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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Conference Tournament 2015****Round 7****First Period, Fifteen Tossups** |

1. These things occur parallel to isobars when the Coriolis force and pressure gradient force are in balance and, in that case, are termed geostrophic. The straight-line type of these phenomena include derechos and are produced by downbursts. Orographic lift in the Alps is responsible for the foehn example of these things. A parameter of these things is measured by the Beaufort Scale and anemometers. The horse latitudes originate a prevailing pattern of them called the westerlies. For 10 points, name this bulk movement of air that can be used to propel sailboats.
ANSWER: **wind**s

2. The protagonist of this novel is honored when he kisses his master's hoof before returning home, where he is sickened by the filth of humanity. That scene in this novel occurs in the land of the Houyhnhnms (HWIN-ims). On his voyages, the title character of this novel encounters the giant Brobdingnagians and the tiny Lilliputians. For 10 points, name this satirical novel by Jonathan Swift.
ANSWER: ***Gulliver's Travels***

3. A painting by this artist was signed with handprints, and had a title suggested by Clement Greenberg for a color it evoked despite not actually appearing on canvas. This painter incorporated cigarettes and a key in a painting titled after a line from Shakespeare's *The Tempest.* This husband of Lee Krasner painted the canvas *Number 1, 1950,* also known as *Lavender Mist.* This abstract expressionist often swung around on a sling, flinging paint all over his canvases. For 10 points, name this American action painter nicknamed "Jack the Dripper."
ANSWER: Jackson **Pollock**

4. This country's former island of Urk, which lied in a body of water once known as Lake Almere, was connected to the mainland in 1939. This country constructed the Delta Works after a 1953 flood. Its newest province of Flevoland borders the IJsselmeer, an artificial lake created by damming the Zuiderzee. The Rhine River empties into the North Sea in this nation, and much of its land consists of polders protected by dikes. For 10 points, name this low-lying country, often thought of as synonymous with its Holland region, whose capital is Amsterdam.
ANSWER: The **Netherlands** [or **Nederland** ]

5. During a conflict, this leader was thought to have been captured by a group of soldiers led by Jean-Etienne Valluy in Operation Lea. Supporters of this man took control of his home country in the 1945 August Revolution. This politician refused to negotiate with President Johnson after his country was bombed in Operation Rolling Thunder. The trail supplying Viet Cong fighters in the South was named for this leader, who founded the Viet Minh. For 10 points, name this proponent of Vietnamese independence, a former communist leader of North Vietnam.
ANSWER: **Ho** Chi Minh [or **Nguyen** Sinh Cung; or **Nguyen** Tat Thanh; or **Nguyen** Ai Quoc; or "**Nguyen** the Patriot"]

6. The Norse god Loki takes the form of this type of animal when he steals Idunn away from the giant Thjazi. A Hindu god that resembles this type of animal is the mortal enemy of the nagas. That Hindu god is named Garuda, and serves as the mount of Vishnu. Two of these animals bring Odin news from all over the world. The head of this type of animal belongs to both the cockatrice and the griffin. A variety of this animal often bursts into flames in order to be reborn from its own ashes. For 10 points, identify the type of animal exemplified by the phoenix.
ANSWER: **bird**s [or **eagle**s; or **raven**s; or **chicken**s; or **rooster**s; or **phoenix**es until "phoenix" is read]

7. This man gained control of the western half of the Roman Empire via the Treaty of Brundisium, and declared himself as "princeps" after his general, Agrippa, won a naval battle in Macedonia. Following a disastrous defeat for his forces at Teutoberg Forest, this emperor reportedly exclaimed "Give me back my legions!" This victor at the Battle of Actium was part of the Second Triumvirate with Lepidus and Marc Antony. For 10 points, name this successor of Julius Caesar and the first Roman Emperor.
ANSWER: **Augustus**  [or Gaius Julius Caesar **Augustus** ; or **Octavian** ; or **Octavius** ]

8. Paraproteins are forms of these proteins produced by myeloma cells. Drugs made from a type of these proteins usually end in "-mab". These proteins can change isotype through class-switching. Like T-cell receptors, these proteins undergo V(D)J rearrangement. Their Fab and Fc fragments are composed of heavy and light chains. These Y-shaped proteins include ones named IgA and IgG, and patients may produce them in response to a transplanted organ. For 10 points, name these proteins also known as immunoglobulins that bind to antigens on pathogens.
ANSWER: **antibodies** [or **IgD** ; or IgE; or IgM; accept **immunoglobulins** until it is said; accept **IgA** and **IgG** until they are said]

9. In a novel by this author, the protagonist moves to Lycurgus, New York to work for his rich uncle Samuel in a collar factory. The title character of a novel by this man moves to Chicago from Wisconsin and has love affairs with Charles Drouet and George Hurstwood. In another of this man's novels, the drowning of Roberta Alden in a lake leads to the conviction of Clyde Griffiths for murder. For 10 points, name this author of *Sister Carrie* and *An American Tragedy.*
ANSWER: Theodore **Dreiser** [or Theodore Herman Albert **Dreiser** ]

10. In a music video, this artist traverses an inescapable diner where everybody begins to look like him. This rapper says, "When I hear that action, I'mma be Scorcese" in the song "Worldstar" and claims to be "Hot like a parked car" in "Bonfire." Before his music career, he played ex-footballer Troy Barnes on the NBC sitcom *Community.* In a music video set entirely on a Ferris wheel, he ensures the listener, "I'll be right by your side" until the title year. For 10 points, name this rapper whose album *Because The Internet* features songs like "Sweatpants" and "3005."
ANSWER: **Childish Gambino** [or Donald **Glover** ]

11. This element made up the anode in the Daniell cell. An atom of this element is at the core of carbonic anhydrase. This element serves as a "sacrificial anode" when applied to iron to prevent rusting during galvanization. This element only ever has a plus-two oxidation state, since its ground-state electron configuration ends 4s2, 3d10. Though not copper, nearly all of the metal found in a penny is this element, which forms the alloy brass with copper. For 10 points, name this metal that has atomic number 30 and symbol Zn.
ANSWER: **zinc** [or **Zn** until it is read]

12. In a letter, a person with this name condemns the church of Laodicea for being "lukewarm." A person with this name is usually thought to be "the disciple whom Jesus loved." The gospel of this name contains a verse beginning "For God so loved the world that he gave his one and only son." Salome requested to Herod that a person of this name be beheaded. Jesus was baptized by a man with this name. For 10 points, give the name of the fourth gospel, which follows those by Matthew, Mark, and Luke.
ANSWER: **John** [or **Yohanan** ; or **Yuhanna** ; or **Ioannes** ]

13. Seigniorage is money raised through this phenomenon. The real interest rate is roughly equal to the difference of the nominal rate and the rate of this. During the 1970s there were high rates of both unemployment and this phenomenon, apparently contradicting the predictions of the Phillips curve. Milton Friedman said this was "always and everywhere a monetary phenomenon," the result of too much money chasing too few goods. The opposite of this phenomenon is deflation. For 10 points, name this overall increase in prices.
ANSWER: **inflation**

14. Maxwell added a term to Ampere's law describing how one of these is produced by a changing electric field. Inductors store energy in them, and this quantity for a wire is inversely proportional to two pi times the distance. Solenoids produce a constant one of these in their interior that is proportional to the number of turns per length. For 10 points, identify this field whose strength is measured in Teslas and is produced by objects with north and south poles.
ANSWER: **magnetic** field [or **B** field; or **H** field]

15. A member of this group, Willis Van Devanter, was part of the conservative "Four Horsemen," while the liberal "Three Musketeers" faction included Benjamin Cardozo. A failed initiative gave the President power to name new members of it if any current members were over seventy years old. In 1937, to prevent this group from thwarting the New Deal, Franklin Roosevelt proposed expanding its size in what was called a "packing plan." For 10 points, name this institution consisting of nine people, the highest level of the judiciary branch.
ANSWER: The **Supreme Court** of the United States [or **SCOTUS**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 7****Directed Round** |

1A. What French word meaning "opening" or "gap" was adopted by the nickname of a famous Haitian revolutionary?
ANSWER: **ouverture** [or l'**ouverture** ]

1B. What group of World War I veterans was driven out of Washington D.C. by the U.S. Army while protesting Herbert Hoover in 1932?
ANSWER: The **Bonus Army** [or **Bonus Expeditionary Force**; or **Bonus March** ]

2A. What American analytic philosopher discussed the indeterminacy of translation in the book *Word and Object?*
ANSWER: Willard Van Orman **Quine**

2B. What character in Voltaire's *Candide,* whose name means "all languages," believes that we live in the best of all possible worlds?
ANSWER: Dr. **Pangloss**

3A. This is a 20-second calculation question. Suppose that a sock drawer contains six red socks and five blue socks. What is the probability that, when drawing two socks without replacement, the pair of socks matches?
ANSWER: **5/11** [or **50/110** ]

3B. This is a 20-second calculation question. In degrees, what is the measure of the angle formed by connecting the points (1, square root of 3), (0, 0), and (-2, 2)?
ANSWER: **75** degrees

4A. What Midwestern city was the original home of the NBA's Los Angeles Lakers?
ANSWER: **Minneapolis**

4B. What plot includes lines at the first, second, and third quartiles of a data set, and can represent outliers with asterisks?
ANSWER: **box** -and-whiskers plot

5A. Two atoms differing in electronegativity by 1.1 would likely make this kind of bond, in which electrons are shared unequally between non-ions.
ANSWER: **polar** covalent bond

5B. What opera by Henry Purcell ends with one of the title characters singing "When I am laid in earth," an aria often known as her namesake "Lament"?
ANSWER: ***Dido and Aeneas***

6A. What prominent American literary critic wrote *The Anxiety of Influence* in addition to more recent popular books like *The Western Canon?*
ANSWER: Harold **Bloom**

6B. South Tarawa is the capital of which Pacific island nation whose name derives from the local pronunciation of
ANSWER: **Kiribati** (keer-uh-bass)

7A. What British Secretary of State for War, whose face appeared prominently appeared on World War I recruitment posters died in 1916 during the sinking of the *HMS Hampshire?*
ANSWER: Horatio Herbert **Kitchener** , Earl of Kitchener

7B. What U.S. soldier was traded for five Guantanamo Bay detainees in a May 2014 swap between the United States and the Taliban?
ANSWER: Bowe **Berghdal** [Bowe Robert **Berghdal** ]

8A. This is a 30-second calculation question. The points (3,4) and (6,5) are reflected about the x-axis and all four points are connected. What is the area of the resulting figure?
ANSWER: **27** square units

8B. This is a 30-second calculation question. Find the points of intersection of the graphs of y = x squared plus 7 x plus 3 and y = 2 x squared plus 3 x plus 6.
ANSWER: **(1,11)** and **(3,33)**

9A. Name the stage of the cell cycle comprised of the G1, G2, and S phases that is typically followed by mitosis or meiosis.
ANSWER: **interphase**

9B. What gay British poet wrote "September 1, 1939" and "Musee des Beaux Arts"?
ANSWER: W. H. **Auden** [or Wystan Hugh **Auden** ]

10A. What former Prime Minister of Pakistan, who was assassinated in 2007, was the first woman to lead a Muslim country?
ANSWER: Benazir **Bhutto**

10B. English and which Austronesian language are the primary languages spoken by native Filipinos?
ANSWER: **Tagalog**

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 7****Third Period, Fifteen Tossups** |

1. The equation of motion for this system is found by finding the torque due to gravity and then replacing sine of theta with theta. Christiaan Huygens was the first to use one of these devices in a clock, and another variant of them produces chaotic motion. The period for one of these objects is two pi times the square root of the length over g, and one named for Foucault demonstrated the rotation of the earth. For 10 points, identify these systems consisting of a mass on a string.
ANSWER: **pendulum** [or **pendula** ]

2. This country's president has been embroiled in "the white house scandal," concerning the ownership of his wife's home. In October 2014, Angel Aguirre Rivero resigned as governor of Guerrerro as the result of a scandal concerning the Teachers College of Ayotzinapa. In November 2014, Jose Luis Abarca was arrested in this country's capital city for his role in that scandal. For 10 points, name this country, which has been rocked by protests against its president Enrique Pena Nieto over the murder of forty three students from the city of Iguala.
ANSWER: **Mexico** [or **United Mexican States** ; or **Estados Unidos Mexicanos** ]

3. In a story set in this city, Farrington's daydreaming about drinks prevents him from completing a copy assignment. Gretta Conroy recalls her childhood love, the deceased Michael Furey, at a hotel in this city. "Counterparts" and "The Dead" are stories in a collection titled for the residents of this city. A novel set in this city opens by describing "stately, plump Buck Mulligan" and ends with Molly giving a stream-of-consciousness soliloquy. For 10 points, name this capital city home to Leopold Bloom in James Joyce's *Ulysses.*
ANSWER: **Dublin**

4. In a geometry where these things do not exist, the interior angles of a triangle add up to more than 180 degrees. These things form the graphs of two first-degree equations if the equations have equal slopes but different y-intercepts. Euclid's fifth postulate is sometimes named for these things. If a segment crosses both of these things, the corresponding angles are the same. Trapezoids contain only one set, but rectangles are formed from two sets. For 10 points, name this objects which in Euclidean geometry extend infinitely and never cross.
ANSWER: **parallel lines** [prompt on **line** s]

5. The Alan Parsons Project used a vocoder in their adaptation of this author's most famous poem. The Beatles' "I Am the Walrus" remarks how "you should've seen them kicking" this man. An unknown person in this author's hometown once placed three roses and a bottle of cognac on his tombstone every year on his birthday. A Kevin Bacon-portrayed detective investigates a cult that commits murders based on this author's stories in The Following. For 10 points, name this author whose hometown, Baltimore, named their NFL team after his most famous poem.
ANSWER: Edgar Allan **Poe**

6. An instrument called the katzenklavier was described by a member of this group known as "Master of a Hundred Arts," Athanasius Kircher. While serving in this group, Matteo Ricci created a massive world map. Another member of this group, Francis Xavier, visited places like Goa and Japan. The creation of this group was authorized by Paul III, and its foundational text is the *Spiritual Exercises* written by its founder. For 10 points, name this Catholic order founded by Ignatius of Loyola.
ANSWER: **Jesuits** [or **Society of Jesus** ]

7. This author's last play, centering on Harmond Wilkes's attempts to destroy 1839 Wylie, is titled *Radio Golf.* A character created by this man declares that he could have hit many more home runs than Babe Ruth or Josh Gibson. In one of his plays, Berniece opposes Boy Willie's attempts to sell the title instrument. In another of his plays, Cory is prevented from taking a football scholarship by his father, Troy Maxson. For 10 points, name this author of the "Pittsburgh Cycle," which includes his plays *The Piano Lesson* and *Fences.*
ANSWER: August **Wilson**

8. Synaptotagmins bind to this ion before binding to the SNARE complex during vesicular fusion. This ion flows through T- and L-type channels and binds to troponin-C after it is released from the sarcoplasmic reticulum during muscle contraction. Serum levels of this ion increase when osteoclasts are active. With carbonate, this cation is a major component of egg shells. Low blood levels of it can be caused by deficient vitamin D. This cation is located beneath magnesium on the periodic table. For 10 points, name this plus-2 ion of an alkaline earth metal found in bones.
ANSWER: **calcium** [or **Ca** two-plus]

9. A character in this novel refrains from killing a man who lays out a standing offer of money to seduce his lover away from him, but is arrested for the murder anyway. Another character in this novel idolizes the elderly Father Zosima and is told the story of "The Grand Inquisitor" by his atheist brother. In this novel, the illegitimate son Smerdyakov confesses to the murder of Fyodor, the father of the title characters of this novel. For 10 points, name this long novel about Dmitri, Ivan, and Alyosha, the last by Fyodor Dostoevsky.
ANSWER: *The* ***Brothers Karamazov***[or ***Bratya Karamazovy*** ]

10. The Pierides were transformed into birds after they challenged these deities to a contest and lost. Epic poems such as the Iliad and Odyssey begin with invocations to one of these deities. The poet Sappho was likely the first to be honored as the "tenth" of these deities, all of whom were the daughters of Mnemosyne and Zeus. For 10 points, name these goddesses, such as Calliope or Clio, who symbolized different domains of the humanities, such as history or tragedy.
ANSWER: **Muse**s [or **Mousai**]

11. This court case's first round of arguments was missed by Lewis Powell and William Rehnquist, who had just been appointed to the Supreme Court. This case's companion case involved Georgia Attorney General Arthur Bolton. It involved a woman named Norma McCorvey, who was using a generic alias during the case. Harry Blackmun's decision in this case said the state could intervene during the third trimester. For 10 points, name this 1973 Supreme Court decision which protected a woman's right to have an abortion.
ANSWER: ***Roe*** *v. Wade* [or *Roe v.* ***Wade*** ; or ***Wade*** *v. Roe* ; or *Wade v.* ***Roe*** ]

12. In this city, four temples, one of which is a tholos with stairs only on its front side, are found in the Largo Argentina complex. The Trinita del Monti church is at the top of this city's Spanish Steps. An enormous concrete dome interrupted by a single oculus tops a temple to all of the gods in this city, called the Pantheon. A stadium in this city was built on the drained artificial lake of the Domus Aurea, was named for a large statue of Nero nearby, and was used for many gladiator shows. For 10 points, name this ancient city, home of the Colosseum.
ANSWER: **Rome**, Italy

13. Adam Michnik's 1989 article "Your President, Our Prime Minister" helped lead to this country getting a new prime minister. A nine-day 1979 visit to this country while it was under Communist rule was made by Pope John Paul II, who was originally from this country. The Lenin Shipyard was the site of a strike in this country's city of Gdansk, where Lech Walesa helped found the Solidarity movement. For 10 points, name this country once behind the Iron Curtain whose capital city was the namesake for the Warsaw Pact.
ANSWER: Republic of **Poland** [or Rzeczpospolita **Polska** ]

14. The Black Mountain Tower has an observation deck which provides views of this city. Its suburb of Deakin is home to The Lodge, and its central business district is in the shape of a hexagon. The damming of the Molongo River created this city's Lake Burley Griffin, named for the landscape architect who won its design competition in 1912. Since 1972, its Parliamentary Triangle has been home to the unofficial Tent Embassy, which is continuously occupied by Aboriginal protestors. For 10 points, name this city, part of the Australian Capital Territory.
ANSWER: **Canberra** , Australia

15. This composer extracted the numbers "Pantomime" and "Danse generale" into a suite from a ballet he scored. He wrote a D major piano concerto for the amputee Paul Wittgenstein. In an attempt to overtake the difficulty of Mily Balakirev's *Islamey,* this composer wrote the piano piece *Gaspard de la Nuit.* One of his compositions depicts a woman performing a Spanish dance on a table, and features a drum ostinato over the same theme repeated over and over. For 10 points, name this composer of *Bolero.*
ANSWER: Maurice **Ravel** [or Joseph-Maurice **Ravel** ]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 7****Tiebreaker/replacement questions** |

1. A leader of this government was executed as part of a "legal purge," and its members governed in exile from the castle of Sigmaringen. This government used the three-word motto "work, family, fatherland." This government ruled over a "free zone" from a spa town. Shortly after the success of Operation Torch, this country destroyed its own navy at Toulon. This government was led by Pierre Laval and a hero of the Battle of Verdun, Philippe Petain. For 10 points, name this Nazi-collaborationist government of France during World War II.
ANSWER: **Vichy** France [or **French State**; or **Etat Francais**]

2. An unfinished painting by this man, whose top was cut off in an 1880 restoration, features a blue-robed Saint John with hands stretched upward. This painter of *The Opening of the Fifth Seal* created a symbolic landscape which depicts rolling green hills and the Alcazar palace under a stormy sky. Another of his canvases was bisected into heaven and earth in its depiction of the funeral of a pious nobleman. For 10 points, name this Mannerist painter of *View of Toledo* and *The Burial of Count Orgaz,* who worked in Spain and was born on Crete.
ANSWER: **El Greco** [or Domenikos **Theotokopoulos** ]

3. In this novel, the family matriarch Caroline changes her son's name from Maury to maintain her family's reputation. In this novel's first section, the narrator describes people on a golf course "hitting." A pivotal scene in this novel occurs when three boys see their sister's "muddy quarters." The central family of this novel includes the mentally handicapped Benjy and the Harvard student Quentin, who commits suicide. For 10 points, name this novel about the Compson family written by William Faulkner.
ANSWER: *The* ***Sound and the Fury***

4. This deity manifests as three men named High, Just-as-High, and Third, and has a long conversation with Gylfi. This deity never eats and instead gives all of his food to two wolves named Geri and Freki. In his quest for wisdom, this deity hangs himself from the tree Yggdrasil for nine nights and, at the Well of Mimir, he sacrifices one of his eyes. This deity rides the eight-legged horse Sleipnir and one of his sons is the thunder god Thor. For 10 points, name this head of the Norse pantheon.
ANSWER: **Odin**

5. This distribution is approximated by the Poisson distribution when one of its parameters is large and the other is small. It is the distribution of a sum of independent Bernoulli trials; its mean and variance are the number of trials times the mean and variance of a single Bernoulli trial with probability of success p. Its probability mass function includes a factor n choose x, where n is the number of trials and x is the number of successes. For 10 points, give this probability distribution that is used to model the number of sixes in n rolls of a fair die.
ANSWER: **binomial** distribution

Thomas "Stonewall" Jackson was killed by friendly fire at what Civil War battle?
ANSWER: Battle of **Chancellorsville**

This is a calculation question. A basketball player has a 60 percent chance of making her second free throw, given that she missed the first one, and an 80 percent chance of making her second free throw, given that she made the first one. If the probability of making a free throw, then missing one, equals the probability of missing a free throw, then making one, what is the probability that she makes her first free throw?
ANSWER: **75 percent** [or **0.75** ; or **3/4** ]