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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Conference Tournament 2015**  **Round 1**  **First Period, Fifteen Tossups** |

1. People with Prader-Willi syndrome often have leptin resistance and high ghrelin levels, which cause this condition by stimulating hyperphagia. The "central" type of this disease is marked by increased visceral adipose tissue. This condition underlies the majority of type 2 diabetes cases. This disease may be reversed with gastric bypass surgery, and it is usually defined as having a body mass index above thirty kilograms per meter squared. For 10 points, name this disease characterized by excess fat tissue.  
ANSWER: **obesity** [prompt on being **overweight** and other reasonable answers]

2. This player won his first Gold Glove in 2004, a season in which he received several bruises after diving into the stands to catch a Trot Nixon pop fly. In a 2001 ALDS game against Oakland, this player intercepted an off-target throw from Shane Spencer, flipping it to his catcher to get Jason Giambi out. This athlete recorded his 3,000th hit in 2011 off of David Price by hitting a home run. He was a member of the "Core Four" alongside Jorge Posada and Mariano Rivera. For 10 points, name this longtime New York Yankees shortstop who retired in 2014.  
ANSWER: Derek **Jeter**

3. This country's Brcko district has been described as a "free city," and a bridge in its capital was renamed for Suada and Olga, who died in a siege. This country was partitioned in the Graz Agreement, which did not invite its largest ethnic group. A massacre here was partially carried out by the Scorpions and was carried out by General Ratko Mladic. This country's namesake war ended with the Dayton Accords, and Muslims here were killed by Republika Srpska forces in Srebrenica. For 10 points, name this former Yugoslav republic whose capital is Sarajevo?  
ANSWER: **Bosnia** and Herzegovina

4. The frustrated type of this phenomenon results in propagation of evanescent waves. Thin film interference occurs when waves interfere after undergoing this phenomenon at the two boundaries of the film. Its total internal form occurs when the angle of incidence exceeds the critical angle. The angle at which this phenomenon occurs is equal to the angle of incidence. For 10 points, identify this wave phenomenon commonly observed with mirrors.  
ANSWER: **reflection**

5. This city merged with 27 surrounding municipalities in a 2002 consolidation that was partially repealed in a series of 2004 referendums. Its rubber-tired Metro is entirely underground, and Moshe Safdie built the modular housing demonstration Habitat 67 for a World's Fair in this city. This city is separated from its largest suburb of Laval by the Riviere des Prairies and is named for a three-headed hill overlooking downtown. For 10 points, name this city found on a namesake island in the St. Lawrence River, the largest city in Quebec.  
ANSWER: **Montreal**, Quebec

6. In this play, a shepherd named William is threatened to be killed a hundred fifty ways after he makes advances towards Audrey. A central character in this play is accompanied into exile by a complex clown named Touchstone. In this play, Jaques gives a speech describing the seven ages of man, which begins "All the world's a stage, and all the men and women merely players." This play is largely set in the Forest of Arden. For 10 points, name this William Shakespeare comedy about Orlando and Rosalind.  
ANSWER: ***As You Like It***

7. While waiting for a ride to one of these places, a group of people start eating snow by spooning it off each other's backs. Mrs. Schachter begins screaming about an imaginary fire while traveling to one of these establishments. A French girl comforts a boy after he is beaten by Idek, a Kapo, in one of these places. A march to another of these places called Buchenwald is recounted in that memoir by Elie Wiesel. For 10 points, name these places depicted in *Night* and other Holocaust memoirs.  
ANSWER: Nazi **concentration camps**

8. A leader of forces in this war withdrew from it via the Treaty of Ramla and may have hired two assassins to murder Conrad of Montferrat during it. This war was called by Gregory VIII in response to the death of Guy of Lusignan at a battle fought near the Horns of Hattin. Frederick Barbarossa drowned on his way to this war, which was fought against the newly founded Ayyubid dynasty. For 10 points, name this campaign led by Richard the Lionheart against Saladin, a crusade which attempted to retake the Holy Land.  
ANSWER: **Third Crusade** [or **King's Crusade** ]

9. A bronze snake used by this person to cure diseases was later destroyed by Hezekiah. After striking a rock to bring forth water, he was forbidden from entering the Promised Land. This man's wife Zipporah was harshly condemned by his sister Miriam and his brother Aaron. This patriarch foretold ten plagues that would fall on the Pharaoh's people, and later parted the Red Sea. For 10 points, name this Biblical patriarch who received the Ten Commandments and led the Israelites out of Egypt.  
ANSWER: **Moses** [or **Moshe** ; or **Musa** ]

10. This event was the subject of Robert Calef's compilation titled *More Wonders of the Invisible World.* Increase Mather eventually admitted this event resulted in too much harm to innocent people. Early during this event Betty Parris claimed to be attacked by a slave named Tituba. People killed during it included John Proctor, Sarah Good, and Giles Corey, with spectral evidence used in their court proceedings. For 10 points, name these 1690s events in colonial Massachusetts where women were executed for supposedly having supernatural powers.  
ANSWER: **Salem witch** trials

11. One of this man's essays begins with his endorsement of the motto, "That government is best which governs least." He wrote that essay after he was arrested for refusing to pay taxes that funded the Mexican-American War. This author also wrote a book detailing his life in isolation in a cabin by the title pond. For 10 points, name this Transcendentalist who wrote "Civil Disobedience" and *Walden.*   
ANSWER: Henry David **Thoreau**

12. The Chumash people in present-day California primarily produced these artworks. Some of these artworks theorized to represent the Summer Triangle can be found in the "Great Hall," alongside many of them which depict wounded aurochs and bison. An eight-year old girl discovered several of these artworks near Altamira, Spain. Damage caused by carbon dioxide necessitated the closing to the public of several 17,300 year old ones in the French town of Lascaux. For 10 points, name these Stone Age artworks on the walls of underground chambers.  
ANSWER: **cave painting** s [or synyonyms, such as **cave art** or **cave drawings** ; or **rock art** before "Stone Age" is read]

13. The artist of this painting said that he tried to emulate tintypes from his old family album in its creation. Several potted plants can be seen behind the left figure in this painting, whose brown apron features colonial designs. This painting's background depicts the Dibble House, which is found in Eldon, Iowa and has a distinctive pointed arch window. The woman in this painting is the artist's sister Nan, and the man is the artist's dentist. For 10 points, name this painting, which depicts a pitchfork-holding bald man, by Grant Wood.  
ANSWER: ***American Gothic***

14. The Dirichlet function is a nowhere continuous function that equals one at these numbers and is zero for all others. An algebraic number is a root of a polynomial where these types of numbers are coefficients. The Pythagoreans allegedly discovered the first number that is not this type of number when they tried to find the hypotenuse length of a triangle with legs equal to one. The set of these numbers is often abbreviated as "Q" for "quotient." For 10 points, name these numbers which can be expressed as fractions of integers.   
ANSWER: **rational** numbers [accept **Q** before mentioned; do not accept "real numbers"]

15. In an October 2014 special on Fox News, Robert O'Neill revealed himself as a member of this organization who participated in Operation Neptune Spear. An August 2011 attack on a Chinook helicopter in Afghanistan killed fifteen members of this group. In November 2014, hostage Luke Somers died during a failed raid by this organization on an al Qaeda compound in Yemen. For 10 points, name this American military organization, a part of the Joint Special Operations Command, members of which killed Osama Bin Laden in 2011.  
ANSWER: **SEAL Team Six** [or **United States Naval Special Warfare Development Group** ; or **NSWDG** ; or **DEVGRU** ]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 1**  **Directed Round** |

1A. In what Chinese epic novel by Wu Cheng'en does Sun Wukong accompany the monk Xuanzang on a quest to India to retrieve the sutras?  
ANSWER: ***Journey to the West*** *[*or ***Xi You Ji*** ]

1B. What country declared independence from France in 1804 after the world's only permanently successful slave revolt?  
ANSWER: Republic of **Haiti**

2A. The Roman Empire reaches its greatest extent under what emperor, who ordered the construction of his namesake column after his victories in Dacia?  
ANSWER: **Trajan** [or Marcus Ulpius Nerva **Traianus** ]

2B. Name the country in which student Tugce Albayrak was killed after she intervened on behalf of two women being harassed in a McDonalds.  
ANSWER: Federal Republic of **Germany** [or Bundesrepublik **Deutschland** ]

3A. This is a 20-second calculation question. Given that the point (-5, -12) is on the terminal side of an angle in standard position, what is the tangent of that angle?  
ANSWER: **12/5** [or **2.4** ]

3B. This is a 20-second calculation question. What is the difference between the median and the mode of the following data set: 1, -3, 2, -4, 5, -5, -6, -2, -2?  
ANSWER: **0**

4A. What daughter of Aeetes is abandoned by Jason after she tells him the secret to yoking fire-breathing oxen, ploughing a field with dragon's teeth, and slaying a sleepless dragon?  
ANSWER: **Medea**

4B. In a famous essay, what animal did George Orwell describe shooting while serving as a British officer in Burma?  
ANSWER: an **elephant**

5A. Name the actress who plays assassin Victoria Winslow in the **RED** series of films, and who won an Oscar for her portrayal of Queen Elizabeth II in **The Queen** .  
ANSWER: Helen **Mirren** [Helen Lydia **Mirren** ] [or Helen Lydia **Mironoff** ]

5B. Duke William IX of Aquitaine belonged to which group of High Middle Ages entertainers who performed lyric poems from Occitania?  
ANSWER: **troubadour** s

6A. What contemporary American playwright wrote *American Buffalo* and *Glengarry Glen Ross?*  
ANSWER: David **Mamet**

6B. What Stanley Kubrick science fiction film features an extended prologue showing man learning how to use tools after touching a mysterious black monolith?  
ANSWER: ***2001****: A Space Odyssey*

7A. The French "vous" [vu] is either a formal, polite pronoun or which kind of address also represented by the Spanish "vosotros" and "ustedes", and the German "ihr" [rhymes with "beer"]?  
ANSWER: **plural second person pronoun** [or **plural "you"** ; or **you all** ; or **y'all** ; or **youse** ; or **yuns** ; or anything analogous to **you guys** ]

7B. What European country is home to a chapel carved out from inside the Wieliczka Salt Mine, which lies near its city of Krakow?  
ANSWER: **Poland** [or Republic of **Poland** ; or Rzeczpospolita **Polska** ]

8A. This is a 30-second calculation question. In standard form, what is the equation of the line that passes through the points (4,3) and (10,6)?  
ANSWER: **x minus 2y equals negative 2** [or **negative x plus 2y equals 2** ]

8B. This is a 30-second calculation question. A circular target with total diameter six feet consists of an inner circle two feet in diameter surrounded by two rings each one foot wide. What fraction of the target's area is the middle ring?  
ANSWER: **1/3**

9A. What mathematical term can describe either the value for which half of a data set is less than or equal to that value, or a line segment connecting a vertex of a triangle with the midpoint of the opposite side?  
ANSWER: **median**

9B. What type of viruses, which were used in the Hershey-Chase experiment, can reproduce via the lytic cycle and destroy organisms such as *E. coli* in the process?  
ANSWER: bacterio **phage** s

10A. The Giant's Causeway in Northern Ireland consists of columns of what most common extrusive igneous rock, which also makes up most of the oceanic crust?  
ANSWER: **basalt**

10B. What political third party supported anti-immigrant nativism and nominated Millard Fillmore for President in 1856?  
ANSWER: Native **American** Party [or **Know-Nothing** Party]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 1**  **Third Period, Fifteen Tossups** |

1. A girl in this novel quickly washes off a kiss from her father in the stream running through the forest. Characters in this novel include a manipulative cripple who appears accompanied by an Indian in the opening scene. In this novel, Roger Chillingworth torments Reverend Arthur Dimmesdale for having an affair with his wife, who is forced to wear the title ornament. For 10 points, name this novel about Hester Prynne written by Nathaniel Hawthorne.  
ANSWER: *The* ***Scarlet Letter***

2. General Walter Short was relieved of command as a result of this attack. The first wave of planes during this attack was believed to be a scheduled arrival of B-17 bombers. The memorial for this attack is located on the *USS Arizona.* Dorie Miller won the Navy Cross for his actions during this attack. Franklin Roosevelt called this attack "a date which will live in infamy." For 10 points, name the American military installation which was attacked by Japan in December of 1941, leading the United States into World War II.  
ANSWER: **Pearl Harbor**

3. The long-range potential in the Lennard-Jones model is derived from this interaction. The magnitude of these forces drops off with the sixth power of distance, but is proportional to the polarizability of each compound. These interactions explain why boiling points increase as hydrocarbon chains get longer. They arise because electrons induce temporary dipoles in adjacent molecules, allowing even nonpolar molecules to interact. For 10 points, name these hydrophobic interactions, a class of van der Waals "dispersion" forces.   
ANSWER: **London** dispersion forces [or London **dispersion** forces until it is read; prompt on **van der Waals** forces]

4. This author wrote about the title "silent woman" who turns out to be a boy in his play *Epicene.* He created the con artist Subtle in a play about the corrupt servant Face, and he wrote about an Italian "fox" who pretends to be on his deathbed to solicit gifts from acquaintances. For 10 points, name this contemporary of Shakespeare and writer of comedies such as *The Alchemist* and *Volpone.*   
ANSWER: Ben **Jonson**

5. A 1950s urban renewal project destroyed this city's West End neighborhood, and its Brutalist City Hall sits on top of the former Scollay Square. This city's Tremont Street Tunnel was the first subway in America. In the nineteenth century, it annexed nearby towns such as Dorchester, Brighton, and Roxbury. Its Shawmut Peninsula more than doubled in size due to land reclamation, creating neighborhoods such as Back Bay with land taken from Beacon Hill. For 10 points, name this city on the Charles River, the largest in Massachusetts.  
ANSWER: **Boston**, Massachusetts

6. This man wrote about talking with a young woman about a golden scarab and at that same moment discovering an almost identical scarab. That illustrated this writer's theory of synchronicity. He argued that men had an inner personality called an "anima" and that women had one called the "animus."This man's theory of psychological types, such as extraverted and introverted, inspired the Myers-Briggs Type Indicator test. For 10 points, name this Swiss psychiatrist who split with Sigmund Freud over different ideas of the unconscious.

ANSWER: Carl Gustav **Jung**

7. A notable explication of this idea appeared in the 1078 book *Proslogion.* A critique of this idea as impossible involves an analogy of a teapot orbiting the sun; that critique was developed by Bertrand Russell. A five step argument about this idea uses such concepts as the "unmoved mover" and "first cause." Anselm created an ontological argument to prove this idea, while Thomas Aquinas used a cosmological argument to prove it. For 10 points, name this philosophical idea which tries to prove the existence of a powerful being.  
ANSWER: **existence of God** [or **proof of God**; accept descriptions]

8. A hero from this country prods himself with a poisoned spear to resist the music of the fire-breathing Aillen. This country is home to female spirits that begin wailing when a person is about to die. In the mythology of this country, Queen Medb (mave) launches a cattle raid that can only be stopped by the young hero Cu Chulainn. In the folklore of this country, the end of a rainbow leads to a pot of gold guarded by a stubby man in a green suit. For 10 points, name this country home to banshees, Finn McCool and leprechauns.  
ANSWER: **Ireland** [or **Eire**]

9. The inner structure of these objects was investigated by the *Deep Impact* probe. One of these objects named Shoemaker-Levy 9 impacted Jupiter. Most periodic examples of these objects originate from just outside the Kuiper Belt. In 2014, the *Rosetta* craft landed its *Philae* probe on one of these objects. Outgassing of these items upon heating gives them a visible coma. For 10 points, name these icy bodies whose tail always points away from the Sun and which include one named for Halley.  
ANSWER: **comet**s

10. This actor played a character whose father, Kirk, seemingly died in a storm caused by Christof, although it was all a ploy to make his character afraid of water. This actor played the rival of Evan Baxter, a news reporter whom his character tormented with divine powers given to him by God. This actor had his first big movie break when playing the inept pet detective, Ace Ventura. For 10 points, name this Canadian slapstick actor who recently re-teamed with Jeff Daniels in the sequel to *Dumb and Dumber.*  
ANSWER: James "Jim" **Carrey**

11. This man broke the power of the 28 Retuned Students and Otto Braun. This leader relocated urban youth to rural areas in the Down to the Countryside Movement, and his speech On Contradiction ushered in a brief period of liberalization called the Hundred Flowers Campaign. After his death, a faction led by his wife, the Gang of Four, was put on trial. Shoddy backyard steel furnaces were constructed during this leader's Great Leap Forward. For 10 points, name this leader of the Cultural Revolution, the first chairman of communist China.  
ANSWER: **Mao** Zedong [or Chairman **Mao** ; or **Mao** Tse-tung]

12. A compound with this element, which is used in a namesake type of NMR, diffused through gloves and killed Karen Wetterhahn. This element caused several outbreaks of Minamata disease. Sodium and this metal are found in thimerosal. Before Paul Ehrlich's "magic bullet", it was used to treat syphilis. Its methyl form is biomagnified in predatory fish, such as tuna. It has been replaced with an alcohol in thermometers. For 10 points, name this heavy metal called quicksilver in its liquid elemental form and which is symbolized Hg.  
ANSWER: **mercury** [or methyl **mercury**; or dimethyl **mercury** ; or **Hg** until it is read]

13. A shortage of beer at this monarch's coronation caused a human stampede at Khodynka. This monarch's troops fired at protesters led by Father Gapon during the Bloody Sunday incident. This monarch passed the October Manifesto in response to a 1905 revolution in his country. The Trans-Siberian Railway was completed under this man's reign. This monarch and his family were executed in Yekaterinburg by the Bolsheviks. For 10 points, name this Romanov ruler who was the last tsar of Russia.  
ANSWER: **Nicholas II** [prompt on **Nicholas** ]

14. This composer wrote a popular set of Landler-style dances for choir and piano four-hands, called the *Liebeslieder.* He set Psalm 84 to music in his movement "How lovely are thy dwellings," part of a composition that uses the Luther instead of the Latin Bible to express grief for the death of his mother. This composer gave thanks to the University of Breslau for awarding him an honorary degree by composing his *Academic Festival Overture.* For 10 points, name this German composer of a famous lullaby, the last of the 3 Bs.  
ANSWER: Johannes **Brahms**

15. Part of this structure in humans is comprised of greater and lesser alar regions. Hemorrhage of this structure is called epistaxis. Bone shelves within this structure help control the temperature and moisture of its nares. The outer surface of this structure is moist and sensitive to wind direction in animals with rhinaria. The roof of this structure has receptor neurons that bind to odorants and send information along the olfactory nerve, and its namesake hairs filter particles from the air. For 10 points, name this protruding facial feature used for respiration and smelling.  
ANSWER: **nose** [or **nasal cavity**; prompt on **nostril**s]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 1**  **Tiebreaker/replacement questions** |

1. An adviser to this monarch built the Hampton Court Palace and organized a meeting with Francis I at the Field of the Cloth of Gold. A Catholic uprising against this monarch was known as the Pilgrimage of Grace. This monarch sent troops to Scotland in the Rough Wooing. This monarch had Thomas Wolsey arrested and broke his kingdom away from the Catholic Church after Pope Clement VII refused to annul his marriage to Catherine of Aragon. For 10 points, name this Tudor king of England famous for his six wives.  
ANSWER: **Henry VIII** of England [prompt on **Henry** ]

2. This scientist names a model that relates the frictional force between two surfaces to the normal force exerted on each surface. This scientist also names a constant that equals one over quantity four pi times the permittivity of free space. That constant is multiplied by charge over radius squared to find the electric field. This scientist's namesake law, a special case of Gauss's Law, states that the force between two point charges is inversely proportional to the distance squared. For 10 points, name this scientist who lends his name to the SI unit of charge.  
ANSWER: Charles-Augustin de **Coulomb**

3. This country's tradition of water puppetry originated in the Red River Delta. This country's language was formerly written using the chu nom script, but now uses a modified diacritic-heavy Latin alphabet. This country's cuisine, influenced by French colonists, includes the baguette-like banh mi and a beef noodle soup known as pho. The USS Maddox was attacked off this country's coast in the Gulf of Tonkin Incident, which escalated its namesake war. For 10 points, name this Southeast Asian country where Saigon was renamed Ho Chi Minh City, ruled from Hanoi.  
ANSWER: **Vietnam** [or Socialist Republic of **Vietnam** ]

4. In an opera by this composer, a girl who has been sentenced to death sings a prayer in the aria "Deh, tu reggi in tal momento." The protagonist of another opera by this composer dresses up as the tutor Lindoro to woo the daughter of Doctor Bartolo. In that opera by him, the title character helps Count Almaviva and Rosina fall in love and sings the aria "Largo al factotum," wherein he repeats his own name, Figaro. For 10 points, name this Italian composer of *The Thieving Magpie* and *The Barber of Seville.*   
ANSWER: Gioachino **Rossini** [or Gioachino Antonio **Rossini** ]

5. This author wrote about the transvestite Randolph, who owns Skully's Landing, and the boy Joel Harrison Knox in his novel *Other Voices, Other Rooms.* He created a woman who visits the criminal "Sally" Tomato in Sing Sing. This creator of Holly Golightly wrote a "nonfiction novel" about the murder of the Clutter family. For 10 points, name this American author of *Breakfast at Tiffany's* and *In Cold Blood.*   
ANSWER: Truman **Capote**

What detective novel by Wilkie Collins traces the theft of the title Indian diamond?  
ANSWER: *The* ***Moonstone***

This is a calculation question. What are the two binomial factors of the trinomial x squared plus 7 x plus 6?  
ANSWER: (**x+1**) and (**x+6**)