low-KIT-esh-VAH-ruh), who embodies compassion. Many sacred texts of this faith are in the Perfection of Wisdom genre, including one known as “Vajra-Cutter” or simply “Diamond.” Other texts central to this faith include the “Heart” and “Lotus” Sutras. For 10 points, name this religion divided into major Therevada and Mahayana branches and founded by Siddhartha Gautama.

ANSWER: **Buddhism** [or any branch of **Buddhism**]

5. A well-studied example of these objects is Messier 74, since it is face-on from the Earth and is an example of a "grand design" one of these objects. The tines – but not the stem – of Hubble's tuning fork classify these objects. Examples of these objects with a bright line running through their middle are called "barred". These objects are the most common type of galaxy and have "arms". For 10 points, name this type of galaxy paired with elliptical galaxies and whose prototypical example is the Milky Way.

ANSWER: **spiral** galaxies [or word forms]

6. Ernest Hemingway's *The Torrents of Spring* is a parody of this man's novel about Bruce Dudley and Ailine Grey, *Dark Laughter.* Reverend Hartman observes the naked Kate Swift in this man's most famous work, in which Wing Biddlebaum ponders his appendages in the story “Hands” while waiting for George Willard. For 10 points, name this author of *Winesburg, Ohio.*

ANSWER: Sherwood **Anderson**

7. A painting by this artist depicts a gypsy girl reading the palm of a wealthy boy. This artist of *The Fortune Teller* painted a man wearing a pilgrim’s shell who extends his arms outward while having a meal with the resurrected Jesus in *Supper at Emmaus.* This artist created a painting in which a diagonal beam of light illuminates a table of four men and a tax collector. For 10 points, name this Italian Baroque artist who painted *The Calling of St. Matthew.*

ANSWER: **Caravaggio** [or Michelangelo **Merisi**]

8. This man led Hut 8 and greatly improved a Polish bombe design while working at Bletchley Park. He described a hypothetical machine that could carry out any computable function by manipulating symbols on an infinite tape. He committed suicide in 1954, two years after a homosexuality conviction which he was pardoned for in 2013. For 10 points, name this computing pioneer who deciphered the Enigma cipher during World War II and devised a test for artificial intelligence.

ANSWER: Alan **Turing**

9. In this state, Paula Jean Welden disappeared while hiking on the United States’s oldest long-distance trail, appropriately called the Long Trail. The Winooski River flows in the northern part of this state, America’s top maple syrup producer. The eastern edge of Lake Champlain touches this state’s most populous city, Burlington. For 10 points, name this state with capital at Montpellier, nicknamed the “Green Mountain” state.

ANSWER: **Vermont**

10. The 1964 race riots in this modern-day country contributed to tensions that led this country to be expelled from a federation led by Tunku Abdul Rahman. This country had a population control policy that urged people to “stop at two.” This country’s government is dominated by the People’s Action Party, which was led for three decades by its Prime Minister Lee Kuan Yew. With Hong Kong, South Korea, and Taiwan, this country is one of the Four Asian Tigers. For 10 points, name this island city-state south of Malaysia.

ANSWER: **Singapore** [or **Singapura**]

11. Joseph Greenberg advocated the "mass comparison" technique for classifying these things. Discredited twentieth-century ideas about these things included the Nostratic hypothesis and the idea that these things directly determine modes of thought, known as the Sapir-Whorf hypothesis. These things are divided into families such as Sino-Tibetan, Afro-Asiatic, and Altaic. For 10 points, name these systems that include Korean, Russian, and English.

ANSWER: human **language**s

12. The outermost layer of this structure is divided between the tegmen and testa. This structure can undergo scarification, in which water and gases are allowed to enter it. In some organisms, this structure's coat is replaced with a pericarp. Most of its interior is taken up by endosperm. One or two cotyledons can be found within this structure, which derives from an ovule after fertilization. Its radicle will grow into a root upon germination. For 10 points, name this embryonic form of a plant.

ANSWER: **seed**

13. Horatius Coccles prevented Clusian troops under Lars Porsenna from from crossing a small wooden bridge across this river, located just downstream from a sewer system called the Great Cloaca that fed into it. This river, known for its yellow sediment, meets the sea at Ostia, used as a port by the civilization that settled between this river and the Palatine, Capitoline, and five other hills. For 10 points, name this Italian river on whose banks Rome was founded.

ANSWER: The **Tiber** [or **Tiber**is; or **Trevere**]

14. The protagonist of this book acquires a plantation in Brazil after escaping slavery to a Moor. This novel’s protagonist has a revelation when he discovers a lone footprint in the sand. It was inspired by the story of Alexander Selkirk. The title character of this novel befriends a cannibal he names Friday while stranded on an island. For 10 points, name this novel about a castaway written by Daniel Defoe.

ANSWER: ***Robinson Crusoe***

15. On a plane, the vector with this relation to it is always the same at any point on the plane. Cross products produce a vector that has this relation to its input vectors, and the dot product of two vectors with this relation is zero. For a line with a given slope *x*, the slope of the line with this relation to it is the negative inverse of *x*. For 10 points, give this term that refers to two vectors that are at a 90-degree angle to one another.

ANSWER: **perpendicular** [or **orthogonal**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 12****Tiebreaker/replacement questions** |

1. This letter and H name an emission line of hydrogen with a wavelength of 656.28 nm that is observed from emission nebulae and the Sun. This letter is used for the coefficient of thermal expansion and a constant with a value of 1/137, the fine structure constant. A quantity symolized by this letter is equated to the time derivative of the angular velocity, or d omega d t. For 10 points, name this Greek letter that symbolizes angular acceleration and names a particle with two protons and two neutrons, the helium nucleus.

ANSWER: **alpha**

2. This action was once actively opposed by a figure known as the promotor fidei. Prior to undergoing this action, a person is given the appellations “venerable” and then “blessed.” At least two miracles are required for a person to receive this action, which happened for John Paul II in 2014. For 10 points, name this process in the Catholic Church by which somebody is posthumously declared a holy person in heaven.

ANSWER: **canonization** [or **becoming a saint**; or obvious equivalents; or **beatification** until “blessed” is read]

3. This poet was intellectually influenced by the mentorship of Guido Cavalcanti, who is mentioned in his collection of love poetry *La Vita Nuova*. His best-known poem opens right before Good Friday in 1300, as the protagonist descends nine circles shown to him by Vergil. This man wrote an epic poem in which he is guided through paradise by his beloved Beatrice Portinari. For 10 points, name this Italian author of *The Divine Comedy*.

ANSWER: **Dante** Alighieri [or Dante **Alighieri**]

4. This country contains both the Colorados and Canarreos Archipelagos. The Gulf of Batabano separates this country’s main island from Isla de la Juventud. It is the origin of the cha-cha-cha style of music. The Windward Passage, which borders this country to the south, separates it from Hispaniola. For 10 points, name this Caribbean island nation, whose northern coast is less than a hundred miles from south Florida.

ANSWER: **Cuba** [Republic of **Cuba**]

5. Anger at the realization of this goal caused the first political assassination with a firearm in world history, as Balthasar Gérard killed a leader of the campaign for this status, William the Silent. This status was secured with the aid of the Sea Beggars, who came to the aid of Protestants opposed to the Council of Blood and the Duke of Alba in the Eighty Years War with Spain. For 10 points, identify this goal of people who wished to see Amsterdam under local control.

ANSWER: **Dutch independence** [or **independence of the Netherlands**, etc.]

What gas giant in our solar system has an axial tilt of 97.77 degrees, making its axis of rotation almost parallel to its plane of revolution?

ANSWER: **Uranus**

Express the square root of 405 in simplest radical form.

ANSWER: **9** times the square **root** of **5** [or **9** times **rad**ical **5**]