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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Conference Tournament 2015**  **Round 6**  **First Period, Fifteen Tossups** |

1. The scherzo of this composer's fourth symphony features the strings playing pizzicato throughout. His final symphony features a "limping waltz" in five-four time and an unprecedented dynamic marking of six "p"s*.* This composer wrote a tone poem that pits the national anthems "La Marseillaise" and "God Save the Tsar" against one another, and calls for a cannon to be fired several times. For 10 points, name this Russian composer of the *Pathetique Symphony* , who celebrated a victory over Napoleon with his *1812 Overture.*   
ANSWER: Pyotr Ilyich **Tchaikovsky**

2. Legislation signed by this President led to the arrest of Benjamin Franklin Bache. During this man's presidency, the undeclared naval Quasi War occurred; that conflict started after three diplomats sent by this President were asked for a tribute by Talleyrand in the XYZ affair. This President's signing of the Alien and Sedition Acts helped his opponent win in the so-called Revolution of 1800. For 10 points, name this man who lost to Thomas Jefferson in 1800 and had earlier served as the first Vice President.  
ANSWER: John **Adams**

3. A character in this poem claims to have made another character "sufficient to have stood" after calling him an "ingrate." The third book of this poem begins with an invocation addressing a "holy light." The first two books of this poem focus on Satan rallying his followers after their fall from Heaven. For 10 points, name this epic poem about Adam and Eve written by John Milton.  
ANSWER: ***Paradise Lost***

4. This player has indicated that he prefers "The Servant" for a nickname, as opposed to "The Slim Reaper." During the 2014 playoffs, this player was dubbed "Mr. Unreliable" by a local newspaper after his team fell behind in its series against Memphis. This player was the leading scorer in the 2012 NBA finals, although his team lost to Miami. This player holds the record for most consecutive games with twenty five or more points, which he set during his 2013-14 MVP-winning season. For 10 points, name this small forward for the Oklahoma City Thunder.  
ANSWER: Kevin **Durant** [Kevin Wayne **Durant**]

5. A leader of this African country ordered the Red Terror to suppress the EPRP and MEISON groups. This country's capital is home to the headquarters of the African Union. A leader of this country declared "It is us today; it will be you tomorrow" at the League of Nations while his country was overrun by Italy in 1936. This country suffered a widespread famine under the Derg military junta, which overthrew its longtime leader, Haile Selassie. For 10 points, name this central African country whose capital is Addis Ababa.  
ANSWER: **Ethiopia** [Federal Democratic Republic of **Ethiopia**]

6. Phosphatidylserine is oriented within this structure by flippases. This structure can contain caveolae, a type of sphingomyelin-rich raft. Its electrical features can be measured with a patch clamp. In neurons, this structure's negative-70 millivolt resting potential is maintained by sodium-potassium ATPase. Its namesake proteins can anchor to the cytoskeleton. The fluid mosaic model describes this structure's phospholipid bilayer. For 10 points, name this selectively permeable structure that separates the cytoplasm from the extracellular environment.   
ANSWER: **cell membrane** [or **plasma membrane** ; or **cytoplasmic membrane** ; or **plasmalemma** ; prompt on phospho **lipid bilayer** until mention]

7. This poet wrote of "blessed rage for order" in an address to Ramon Fernandez at the end of a poem about a woman who "sang beyond the genius of the sea." He also wrote of how "one must have a mind of winter" to see "nothing that is not there and the nothing that is." This poet of "The Idea of Order at Key West" began another poem with the instruction to "call the roller of big cigars" to whip the title food. For 10 points, name this American poet of "The Snow Man" and "The Emperor of Ice-Cream."  
ANSWER: Wallace **Stevens**

8. Critical points are those where this value for a function is zero. For a straight line, this value is equal to the tangent of the angle formed by the line and the x-axis. The derivative of a function at point x is this value of the line tangent to the function at x. In an equation of the form "y equals m x plus b," this value is given by m. For straight lines it is "rise over run," the change in y over the change in x. For 10 points, name this number that gives the steepness of a line.   
ANSWER: **slope** [or **derivative** until it is read]

9. This man conducted a study in Linsly-Chittenden Hall that was heavily criticized by Australian author Gina Perry. This thinker had confederates read the lines "You have no other choice; you must continue" after another confederate claimed to have a heart condition. His best known experiment was inspired by the Eichmann trial and featured subjects believing they were punishing participants in a fictional memory test. For 10 points, name this psychologist who tested obedience by asking people at Yale to administer electrical shocks to others.  
ANSWER: Stanley **Milgram**

10. The difference in this quantity between two fluids causes the Rayleigh-Taylor instability. For an ideal gas, this quantity equals M P over R T. This quantity remains constant for a fluid in incompressible flow. The buoyant force on an object is equal to this quantity times the gravitational acceleration and the volume displaced by that object. Specific gravity is a ratio of this quantity for a substance to this quantity for water. For 10 points, name this quantity, symbolized rho, that is typically expressed as mass per unit volume.  
ANSWER: **density** [or **rho** until it is read]

11. Historically, pirates in this body of water operated from the walled city of Saint-Malo. The Cotentin Peninsula, home to the city of Cherbourg, juts into this body of water. In 1909, Louis Bleriot was the first to cross this body of water by plane. Guernsey and Jersey are some of this body of water's namesake islands. The city of Calais lies across this body of water from Dover. The Eurostar line runs through the "Chunnel" under this body of water. For 10 points, name this body of water that separates Great Britain from mainland Europe.  
ANSWER: **English Channel** [or La **Manche**]

12. Abderus was eaten by a group of these animals belonging to the giant Diomedes. Demeter was raped by Poseidon while both were in the form of this animal, producing a talking one named Arion. A winged variety of this animal was stung by a gad-fly as it scaled Mount Olympus, and earlier helped Bellerophon slay the Chimera. The lower body of this animal belongs to the centaur. For 10 points, name this animal, whose horned variety is the unicorn.  
ANSWER: **horse** s [or **mare** s; or **stallion** s]

13. A member of this philosophical school developed propositional logic and allegedly died laughing while watching a donkey attempt to eat some figs. Arrian was a student of a member of this school, whose sayings were collected in the *Enchiridion.* Seneca the Younger was a Roman follower of this school, which stressed that virtue was sufficient for living a happy life. For 10 points, name this Greek philosophical school named for the porch on which its members met, founded by Zeno of Citium.  
ANSWER: **Stoic**ism

14. This molecule's atmospheric presence was investigated by G.M.B. Dobson. The breakdown of this molecule is catalyzed by free radicals, which are formed when CFCs are photolyzed. This molecule is concentrated in a "layer" in the stratosphere, which thins over Antarctica every year to form a namesake "hole". For 10 points, name this molecule that consists of three oxygens and absorbs short-wavelength UV radiation in the atmosphere.  
ANSWER: **ozone** [or **O3** until "three oxygens" is read]

15. A city in this country was defended by Federigo Giambelli's hellburner ships. The tenth penny tax was enacted in this country, which was governed by Margaret of Parma. Privateers called Sea Beggars fought for this country. In this country, the Count of Egmont was executed by the Council of Troubles, a tribunal called by the Duke of Alba. This country's United Provinces rebelled against the Habsburgs in the Eighty Years War. For 10 points, name this country, the home of William of Orange and of cities like Antwerp and Amsterdam.  
ANSWER: the **Netherlands** [or the **Dutch** Republic; or **Holland** ; or Republic of the Seven **United Provinces** until "United" is read; or **Nederland** ]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 6**  **Directed Round** |

1A. What matchmaking title character of a Jane Austen novel eventually weds Mr. Knightley?  
ANSWER: **Emma** Woodhouse [prompt on **Woodhouse** ]

1B. Name the outgoing Attorney General for whom President Obama nominated Loretta Lynch as a replacement in November 2014.  
ANSWER: Eric **Holder** [Eric Himpton **Holder** Jr.]

2A. Which animal phylum includes many parasitic species such as hookworms and pinworms and is distinguished from platyhelminthes by its tubular digestive system?  
ANSWER: **nematode** s [or **roundworm** s; or **nematoda** ]

2B. What realist American novelist wrote *The House of Mirth* and *The Age of Innocence?*  
ANSWER: Edith **Wharton**

3A. This is a 20-second calculation question. What is the sum of the measures of the interior angles of a 27-sided polygon?  
ANSWER: **4500** degrees

3B. This is a 20-second calculation question. What is the equation of the uppermost horizontal asymptote of the graph of y equals 5 times cosecant of quantity 3 pi x plus pi over 7?  
ANSWER: **y = 5** [prompt on **5** ]

4A. What type of subject do German adjectives ending in "en" such as "neuen" and "alten" take?  
ANSWER: **plural**

4B. What three-dimensional coordinate system marks points in relation to their distance from the origin and the angles which the corresponding ray makes with the z and x axes?  
ANSWER: **spherical** coordinates

5A. Algol is an example of the "eclipsing" type of what kind of star system, consisting of two stars orbiting a common center of mass?  
ANSWER: **binary** star

5B. What Motown quintet covered "Papa Was A Rollin' Stone," and featured David Ruffin on its first number-one hit, "My Girl"?  
ANSWER: The **Temptations**

6A. What Romantic pianist and composer had his music adapted into the non-narrative ballet Les Sylphides by orchestrator Alexander Glazunov and choreographer Michel Fokine?  
ANSWER: Frederic **Chopin** [or Frederic Francois **Chopin** ; or Fryderyk Franciszek **Chopin** ]

6B. The island of Socotra, home to dragon's blood trees, belongs to what Middle Eastern country, which borders Saudi Arabia, Oman, and the Gulf of Aden?  
ANSWER: **Yemen** [Republic of **Yemen** ] [or al-Jumhuriya al- **Yemenia** ]

7A. What 2003 Supreme Court case, which overturned Bowers v. Hardwick, struck down anti-sodomy laws in its namesake state and nationwide?  
ANSWER: **Lawrence v. Texas**

7B. What island nation south of Sicily received the George Cross during World War II?  
ANSWER: **Malta** [Republic of **Malta** ]

8A. This is a 30-second calculation question. How many unique ways are there to rearrange the letters in the word PEOPLE?  
ANSWER: **180** ways

8B. This is a 30-second calculation question. Graphically, the set of solutions to the inequalities x plus y is greater than or equal to 20, x plus 2y is less than or equal to 30, x is greater than or equal to zero, and y is greater than or equal to zero forms a triangle. What is the area of that triangle?  
ANSWER: **50** square units

9A. What French Renaissance author asked, "What do I know?" in his "Apology for Raymond Sebond," the longest of his *Essays?*  
ANSWER: Michel de **Montaigne** [or Michel Eyquem de **Montaigne** ]

9B. What poetic term, which contrasts with end-stopped, refers to a clause which spills over from one line to the next?  
ANSWER: **enjambment**

10A. What Mauryan emperor converted to Buddhism after brutally conquering Kalinga?  
ANSWER: **Ashoka** Maurya

10B. What Greek king was eternally bound to a fiery wheel after he fathered the centaurs by sleeping with Nephele, a cloud that resembled the goddess Hera?  
ANSWER: **Ixion**

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 6**  **Third Period, Fifteen Tossups** |

1. A character in this novel, Walter Cunningham, speculates that another character poisoned pecans and placed them near his school. That character in this novel leaves mint gum and soap carvings in a tree. One of this novel's protagonists attends a Halloween pageant dressed as a ham, and she is saved from Bob Ewell by Boo Radley. In this novel, the black man Tom Robinson is falsely accused of rape and defended by the protagonist's father Atticus. For 10 points, name this novel featuring Jem and Scout Finch, the only novel by Harper Lee.  
ANSWER: ***To Kill a Mockingbird***

2. This President signed the Land Revision Act, which established the National Forest System. His failed Federal Elections Bill attempted to preserve voting rights for African-Americans, and he signed a bill that ordered the government to buy 4.5 million ounces of the title metal monthly. This signer of the Sherman Silver Purchase Act presided over the Billion Dollar Congress and passed the 1890 McKinley Tarriff. For 10 points, name this President whose single term was sandwiched in between Grover Cleveland's two, grandson of the shortest-tenured President.  
ANSWER: **B**enjamin **Harrison** [prompt on **Harrison**]

3. This character rescues Willie Scott from Club Obi Wan in a film appearance. This character taught at Marshall College alongside Marcus Brody. This character was chased by the Hovito after attempting to recover a golden idol. This character"s sidekicks have included Short Round and Sallah, and his son Mutt is the product of his romance with Marion Ravenwood. This character has found the Ark of the Covenant, and the Holy Grail. For 10 points, name this treasure-hunting archaeologist, played in a popular film series by Harrison Ford.  
ANSWER: **Indiana** Jones [or Indiana **Jones**; or Henry "Indiana" **Jones** Jr.; or **Indy** ]

4. Electrical power is carried along transmission lines at a high value for this quantity. This quantity between two points can be found by integrating the electric field between them. It is measured in a circuit using a device in parallel that has high input resistance, and an electrical ground is defined as equaling zero for this quantity. Power is equal to current times it. For 10 points, identify this quantity which is the electric potential difference between two points.  
ANSWER: **voltage**

5. This painting has sustained massive damage because it was painted with tempera on a base directly on a stone wall. This painting occupies an entire wall in the church of Santa Maria delle Grazie in Milan. This painting depicts the spilling of a salt-cellar by a man who reaches for a piece of bread as Bartholomew, James, and Andrew all look surprised. All twelve disciples seated at a table face the viewer in this painting. For 10 points, name this Leonardo da Vinci painting of Christ's final meal.  
ANSWER: *The* ***Last Supper*** *[*or *Il* ***Cenacolo*** ; or *L'* ***Ultima Cena*** ]

6. This country's capital is home to an unopened 105-story hotel shaped like a pyramid, as well as a tower named for its philosophy of "juche." This country claims that one of its longtime leaders was born on Mt. Paektu, which lies on its northern border like the Yalu River. The boundary between this country and its southern neighbor is marked by the Demilitarized Zone. This country lies north of the 38th Parallel. For 10 points, name this "hermit kingdom," an Asian country home to Pyongyang and once led by Kim Il-Sung.  
ANSWER: **North Korea** [or **Democratic People's Republic of Korea** ; or **DPRK** ; do not accept "South Korea"; do not accept "Republic of Korea"; prompt on "Korea"]

7. One of this author's title characters stays at a library during his quest to escape an "Oedipal prophecy." This author's latest novel describes the "Colorless" title train station architect's "Years of Pilgrimage." Toru Watanabe recalls his college life after hearing the title Beatles song in this author's *Norwegian Wood.* A novel by this author centers on Toru Okada, who searches for his missing cat and wife and frequently hears the sound of the title toy. For 10 points, name this author of *Kafka on the Shore* and *The Wind-Up Bird Chronicle.*   
ANSWER: Haruki **Murakami**

8. Yves Klein's best known monochrome canvases are of this color. In a 1903 painting, a man dressed in this color traverses a rocky meadow atop which orange-leaved trees rest in a *Portrait of Suzanne Bloch* and *La Vie* are part of a set of paintings nicknamed for this color. Wassily Kandinsky founded an Expressionist movement named for a "rider" of this color. Pablo Picasso's somber works of this "period" include *The Old Guitarist.* For 10 points, name this color which appears in Jasper Johns' images of the American flag, alongside red and white.  
ANSWER: **blue**

9. The architect of this country's labor reforms founded an educational investment effort called the Knowledge Fund and died in November 2014 while advising Ukraine's transitional government. Though the founder of its "Dream" party was stripped of citizenship in 2011, political rapping sensation Bera Ivanishvili helped propel Giorgi Margvelashvili to a 2013 victory. In 2003, this country's parliament was stormed by flower-wielding supports of Mikheil Saakashvili in the Rose Revolution. For 10 points, name this former Soviet state led from Tbilisi.  
ANSWER: **Georgia**

10. The Nottingham index is used to determine the prognosis of this disease. The triple-negative type of this disease doesn't express PR, ER, or a receptor targeted by Trastuzumab called Her2. Untreated ductal carcinoma in situ may progress to this disease. Patients with mutations in BRCA (BRACK-uh) 1 and 2 are more likely to develop ovarian cancer or this disease. This disease may be treated surgically with a single or double mastectomy. For 10 points, name this cancer which develops from a tissue used for lactation in women.  
ANSWER: **breast cancer** [accept **breast** after "cancer" is read; prompt on **cancer** until it is read]

11. This event occurred during the 20th celebration of Victorious February, which commemorated the coup of Klement Gottwald. This event was followed by the Normalization period, and the Action Programme was issued during it. Ludvik Vaculik wrote the Two Thousand Words manifesto during this event. The invasion following this event established Gustav Husak's government and demoted a proponent of "Socialism with a Human Face." For 10 points, name this 1968 period of liberalization led by Alexander Dubcek in Czechoslovakia.   
ANSWER: **Prague Spring** [or **Prazske Jar** o]

12. The change in this quantity must be zero for solvation in an ideal solution. Like Gibbs free energy, the change in this quantity is frequently tabulated for both formation and combustion reactions. This quantity, which is defined as the internal energy plus pressure times volume, is the heat change if a process occurs at constant pressure. A negative change in this quantity causes a reaction flask to heat up, because the reaction is exothermic. For 10 points, name this thermodynamic quantity symbolized H.  
ANSWER: **enthalpy** [or **H** until it is read]

13. This poet asks God to "break, blow, burn, and make me new" in a sonnet beginning, "Batter my heart, three-personed God." He compared the act of sex to the transmission of blood by the title insect in "The Flea." In the tenth of his *Holy Sonnets,* the speaker climactically tells the central figure, "Thou shalt die." For 10 points, name this metaphysical poet of "Death, be not proud."  
ANSWER: John **Donne**

14. In a decree addressed to the Duke of Zahringen, this leader declared that the German princes had the right to elect the Holy Roman Emperor. After the murder of his legate Pierre de Castelnau, this pope pressured Philip II of France to begin the Albigensian Crusade. During the reign of this issuer of the "Venerabilem" decree, Francis of Assisi founded the Franciscan order. A campaign called for by this pope was diverted by the navy of Venice and resulted in the creation of the Latin Empire. For 10 points, name this pope who called the Fourth Crusade.  
ANSWER: Pope **Innocent III** [Lotario dei **Conti** di Segni; or **Lothar of Segni** ; prompt on **Innocent** ]

15. Two brothers in this book massacre the people of Shechem as revenge for their sister Dinah. A character in this book finds that he has married Leah after working for seven years to marry her sister Rachel. In this book, Lot and his two daughters are the only survivors when Sodom and Gomorrah are destroyed. This book depicts the almost-sacrifice of Isaac by his father Abraham, and a flood that Noah's family survives by building an ark. For 10 points, name this first book of the Torah which depicts the creation and fall of man.  
ANSWER: **Genesis** [or **Bereshit**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 6**  **Tiebreaker/replacement questions** |

1. This city was home to the Prison of Anemas, and its guilds are the subject of the *Book of the Prefect.* After a ruler of this city was deposed, his relatives formed the Empire of Trebizond and the Nicaean Empire. Enrico Dandolo encouraged the sack of this city by the Fourth Crusade. The generals Mundus and Belisarius helped put down the Nika revolt in this city, which was begun by the Blues and the Greens at a chariot race in this city's Hippodrome. For 10 points, name this city where the Hagia Sophia was built by Justinian, the capital of the Byzantine Empire.  
ANSWER: **Constantinople** [or **Byzantium** until "Byzantine" is read; prompt on **Istanbul** ]

2. This novel's famous opening describes the stupid face made by a prince after his wife discovers his affair with the governess, and includes the observation that "every unhappy family is unhappy in its own way." In this novel, Konstantin Levin eventually marries Dolly's sister Kitty. This novel's title character has an affair with Count Vronsky before committing suicide by throwing herself in front of a train. For 10 points, name this novel by Leo Tolstoy.  
ANSWER: ***Anna Karenina***

3. This country claims the oil-rich Abyei Area. Its government is planning to move the capital to Ramciel, which is found just south of a large wetland whose mats of vegetation restrict navigation and is inhabited by the Nuer people. It has been embroiled in civil war since a supposed 2013 coup. Its Sudd marsh and capital are both found along the White Nile, and over 98 percent of its residents voted in a 2011 referendum for independence from its northern neighbor. For 10 points, name this newly-minted African nation whose capital is Juba.  
ANSWER: Republic of **South Sudan**

4. This element's chloride is added to ordinary bacteria to make them competent. Potassium-40 undergoes beta decay to form a stable isotope of this element. This element has a pale orange-red flame test. Hard water usually has a high concentration of magnesium and this other element. Quicklime, this element's oxide, can be formed by heating this element's carbonate, the major component of limestone. For 10 points, name this element with atomic number 20.  
ANSWER: **calcium** [or **Ca** ]

5. This man composed a catchy aria whose melody mimics military bugles, called "Non piu andrai." This composer used percussion instruments to imitate Turkish music in an opera in which Konstanze is sold to the Pasha Selim. In an opera by this composer, the aria "Der Holle Rache" is sung by the Queen of the Night, who threatens to disown her daughter Pamina, and Tamino goes on a quest using the title instrument. For 10 points, name this composer of *The Marriage of Figaro* and *The Magic Flute.*   
ANSWER: Wolfgang Amadeus **Mozart** [or Johannes Chrysostomus Wolfgangus Theophilus **Mozart** ]

What greenhouse gas, which is twenty times as potent as CO2 over a 100-year period, can be found in clathrates under the ocean floor?  
ANSWER: **methane** [or **CH4** ]

This is a calculation question. What is the greatest common factor of the monomials 2 x squared y to the seventh, 6 x to the fourth y to the eighth, and 12 x to the fifth y squared?  
ANSWER: **2 x squared y squared** [or **2 x2y2** ]