**VHSL Conferences 2016-2017 - Round 05 - First Period, Fifteen Tossups**

1. This composer's 1923 octet is considered the start of his Neoclassical period, during which he wrote the *Symphony of Psalms*. This composer wrote a ballet in which a magic-induced lullaby called the "Berceuse" follows the "Infernal Dance." He wrote a ballet in which a young woman dances herself to death as part of a sacrifice. The 1913 premiere of that ballet caused a riot in Paris. For 10 points, name this composer of *The Firebird* and *The Rite of Spring*.
ANSWER: Igor **Stravinsky** [or Igor Fyodorovich **Stravinsky**]

2. As part of this event, participants go to the Jamaraat Bridge with at least forty-nine pebbles that they throw at three walls in a symbolic "stoning of the Devil." During this event, people walk seven times around the Ka'aba (KAH-bah) alongside thousands of others. As opposed to the other Five Pillars, this event must be carried out at least once in a lifetime by those who are physically able to do so. For 10 points, name this annual Muslim pilgrimage to Mecca.
ANSWER: **hajj**

3. These events can occur when a white dwarf's mass exceeds the Chandrasekhar limit and has its core collapse, which is known as their type one A. Kepler observed one of these events for an entire year starting in 1604. Chinese astronomers observed one in 1054, which left behind the Crab Nebula. Elements heavier than iron are usually formed during these events. For 10 points, name these large, violent explosions of stars.
ANSWER: **supernova**e

4. In this novel, a tall man with only three fingers on one hand is nicknamed Black Dog and goes in search of an old acquaintance at the Admiral Benbow Inn. Much of this novel takes place on a boat sponsored by Squire Trelawney, the *Hispaniola*. In this novel, the marooned sailor Ben Gunn looks for the riches of Captain Flint with Long John Silver. For 10 points, name this novel in which Jim Hawkins falls in with a group of pirates, by Robert Louis Stevenson.
ANSWER: ***Treasure Island***

5. The two-hit hypothesis concerns multiple instances of the L-O-F form of these events in tumor suppressors. Molecular clocks are based on the rate of neutral types of these events. Premature stop codons cause the "nonsense" type of these events, while the "missense" type results in coding a different amino (uh-MEEN-o) acid. For 10 points, name these events in which the genetic code is permanently altered and that are responsible for many diseases.
ANSWER: **mutation**s [or word forms such as **mutating**; or **substitution**s; LOF **mutation**s; or loss-of-function **mutation**s; point **mutation**s; or nonsense **mutation**s; or missense **mutation**s; or substitution **mutation**s]

6. This man consulted his cousin, Timothy Folger, about why ships from Cornwall took such a long time arriving in New York, a question that led to his charting of the Gulf Stream. He invented a type of fireplace with a hollow baffle near the rear to transfer heat, an invention known as his "stove." With his son, he carried out an experiment involving flying a kite during a lightning storm. For 10 points, what Founding Father invented the bifocals and the lightning rod?
ANSWER: Benjamin **Franklin**

7. In a novel by this author, the protagonist becomes leader of a group after defeating Spitz in a fight and later goes on to serve John Thornton. A story by this author ends with an unnamed man dying as he finally realizes the dangers of hypothermia. This author of the story "To Build a Fire" wrote a novel whose protagonist is a dog named Buck who becomes a sled dog in Alaska. For 10 points, name this American author of *The Call of the Wild*.
ANSWER: John "Jack" **London** [or John Griffith **Chaney**]

8. A graph by Charles Minard shows the many deaths of soldiers in this country. It temporarily lost its capital after the extremely bloody Battle of Borodino. While fighting this country, the British ordered an attack in the Battle of Balaclava, leading to the massacre known as the Charge of the Light Brigade. This empire was ruled by Alexander I when Napoleon unwisely invaded it in 1812. For 10 points, what country lost the Crimean War?
ANSWER: **Russia** [or **Russian** Empire; or All-**Russian** Empire]

9. These people signed a treaty with a rival league of states called the Peace of Callias. Under the leadership of Mardonius, they suffered a major loss at the Battle of Plataea. These people's Ten Thousand Immortal forces killed king Leonidas at the Battle of Thermopylae (THERM-op-uh-LAY), and they were earlier defeated at the Battle of Marathon. For 10 points, the ancient Greeks fought invasions from what people in modern-day Iran?
ANSWER: **Persian**s [or **Achaemenid**s (AH-ka-MEH-neds)]

10. Panayotis Varotsos suggested that these events occur immediately after piezoelectric signals are emitted. In 2012, an Italian court convicted a group of scientists for manslaughter for giving "inexact information" about one of these events that occurred in L'Aquila. Claims that animals are able to predict them based on the arrival of P-waves and S-waves are unverified. For 10 points, name these events studied by seismologists that frequently affect California.
ANSWER: **earthquake**s

11. This person was mocked by Rand Paul during a 2015 debate for supposedly "giving a big hug" to President Obama. This man was originally put in charge of the planned presidential transition of Donald Trump, and was widely mocked for uneasily standing next to Trump at a press conference. Prosecutors claim this governor ordered deliberate lane closures to create traffic jams in Fort Lee as political payback. For 10 points, name this Governor of New Jersey.
ANSWER: Christopher "Chris" **Christie**

12. Many members of this group had met while living and worshiping in a village named Scrooby. They had decided to leave the Netherlands because they feared their children were being corrupted. This group, whose leaders included William Bradford and Myles Standish, was taught how to properly grow crops by a native named Squanto. For 10 points, what group of settlers signed the Mayflower Compact and founded the Plymouth Colony?
ANSWER: **Pilgrim**s [or **Pilgrim** Fathers; prompt on English Separatists; prompt on Puritans]

13. In 2006, this country made sign language one of its three official languages. A silver fern native to this country is often incorporated into proposed redesigns of its flag. A traditional war dance from this country called the *haka* was adopted by its rugby team, the All Blacks. This country's residents are often nicknamed after a flightless bird native to it, the kiwi. The Maori are the native people of, for 10 points, what country southeast of Australia that consists of two islands?
ANSWER: **New Zealand** [or **Aotearoa**]

14. Peter Paul Rubens reproduced this artist's still-undiscovered mural *The Battle of Anghiari*. This artist completed *The Baptism of Christ* while working with his teacher Andrea del Verrocchio (vair-ROW-kee-oh). This artist painted four portraits of women, including the mistress of Ludovico Sforza holding an ermine and a woman known as *La Gioconda* with an enigmatic smile. For 10 points, name this Renaissance artist who painted the *Mona Lisa*.
ANSWER: **Leonardo** [or Leonardo **da Vinci**]

15. This movie was the first to break *Gone with the Wind*'s record as highest-grossing film. At the time, its biggest star was arguably Eleanor Parker, who plays the antagonistic Baroness Elsa. At the end of this film, the Nazis cannot pursue the protagonists because nuns have sabotaged the German vehicles. In this movie, the Julie Andrews played protagonist sings "My Favorite Things." For 10 points, name this movie musical about the Von Trapp family.
ANSWER: *The* ***Sound of Music***

 **VHSL Conferences 2016-2017 - Round 05 - Directed Period**

1A. Which author of a blue-backed speller published one of the first dictionaries in the U.S. with the assistance of the Merriam family?
ANSWER: Noah **Webster**

1B. What poet wrote about a man who is "not Prince Hamlet, nor was meant to be" in his poem "The Love Song of J. Alfred Prufrock"?
ANSWER: T. S. **Eliot** [or Thomas Stearns **Eliot**]

2A. What country's chocolate brands include Lindt and Toblerone, the latter of which is made in the shape of the Matterhorn?
ANSWER: **Switzerland** [or **Swiss Confederation**; or **Suisse**; or **Schweiz**]

2B. What two-word French phrase that literally means "already seen" is the feeling of experiencing a present situation in the past?
ANSWER: **deja vu** (DAY-jah voo)

3A. This is a 20-second calculation question. Find the vertex of the parabola given by the equation y = x squared plus six x plus five. Give your answer as an ordered pair.
ANSWER: **-3, -4** [or **x=-3, y=-4**] [Completing the square on the equation gives y=x+3²-4.]

3B. This is a 20-second calculation question. How many solutions are there between 0 and 2pi for the equation 1+2cos(5x-1)=0 ("1 plus 2 cosine of the quantity 5 x minus 1 end quantity")?
ANSWER: **10** [Cosine takes the value -1/2 twice over each period, and this function has 5 full periods between 0 and 2pi.]

4A. What painter of *The Calling of Saint Matthew* used a style called *chiaroscuro* (kee-AH-row-SCOO-row), sharply contrasting light and dark areas?
ANSWER: **Caravaggio** [or Michelangelo **Merisi**]

4B. Pindar and Sappho were among the lyric poets who wrote in what language?
ANSWER: Ancient **Greek**

5A. What villainous organization names the most recent James Bond film?
ANSWER: **Spectre** (SPECK-ter) [or **Special Executive for Counter-intelligence, Terrorism, Revenge and Extortion**]

5B. What poet wrote the lines "In Xanadu did Kubla Khan a stately pleasure-dome decree"?
ANSWER: Samuel Taylor **Coleridge**

6A. The decay of the 238 isotope of what element into the 234 isotope of the same element is often used in radioactive dating?
ANSWER: **uranium** [or **U**]

6B. What controversial 1994 agreement was meant to improve trade between the U.S., Canada, and Mexico, but was accused of sucking jobs from the U.S.?
ANSWER: **NAFTA** [or **North American Free Trade** Agreement]

7A. What is the formula for the polyatomic anion sulfate, which has a charge of two minus?
ANSWER: **S O4** 2 minus

7B. What theorem was given a conditional proof by Ken Ribet before finally being proved in 1994 when Andrew Wiles established the modularity theorem of Taniyama and Shimura?
ANSWER: **Fermat's Last** Theorem

8A. This is a 30-second calculation question. Your grade in a particular class is given as a weighted average, where the homework and quiz scores count for 20% each, and the project and the test count for 30% each. If your homework score is 90, your quiz score is 85, your project score is 100, and your test score is 80, what is your final grade in the class?
ANSWER: **89** [You need to add up 90\*.2+85\*.2+100\*.3+80\*.3=18+17+30+24.]

8B. This is a 30-second calculation question. Find the area of the rectangle whose vertices are (1,2), (0,9), (3,3), and (-2,8).
ANSWER: **15** [The leftmost and rightmost points are opposite vertices, so the side lengths are the distances from (1,2) to them, namely, sqrt(5) and 3sqrt(5). The area is sqrt(5)\*3sqrt(5)=3\*5=15.]

9A. In the 16th and 17th centuries, a person who floated when placed in water during a trial was usually considered to be what?
ANSWER: a **witch**

9B. In 1861, the first shots of the Civil War took place when Confederates fired on what South Carolina fort?
ANSWER: Fort **Sumter**

10A. In 2016, there were many reports in the American Southeast of creepy men dressed in what manner trying to lure children into the woods?
ANSWER: as **clown**s

10B. What French philosopher has a namesake wager that claims believing in God is a better gamble than not believing in God?
ANSWER: Blaise **Pascal**

 **VHSL Conferences 2016-2017 - Round 05 - Third Period, Fifteen Tossups**

1. This mathematician determined the infinite sum of the reciprocal of the squares of natural numbers to be pi squared over six. The derivative of a constant named for this mathematician, raised to the x, is still the constant raised to the x. A constant named for this man, raised to the product of pi and the imaginary unit, is equal to negative one according to his namesake identity. For 10 points, which Swiss mathematician names the number equal to about 2.718?
ANSWER: Leonhard **Euler**

2. These compounds can have their stereochemistry determined with the help of a Fischer Projection. Highly branched polymers of these molecules include amylopectin, a component of starch that can be broken down into simpler examples of these compounds, such as the disaccharide maltose. For 10 points, name these compounds, such as fructose and glucose, that have a characteristically sweet taste.
ANSWER: **sugar**s [or **carbohydrates**; or mono-, poly-, di-, or oligo-**saccharide**s; or **aldose**s; or **ketose**s; or **pentose**s; or **hexose**s]

3. Four of this country's major cities are connected by the Golden Quadrilateral highway system. The so-called "world's cheapest car" was produced by this country's largest automotive group, Tata Motors. Over 500,000 people in this country were exposed to toxic gas from a factory in Bhopal. This country is expected to surpass China to become the world's most populous country. For 10 points, name this country attempting to fight pollution in its city of Delhi.
ANSWER: **India** [or Republic of **India**; or **Bharat** Ganarajya]

4. An essay by this author recounts how he killed of an animal that had gone "must" during his time working as a policeman in Burma. In a novel by this author of "Shooting an Elephant," a cage of rats is placed on a man's head in Room 101. In that novel by this man, a member of the Junior Anti-Sex League named Julia romances an employee of the Ministry of Truth, Winston Smith. For 10 points, name this author of the dystopian novel *Nineteen Eighty-Four*.
ANSWER: George **Orwell** [or Eric Arthur **Blair**]

5. Planarian ocelli (oh-SEL-aye) respond to this stimulus. The rhabdom is sensitive to this stimulus and forms the center of an ommatidium (awm-uh-TID-ee-um). It triggers isomerization (i-SAWM-uh-rye-ZAY-shun) within rhodopsin (ro-DOP-sin) leading to hyper-polarization of rod cells. This stimulus enters through the pupil and is focused by the lens onto the retina. For 10 points, what stimulus of photoreceptors includes UV and visible radiation?
ANSWER: **light** [or **photon**s; prompt on radiation before it is read]

6. A member of this family was the Governor of Michigan during the 1967 Detroit riot. Another member of this family was mocked for an aide suggesting his campaign could change like an Etch A Sketch. That member of this family claimed 47 percent of Americans pay no income tax and are fanatically loyal to Barack Obama. For 10 points, name this family which produced a former Massachusetts Governor and 2012 Republican presidential candidate named Mitt.
ANSWER: **Romney** [or George **Romney**; or Mitt **Romney**; or Willard Mitt **Romney**]

7. This city's *boule*, or council, was expanded by the reformer Cleisthenes (KLEIST-uh-NEEZ). The dominant force within the Delian League, this city employed a general who led a navy at the Battle of Salamis. This home city of Themistocles (THU-most-uh-CLEES) staged a disastrous expedition to Sicily in the midst of fighting a rival city-state. For 10 points, what Greek city-state was led by Pericles and lost the Peloponnesian (PELL-uh-po-NEES-ee-an) War to Sparta?
ANSWER: **Athens**

8. The father of this medium is sometimes said to be Britain's James Gillray. While working for *Punch* magazine, John Tenniel famously worked in this medium. Its modern-day practitioners include Garry Trudeau, the Pulitzer winning creator of *Doonesbury*. This medium was used by a *Harper's Weekly* employee who linked the Republicans with an elephant. For 10 points, Thomas Nast used what medium to depict Boss Tweed as an overstuffed vulture?
ANSWER: political **cartoon** [or editorial **cartoon**; or **comic** strip]

9. After a victory of these people, the old priest, Eli, died. They are responsible for the deaths of Jonathan and Saul. A representative of these people challenges his enemies to send their champion for a one-on-one battle, a challenge only answered by a shepherd boy. The Old Testament book of First Samuel describes how a warrior of these people was killed with a slingshot by David. For 10 points, the giant Goliath was a member of what people?
ANSWER: **Philistine**s

10. This god was tricked into entering a chest by his main enemy, after which the chest was sealed and thrown into a river. This god's death and resurrection were linked with agriculture and the annual flooding of a river. After this god's death, he was reincarnated by his wife Isis and he fathered Horus, who avenged this god's death. For 10 points, name this Egyptian god of the afterlife who was murdered by his brother Set.
ANSWER: **Osiris**

11. In an opera by this composer, the title character sings "Vissi d'arte (duh-ar-TAY)" in the presence of police chief Baron Scarpia. In another opera by this man, a philosopher lives with three other bohemians--a painter, musician, and poet--in Paris. The modern musical *Rent* is based on an opera by this composer, which is about the poet Rodolfo and the seamstress Mimi. For 10 points, what Italian composer wrote the operas *Tosca* and *La boheme* (bo-EMM)?
ANSWER: Giacomo (JOCK-uh-moh) **Puccini**

12. In a play by this author, a woman breaks the lock on her husband's bank book to try and prove he is cheating. In that play by this author, Mrs. Erlynne claims ownership of the title object to save her daughter's marriage. He wrote a play in which Jack Worthing was left as a baby in a handbag at Victoria Station and is revealed to be the brother of Algernon Moncrieff. For 10 points, name this Irish wit who wrote *Lady Windermere's Fan* and *The Importance of Being Earnest*.
ANSWER: Oscar **Wilde**

13. A 2002 election for this international position featured the slogan "Vote for the Crook, not the Fascist!" A man in this position shouted "Long live free Quebec!" in Montreal and earlier granted independence to Algeria. A member of the Socialist Party currently holds this position after defeating Nicolas Sarkozy in the 2012 election. For 10 points, what position was held for almost all of the 1960's by Charles de Gaulle?
ANSWER: **President** of **France** [or **President** of **French** Fifth Republic; do not accept "Prime Minister of France"]

14. A song whose title references this place describes "psychic spies from China" and "little girls from Sweden." The words "simultaneous release" are rhymed with a line telling this place to "rest in peace." The number-one single "Bored to Death" comes from a 2016 album named after this place by Blink-182. This state's name comes after "Dani" in the title of a Red Hot Chili Peppers song. For 10 points, name this state home to Blink-182's hometown of San Diego.
ANSWER: **California**

15. A person who performs this activity for a living humiliates a man nicknamed "The Whammer" before he is shot with a silver bullet by Harriet Byrd. In a poem about this activity, a group of thousands repeatedly shout "Fraud." That poem about this activity by Ernest Thayer ends with disappointment for the town of Mudville. For 10 points, name this activity central to Bernard Malamud's novel *The Natural* and to the poem "Casey at the Bat."
ANSWER: playing **baseball**

 **VHSL Conferences 2016-2017 - Round 05 - Tiebreaker Questions**

1. In this novel, Claquesous (klah-keh-SOO) and Montparnasse (mont-par-NAHS) are among the members of a street gang called Patron-Minette (pah-TROAN-mih-NET). This novel features an extended discussion of the Battle of Waterloo, where a future innkeeper inadvertently saves a man while trying to rob his unconscious body. In this novel, Marius nearly dies during the July Revolution, but is saved by Jean Valjean. For 10 points, name this novel by Victor Hugo.
ANSWER: *Les* ***Miserables*** (lay mee-zair-AHB)

2. A breed of this animal named after the Cheviot Hills was introduced to the Falkland Islands, whose coat of arms now includes this animal. Roquefort and feta cheese are both made from this animal's milk. The internal organs of this animal are stuffed in its stomach in the Scottish dish haggis. In New Zealand, this domesticated animal's population outnumbers the human population six to one. For 10 points, name this livestock animal used to produce wool.
ANSWER: **sheep** [or **ram**s; or **ewe**s; or **lamb**s; or ***Ovis***]

3. The persistence of the structure of these objects was the subject of the "winding problem". A tightly-packed feature known as the "bulge" appears at the center of these objects. These objects appear to the top right of Hubble's tuning fork diagram, which also depicts their irregular, lenticular, and elliptical counterparts. For 10 points, the Milky Way is an example of the "barred" type of what galaxies with a flat, rotating disk, from which extends "arms"?
ANSWER: **spiral galaxy** [or **spiral galaxies**; prompt on galaxy; accept spiral after "galaxies" is read]

4. These creatures were formed when a woman was forced to have sex with Poseidon in a temple of Athena, incurring the goddess's wrath. Two lesser known examples of these creatures are Stheno and Euryale (yur-ee-AA-lee). One of these creatures gave birth to Pegasus and Chrysaor (KRISS-ey-or) from her neck after she was slain by Perseus. For 10 points, name these creatures that can turn people to stone with their gaze, one of which was named Medusa.
ANSWER: **Gorgon**s

5. This city fell a few days after the Battle of Opis. Legendarily, a queen here named Amytis missed the lush hills and valleys of her homeland. Saddam Hussein ordered a reproduction built of the Ishtar Gate in this city, which was once conquered by Cyrus the Great. Nebuchadnezzar (NEB-uh-ka-NEZZ-ur) II built one of the Seven Wonders of the Ancient World in this city. For 10 points, name this ancient Mesopotamian city, the home of famous "Hanging Gardens."
ANSWER: **Babylon**

What is the degree measure of an angle whose supplement is six times as large as its complement?
ANSWER: **72** [In degrees, the complement is 90-72=18 and the supplement is 180-72=108.]

Ozone gas and potassium permanganate are useful reagents for effecting what kind of chemical reaction, which formally involves the loss of electrons?
ANSWER: **oxidation**