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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Conference Tournament 2015****Round 4****First Period, Fifteen Tossups** |

1. In a December 2003 game, this player threw four touchdowns and led his team to victory the day after his father died. In October 2014, Peyton Manning surpassed this player"s record for the most touchdowns completed, though he still holds the record for throwing the most interceptions in NFL history. Aaron Rodgers replaced this player as a starter following the 2007 season, leading to his trade to the Jets. For 10 points, name this three-time NFL MVP and quarterback for the Green Bay Packers.
ANSWER: Brett **Favre** (FARV) [Brett Lorenzo **Favre**]

2. In one experiment, nitrogen was transmuted into oxygen by firing one of these particles at it. One of these particles is produced when uranium-238 decays to thorium-234, and Rutherford discovered the nucleus by scattering these particles off a gold foil. They can be blocked by a sheet of paper, since they compose the weakest of the three types of ionizing radiation. For 10 points, give this term for a helium nucleus, which is denoted by a Greek letter.
ANSWER: **alpha** particles

3. This thinker wrote a book that was condemned for presenting the supposedly blasphemous "profession of faith of the Savoyard Vicar." He argued that the stage of "savagery" was actually superior to both being a brute or a decadent. This thinker claimed that the hot climate "always seems to inflame the passions" and also argued against the divine right of kings in a book that begins with the lines "Man is born free; and everywhere he is in chains." For 10 points, name this Swiss philosopher who wrote the novel *Emile* and the book *The Social Contract.*
ANSWER: Jean-Jacques **Rousseau**

4. The dihedral group of order 10 is this figure's symmetries. When these figures have side length one, their diagonals have length equal to the golden ratio. The dodecahedron, the only Platonic solid whose faces are not squares or triangles, has twelve faces of this shape. These shapes cannot tessellate a plane because their interior angles all measure 108 degrees. For 10 points, name these five-sided shapes with equal angles and side lengths.
ANSWER: **regular pentagon**s [prompt on **pentagon**s; prompt on **regular polygons**]

5. A recently completed natural gas pipeline known as the Nord Stream traverses this body of water. An unusually sunny island in this body of water, named Usedom, partially encloses the Stettin Lagoon. The Gota Canal, which connects the Kattegat with this body of water, was built to bypass the Oresund strait. The largest island in this body of water, Gotland, was a key site for the Hanseatic League. Estonia, Latvia, and Lithuania are often called this sea's namesake "states." For 10 points, name this European sea that provides much of Sweden's coastline.
ANSWER: **Baltic** Sea [or Gulf of **Finland** until "Usedom" is read]

6. This essay condemns the "superstition of Traveling" that infects Americans with the desire to visit Italy, England, and Egypt. The author of this essay observes, "For nonconformity the world whips you with its displeasure," before asserting, "A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines." For 10 points, name this seminal essay championing American individualism written by Ralph Waldo Emerson.
ANSWER: "**Self-Reliance**"

7. Hundreds of manuscripts from this country were collected by Anthony Charles Harris. Rectangular tombs called mastabas were constructed in this country, which was home to a settlement of craftsmen at Deir el-Medina. The burial ground Saqqara was located in the city of Memphis in this country. A structure in this country was commissioned by King Cheops, or Khufu. For 10 points, name this country where the Rosetta Stone was discovered, the home of the pyramids.
ANSWER: Ancient **Egypt** [or **Masr**]

8. This hero secretly entered a contest where he was the only one able to string a bow and shoot an arrow through twelve axeheads. This hero tried to avoid going to war by acting insane and sewing salt into his fields. This hero spent seven years living on an island with Calypso, and told a cyclops that his name was "Nobody." This hero killed the persistent suitors of his wife Penelope after he arrived home in Ithaca. For 10 points, name this Greek hero who spends ten years sailing home in an epic poem by Homer.
ANSWER: **Odysseus** [or **Ulysses**]

9. This operation is involved in both sides of the transformation constituting De Morgan's laws. This operation applied right after a logic gate is indicated by a circle at the end of the gate. This operation is often represented by a dash with a tail or a tilde next to a variable, or a bar over a variable. This operation is applied to AND and OR to form NAND and NOR. This unary operation yields a 0 if a 1 is input. For 10 points, name this logic operation that outputs the opposite of its input.
ANSWER: **NOT** [or **negation** ; or **inversion** ; or **complement**]

10. Notorious examples of these locations which are now demolished were found in St. Louis and named for Wendell Pruitt and William Igoe. These locations were the focus of the HOPE VI Plan. In Chicago, violence has plagued examples of these locations named for Frances Cabrini and William Green. These places are frequently the target of urban renewal plans and are administered by the HUD Cabinet department. For 10 points, name these building complexes found in urban areas which consist of government run residences for low income citizens.
ANSWER: public **housing** complexes [or **apartment** buildings; prompt on **slums**; do not accept "subdivisions"]

11. A protracted series of battles in this war was fought over a hill nicknamed "Old Baldy." Thousands died during the tactically insignificant Battle of Pork Chop Hill, which was fought during a stalemate in this conflict. While this war was going on, a retiring general quoted a song while telling Congress "old soldiers never die; they just fade away." During this war, Douglas MacArthur was removed from command for violating presidential orders. For 10 points, name this conflict, a 1950 to 1953 war in which American troops fought on an Asian subcontinent.
ANSWER: the **Korean** War

12. *Grove's Dictionary* once infamously dismissed this composer's music as "monotonous in texture." This composer inverted the melody of an A minor into a D flat major theme in the eighteenth variation on the twenty-fourth caprice for solo violin by an Italian virtuoso. This composer of the wildly popular *Prelude in C-sharp Minor* wrote a choral symphony based on an Edgar Allan Poe titled *The Bells* and evoked the rowing of Charon's ferry in his *Isle of the Dead.* For 10 points, name this late Romantic Russian composer of *Rhapsody on a Theme of Paganini.*
ANSWER: Sergei **Rachmaninoff** [Sergei Vasilyevich **Rachmaninoff** ]

13. These bodies may be enclosed within an achene and fill up most of the pericarp. In some species, these things contain the cyanide compound amygdalin. Samaras are winged bodies holding these structures in maples. Energy from the endosperm of these structures is transferred to cotyledons in some dicots. These structures are found in the pits of drupes such as prunes. Unlike gymnosperms, angiosperms store these structures in fruits such as nuts for dispersal away from the parent. For 10 points, name these structures from which baby plants grow.
ANSWER: **seed**s [or **plant embryo**s; prompt on **fruit**s; prompt on **nut**s; prompt on **bean**s]

14. A queen of this country founded the Academy of Arcadia after moving to Rome and converting to Catholicism. Archbishop Gustav Trolle oversaw executions known as the Bloodbath of this country's capital. A king of this country beat Count Tilly at the Battle of Breitenfield, was advised by Axel Oxenstierna, and was succeeded by his daughter Christina. That "Lion of the North" from this country's Vasa dynasty died at the Battle of Lutzen during the Thirty Year's War. For 10 points, name this country ruled by Gustavus Adolphus.
ANSWER: Kingdom of **Sweden** [or **Sverige**]

15. A character in this poem brags about how he killed serpents in an incident that caused him to lose a swimming contest. That character in this poem finds he cannot hurt one of his foes using the sword Hrunting, loaned to him by Unferth. This poem is named for a man who dies fighting a dragon years after defending Hrothgar's hall. For 10 points, name this Old English epic about a warrior who slays Grendel.
ANSWER: ***Beowulf***

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 4****Directed Round** |

1A. What Cavalier poet advised the title characters, "Gather ye rosebuds while ye may," in his "To the Virgins, to Make Much of Time"?
ANSWER: Robert **Herrick**

1B. What river, named for its muddy water, earned the nickname "China's Sorrow" for changing course multiple times and flooding farms?
ANSWER: **Yellow** River [or **Huang** He]

2A. What former Portuguese colony, currently led by Jose Eduardo dos Santos, was embroiled in a 27-year civil war between UNITA and the MPLA?
ANSWER: **Angola** [Republic of **Angola** ]

2B. What monk documented the conversion of the British Isles to Christianity in his *Ecclesiastical History of the English People?*
ANSWER: The Venerable **Bede** [or Saint **Bede** ]

3A. This is a 20-second calculation question. What is the radius of a circle given by the equation x squared minus 6 x plus y squared minus 8 y equals 0?
ANSWER: **5** units

3B. This is a 20-second calculation question. A and B are mutually exclusive events. The probability of event A is 5/8. The probability of event B is 3/16. What is the probability that neither event A nor event B occurs?
ANSWER: **3/16** [or **0.1875** ]

4A. What constitutional amendment ratified in 1920 granted women in the United States the right to vote?
ANSWER: the **Nineteenth** Amendment

4B. Practitioners of which monotheistic religion originating in Iran worship Ahura Mazda and read from sacred texts called the *Avestas?*
ANSWER: **Zoroastrian** ism [or **Zarathustraism** ; or **Mazdaism** ; or **Magian** ism]

5A. What law states that the partial vapor pressure of a component in a mixture is equal to the vapor pressure of the component multiplied by its mole fraction?
ANSWER: **Raoult** 's law

5B. Kevin Spacey plays Atlas Corporation CEO Jonathan Irons in the most recent entry in what video game series?
ANSWER: ***Call of Duty*** *[*or ***Call of Duty*** *: Advanced Warfare* ]

6A. In what language did August Strindberg write such works as *The Red Room* and *Miss Julie?*
ANSWER: **Swedish**

6B. Which adjective describes characteristics reminiscent of sheep and is derived from the scientific name for that species?
ANSWER: **ovine**

7A. Which verb form denotes continuous or habitual events in the past, which in French may be exemplified by conjugating "they were" into *ils etaient* (eelz EH-tay)?
ANSWER: **imperfect** [or **imparfait** (AWM-par-fay)]

7B. In Boolean algebra, what function is typically represented by a circle around a plus sign and means, "either A or B, but not both A and B"?
ANSWER: **xor** [or **exclusive or** ]

8A. This is a 30-second calculation question. Jed bought 4 hot dogs and 2 sodas. Mary bought 3 hot dogs and 4 sodas for the same price as Jed. Katie buys a single hot dog. If she spends as much money as Jed and Mary, how many sodas does she buy?
ANSWER: **8** sodas

8B. This is a 30-second calculation question. Suppose that y equals one-half times the inverse sine of x. In radians, what is the range of the function cosine of y?
ANSWER: **between** square **root** of **2, over 2 and 1**, inclusive [or square **root** of **2, over 2 to 1** , inclusive; or **between one over** square **root** of **2 and 1** , inclusive; or **one over** square **root** of **2 to 1** , inclusive; or **between rad** ical **2, over 2 and 1** , inclusive; or **rad** ical **2, over 2 to 1** , inclusive; or **between one over rad** ical **2 and 1** , inclusive; or **one over rad** ical **2 to 1** , inclusive]

9A. Which pigmented structure of the eye is absent in aniridia and has muscles responsible for the contraction and dilation of the pupil?
ANSWER: **iris**

9B. What American author of *The Naked and the Dead* detailed the circumstances of Gary Gilmore's death in *The Executioner's Song?*
ANSWER: Norman **Mailer**

10A. What five-movement Hector Berlioz piece uses a recurring theme, or *idee fixe* , to depict the composer's love for actress Harriet Smithson in movements like "March to the Scaffold?"
ANSWER: ***Symphonie Fantastique*** *[*or ***Fantastic Symphony*** ]

10B. Name the proposed oil pipeline extension between Canada and the United States which is scheduled to be voted upon by the Senate early in 2015 and which President Obama opposes.
ANSWER: **Keystone** XL

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 4****Third Period, Fifteen Tossups** |

1. In a poem by this author, a woman dreams that she is chased through the woods by a talking bear. This poet described a green oak with a chain wrapped around it in the prologue to his poem about a knight who rescues his beloved from the sorcerer Chernomor. This man used sonnets in iambic tetrameter for a verse novel in which the title character flirts with Olga at her sister's name-day party and shoots Lensky in the subsequent duel. For 10 points, name this Russian author of *Ruslan and Ludmilla* and *Eugene Onegin.*
ANSWER: Alexander **Pushkin** [or Alexander Sergeyevich **Pushkin** ]

2. The longest section of this book is an acrostic text written in praise of the law, featuring one stanza for each letter of a certain language's alphabet. In another passage of this book, the desires of an exiled people are expressed with an opening line mentioning "the rivers of Babylon." Over seventy of the chapters in this book are attributed to David, including the twenty-third, which begins "The Lord is my shepherd; I shall not want." For 10 points, name this book of the Old Testament which contains over one hundred religious songs.
ANSWER: **Psalm** s

3. This man's resignation was demanded by participants in the Aventine secession during the Matteotti crisis. In Operation Oak, this man was freed from a prison on Gran Sasso mountain. This leader's troops deposed Haile Selassie during his invasion of Ethiopia. He signed the Lateran Treaty and allied with Germany in the Pact of Steel. For 10 points, name this leader of the Blackshirts, a fascist dictator of Italy during World War II.
ANSWER: Benito **Mussolini** [or Benito Amilcare Andrea **Mussolini** ; prompt on Il **Duce** ]

4. This character discourses about the "vicious mole of nature" by which otherwise good men are undone. In another scene, he laments "how weary, stale, flat, and unprofitable seem to me all the uses of this world." Later, he considers making his "quietus" with a "bare bodkin" in a speech that calls death an "undiscovered country." This character puts on a production of *The Murder of Gonzago* after he is ordered to kill his uncle Claudius by the ghost of his father. For 10 points, name this Prince of Denmark who asks "To be, or not to be?" in a Shakespeare tragedy.
ANSWER: **Hamlet**

5. Before this battle, a commander enlisted some Arikara scouts by promising to assist them after becoming president. This battle was preceded by the Battle of Rosebud Creek. During this battle, Frederick Benteen and Marcus Reno took up a defensive position on a hill. The winners of this battle were reportedly inspired by a vision of "falling grasshoppers" and were led by Chief Gall and Crazy Horse. For 10 points, name this battle of the Sioux War often called "Custer's Last Stand."
ANSWER: Battle of **Little Bighorn** [or **Custer's Last Stand** before "Custer" is read]

6. These devices were apocryphally discovered when Theodore Maiman moved labs and had to polish his dusty rubies. These devices have a gain medium sandwiched between two reflectors and are imparted energy via "pumping". These devices are used as a source for optical fibers. These devices have coherent emission because they amplify light by stimulated emission. For 10 points, name these monochromatic sources of light found in a namesake "pointer".
ANSWER: **laser** s [or **light amplification by stimulated emission of radiation** until "amplify light" is read]

7. An initiative known as "Hoy No Circula," which bans certain cars from running on weekdays, was employed in this city to improve its air quality. A golden angel tops a monument that lies on this city's Paseo de la Reforma. This city's "floating gardens" can be found in its Xochimilco district. Six "Boy Heroes" unsuccessfully defended this city's Chapultepec Castle. This city is slowly sinking, since much of it was built on top of Lake Texcoco. For 10 points, name this capital of a large country directly south of the United States.
ANSWER: **Mexico City** , Mexico [or **Ciudad de Mexico** ; prompt on **Federal District** ; prompt on **Distrito Federal** ; prompt on **D.F.** ]

8. This character's father, Phillip, was employed by the Chinese and died on an oil rig. His now deceased love interests included his wife, Teri, FBI Agent Renee Walker, and the daughter of the Secretary of Defense. He was last seen surrendering to the Russians after killing Cheng Zhi in the *Live Another Day* story arc. This character was first seen as the top agent of the Counter Terrorist Unit, foiling various terrorist schemes that took place in one day periods. For 10 points, name this Kiefer Sutherland portrayed protagonist of the show *24.*
ANSWER: **Jack** Bauer [or Jack **Bauer** ]

9. This country is planning to consolidate its 22 regions into 14, and its current President has been given the derisive nickname "Flanby." A former president of this country was recently elected chairman of its center-right Union for a Popular Movement. This country indefinitely postponed its planned sale of two Mistral warships to Russia in response to the Ukraine crisis, a move criticized by Marine La Pen of the far-right Front National. For 10 points, name this country where, in its 2012 Presidential election, Nicolas Sarkozy was defeated by Francois Hollande.
ANSWER: **France** [or **French Republic** ] [or **Republique francaise** ]

10. Aluminum sulfate flocculates particles in this material. The purest form of this compound is 55.6 molar. Ion exchange resins are commonly used to "soften" this compound after it has been mixed with carbonate minerals. This compound is purified through a dialysis membrane during reverse osmosis. Hexafluorosilicic acid is added to this compound in the United States as a source of fluoride ions. This molecule has a 104.5 degree bond angle, giving it a "bent" shape. For 10 points, name this liquid that can be purified by boiling it at 100 degrees Celsius.
ANSWER: **water** [or **H2O** ; or **groundwater** ; or hard **water** ]

11. This artist painted two ships from the American Civil War locked in combat. In paintings such as *The Railway,* this artist used Victorine Meurent as his model. Another painting by this artist features a reclining nude with an orchid in her hair and a black cat at her feet, who is attended to by a black maidservant. He also caused a scandal at the 1863 Salon des Refuses (re FEW say) with his depiction of a nude woman staring at the viewer, eating a picnic with two fully clothed men. For 10 points, name this French painter of *Olympia* and *Luncheon on the Grass.*
ANSWER: Edouard **Manet** [do not prompt on or accept "Monet"]

12. During an opera in this movie, the camera moves from the singer up to the rafters where workers shake their heads in disgust. A character learns about the protagonist's early life from reading the memoirs of Walter Thatcher, who took the protagonist away from his childhood home in Colorado. This movie opens with a shot of Xanadu, the mansion in which the protagonist drops a snow globe and says his last word. For 10 points, name this Orson Welles movie about the life of a newspaper magnate, told in flashbacks as a reporter tries to uncover the meaning of "Rosebud."
ANSWER: ***Citizen Kane***

13. This man forced many of his officers to marry foreign women in the Weddings at Susa. This king once drunkenly murdered his friend Cleitus, and he captured Tyre by building a land bridge. After the death of this son of Olympias, his generals, the Diadochi, fought over his empire. This leader defeated Darius III at the battles of Gaugamela and Issus. He supposedly cut the Gordian knot with his sword. For 10 points, name this son of Philip II, a conquering king of Macedonia.
ANSWER: **Alexander** the Great [or **Alexander** III; or **Alexandros** ]

14. Inflammation of this structure is the most common cause of pain at McBurney's point, which is about a third of the way between the anterior superior iliac spine and the umbilicus. This structure may have a role in replenishing helpful bacteria, although perforation of it can result in peritonitis. Dull pain that sharpens as it migrates to the right side of the abdomen can indicate a namesake inflammation of this tubal structure attached to the cecum, and rupture of it can be fatal. For 10 points, name this possibly-vestigial, "wormlike" structure extending off the large intestine.
ANSWER: vermiform **appendix**

15. This poet's major work begins with a loose translation of a portion of the *Odyssey* beginning, "And then went down to the ship, set keel to breakers, forth on the godly sea." In 1920, this poet published the long poem *Hugh Selwyn Mauberley.* He became a pro-Mussolini fascist during World War II and wrote part of his longest work while imprisoned in Pisa. For 10 points, name this modernist poet who wrote *The Cantos.*
ANSWER: Ezra **Pound**

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl****Regular Season 2014****Round 4****Tiebreaker/replacement questions** |

1. Near the end of this novel, the protagonist receives a note reading, "Good-bye - because I love you." This novel's protagonist is contrasted with Adele Ratignolle and has a brief affair with the womanizer Alcee Arobin. In this novel, the protagonist kills herself by walking into the ocean after her abandonment by Robert Lebrun. For 10 points, name this novel about Edna Pontellier written by Kate Chopin.
ANSWER: *The* ***Awakening***

2. Rotating the graph of this function around the x-axis creates Gabriel's Horn, which has finite volume but infinite surface area. For a complex number x with a magnitude of one, this function equals the complex conjugate of x. The Euler-Mascheroni constant is the limit of the difference between the natural logarithm of n and the sum of this function taken at whole numbers up to n. It is the derivative of the natural logarithm of x. The harmonic series is the sum of the values of this function taken at whole numbers. For 10 points, name this function, the inverse of x.
ANSWER: **1/x** [or **x** raised **to** the power of **negative one** ; or the **reciprocal** of x]

3. During a wedding feast hosted by Volsung, Odin mysteriously arrives to place one of these objects inside of a tree. The Japanese god Susanoo finds one of these objects inside the tail of an eight-headed serpent. Sir Bedivere is tasked with returning this type of object to the Lady of the Lake. This type of weapon is used to slay the dragon Fafnir. One of these weapons is pulled out of a stone by King Arthur. For 10 points, identify the type of weapon exemplified by Excalibur.
ANSWER: **sword** s

4. John Frederick Kensett belonged to an offshoot of this art movement, known as Luminism. A artist from this movement stands alongside a poet with mountains in the background in the painting *Kindred Spirits.* The founder of this movement painted a series detailing the rise and fall of a civilization, titled *The Course of Empire.* A bend in the Connecticut River is the subject of *The Oxbow,* an artwork from this movement painted by its founder, Thomas Cole. For 10 points, name this American art movement of landscape painters which takes its name from a body of water in New York state.
ANSWER: **Hudson** River School

5. During this emperor's reign, Gnaeus Domitius Corbulo installed Tigranes IV on the throne of Armenia. This ruler's general Suetonius Paulinus won the Battle of Watling Street, ending the revolt of the Iceni queen Boudica. After his death, a period of civil wars known as the Year of the Four Emperors was ended by the ascension of Vespasian. He may have committed an act of arson in order to build his Domus Aurea palace. For 10 points, name this last Julio-Claudian Emperor who allegedly fiddled while Rome burned.
ANSWER: **Nero** [ **Nero** Claudius Caesar Augustus Germanicus] [or **Nero** Claudius Drusus Germanicus; or **Lucius** Domitius Ahenobarbus]

In what dystopian Anthony Burgess novel is Alex forced to undergo the Ludovico technique?
ANSWER: *A* ***Clockwork Orange***

This is a calculation question. A rectangle's width is five plus twice its height. What is the area of the rectangle if its height is ten inches?
ANSWER: **250** square inches