**2016 VHSL Conferences - Round 06 - First Period, Fifteen Tossups**

1. Amphibians can be infected by a group of these organisms called chytrids **(KIH-trids)**. Many of these organisms form mycelium **(my-SEE-lee-um)**, which is a mass of branching filamentous hyphae **(HI-fee)**. They include *S. cerevisiae* **(seh-ruh-VIS-ee-ai)**, which is used in brewing and baking, and Alexander Fleming discovered a genus of them that secreted the antibiotic penicillin. They include two phyla **(FY-luh)** of yeast. For 10 points, name this kingdom of organisms that mushrooms belong to.
ANSWER: **fungi** [or **fungus**; accept **Ascomycota** before "kingdom" is read; accept **yeast**s before it is read]

2. Two brothers from this city built its walls with brute strength and music. When Eteocles **(uh-TAY-oh-kleez)** refuses to step down as king of this city, his brother Polynices **(polly-NICE-eez)** raises an army led by seven men. A king of this city solves a riddle by giving the correct answer of "man," causing the Sphinx to commit suicide. That king kills Laius **(LAY-us)**, his father, and marries Jocasta, his mother. For 10 points, name this Greek city founded by Cadmus and ruled by Oedipus **(EHD-uh-puhs)**.
ANSWER: **Thebes**

3. The Lucas function for calculating this curve models it as a function of "surprise." This curve is governed by the sticky wage, imperfect information, and sticky price models. In contrast to Keynesians **(KANES-eans)**, monetarists believe that it's inelastic and vertical in the long run. This curve can be "shocked" to the left by political events such as an oil embargo. For 10 points, name this macroeconomic curve which intersects at the equilibrium point with the aggregate demand curve.
ANSWER: **aggregate supply** curve [prompt on **supply** curve]

4. Three symphonies by this composer include texts from *Des Knaben Wunderhorn* **(dehss kuh-naben voon-der-horn)**. He wrote a piece for tenor, alto, and large orchestra with texts based on Chinese poetry that was named to prevent the "curse of the ninth." His 8th Symphony includes a setting of the hymn "Veni Creator Spiritus **(spear-ee-toos)**" and was dedicated to his wife Alma. For 10 points, name this Austrian composer of nine symphonies, including "Resurrection" and one "Of A Thousand."
ANSWER: Gustav **Mahler**

5. For a regular polygon with *n* sides, the formula for this quantity is derived from the fact that one can connect vertices to divide the polygon into *n* minus two triangles. A regular polygon will tessellate the plane if its value for this quantity is a factor of 360. For a regular polygon with *n* sides, it can be calculated as 180 times *n* minus 360, all over *n*. It is 60 degrees for an equilateral triangle and 90 degrees for a square. For 10 points, name this quantity that is complementary to the exterior angle.
ANSWER: the **interior** angle of a regular polygon

6. This note's minor key is used for Cesar Franck's **(frahnck)** only symphony. Jean Sibelius **(seh-bell-ee-us)** used this note's major key for his 2nd Symphony and its minor key for his Violin Concerto. This note is a tritone away from A-flat. Its major scale has two sharps in its key signature. A Baroque piece in this key was written for three violins in strictly imitative counterpoint over an eight-note repeating bass pattern. For 10 points, Johann Pachelbel's *Canon* is in what note a whole tone above C?
ANSWER: **D**

7. Two members of this group, William Hushka and Eric Carlson, were killed by police. Joe Angelo could not persuade Major George S. Patton, his old comrade, to use restraint against members of this group. Douglas MacArthur commanded the 12th Infantry Regiment against this group. Many of its members camped in a Hooverville on the Anacostia Flats. For 10 points, name this group of disgruntled World War I veterans who staged a march on Washington D.C. in 1932.
ANSWER: **Bonus Army** [or **Bonus Expeditionary Force**]

8. The production of scree by freeze-thaw cycles is an example of this process. Desert loess **(LESS)** can be created by aeolian **(AY-oh-lee-an)** examples of this process. Lichens **(liken)** are a biological example of this process because of the acids they secrete. The most common physical example of this process is thermal expansion; a common chemical example of it is dissolution by carbonated water. For 10 points, name this process that creates soil and occurs before erosion and deposition.
ANSWER: **weather**ing

9. This denomination's name was coined by Joseph Rutherford at a convention in Columbus, Ohio. It grew out of a non-profit business founded by Charles Taze Russell. Members of this sect attend services at plainly decorated buildings called "Kingdom Halls." Members of this denomination refuse to salute national flags or accept blood transfusions. They publish a widely circulated magazine called *The Watchtower*. For 10 points, name this Christian sect best known for their door-to-door evangelism.
ANSWER: **Jehovah's Witnesses**

10. In a novella by this author, the fascist Cipolla **(chee-poll-ah)** is shot and killed by Mario. The protagonist of a novel by this author encounters Ludovico Settembrini **(set-em-BREE-nee)** and falls in love with Clavdia Chauchat **(sho-SHOT)** while at a Swiss sanatorium. This creator of Hans Castorp wrote a novel in which the writer Gustav von Aschenbach **(OSH-en-bock)** dies of cholera in the title Italian city. For 10 points, name this German author of *The Magic Mountain* and *Death in Venice*.
ANSWER: Thomas **Mann**

11. Protests in this city were led by Daniel Cohn-Bendit, a member of the Situationist International. An attempt to end unrest in this city by the Grenelle Agreements offered a raise of the minimum wage. After the president fled to Baden-Baden, a crisis in it was dealt with by Prime Minister Pompidou **(POHM-pee-doo)**. In May of 1968, this city was the site of wildcat strikes and protests from students at the Sorbonne. For 10 points, name this capital city of the Fifth Republic of Charles de Gaulle.
ANSWER: **Paris**, France

12. A slum in this city sits on a two-million-ton pile of trash nicknamed "Smokey Mountain." This city's historic Chinatown, Binondo **(bee-NOHN-doh)**, lies on the Pasig **(PAH-sig)** River. A major road in it is named for former Governor-General William Howard Taft. Hemp from the abacá plant is used to make a type of paper named for this city. Its Malacañang **(mah-lah-kah-NYANG)** Palace was a presidential residence. For 10 points, name this largest city on Luzon and capital of the Philippines.
ANSWER: **Manila**

13. A country in this region was created by the Treaty of San Stefano **(sahn STEH-fah-noe)**. A second war named for this region was begun by King Ferdinand after the first one was ended when the 1913 Treaty of London was forced on the Ottoman Empire. This region was known as the "powder keg of Europe," and a capital in this peninsula was the site of the assassination of Archduke Franz Ferdinand. For 10 points, name this peninsula home to Serbia, Bulgaria, and Greece.
ANSWER: **Balkan** Peninsula [or the **Balkan**s]

14. This poem depicts the "white eyes writhing" in the face of a man on top of a wagon. In this poem, a substance "obscene as cancer" comes forth from "froth-corrupted lungs." This poem describes people "Drunk with fatigue" and "deaf even to the hoots" who "cursed through sludge" while "Bent double, like old beggars." It describes "an ecstasy of fumbling" as people attempt to fit "clumsy helmets" during a gas attack. For 10 points, name this Wilfred Owen poem that takes its title from Horace.
ANSWER: "**Dulce Et Decorum Est**" **(dool-che eht deh-coor-uhm est)**

15. In 2015, Xiaomi **(SHAO-mee)** announced plans to compete with a market segment currently led by this company, by manufacturing a device called the Mi. This company, founded by James Park, produces a scale called the Aria. Its original variations include the Zip, Flex, and Force, as well as the more recent Charge and Surge. Its products compete with the Jawbone Up and Nike's Fuelband. For 10 points, name this company that produces the most popular wearable exercise monitors.
ANSWER: **Fitbit**

 **2016 VHSL Conferences - Round 06 - Directed Period**

1A. In what Ambrose Bierce short story does Peyton Farquhar **(far-quar)** imagine escaping his execution on the title structure?
ANSWER: "An **Occurrence at Owl Creek Bridge**"

1B. What Roman orator revealed the Catiline conspiracy and was killed for denouncing Mark Antony in his *Philippics*?
ANSWER: **Cicero** [or Marcus Tullius **Cicero**]

2A. The murder of admiral Gaspard de Coligny **(gasp-ahr deh coh-lee-nee)** by supporters of the Duke of Guise **(GEEZ-uh**) began what 1572 massacre of Huguenots in Paris?
ANSWER: **St. Bartholomew's Day** Massacre

2B. What English verb is "okumak" **(oh-koo-MAHK)** in Turkish, "legere" **(lay-GAY-ray)** in Latin, and "lire" **(LEER)** in French?
ANSWER: to **read**

3A. This is a 20-second calculation question. What is the reference angle for an arc measuring 28 pi over 3 radians?
ANSWER: **60** degrees

3B. This is a 20-second calculation question. Matt takes a thousand-mile tricycle ride, stopping occasionally to swap one of the trike's wheels with his spare tire, so that each of his four tires gets equal wear. How many miles is each tire used for?
ANSWER: **750** miles

4A. The margin between streams and land is a "zone" described by what term derived from the Latin for "river bank"?
ANSWER: **riparian**

4B. The tangent function is conventionally defined between what two x-axis points because they're the first points on each side of the y-axis where the tangent's vertical asymptotes appear?
ANSWER: **minus pi** radians to plus **pi** radians [or **minus 180** degrees to **180** degrees; or obvious equivalents that include BOTH bounds]

5A. What Jewish moneylender attempts to acquire "a pound of flesh" as collateral from Antonio in Shakespeare's *The Merchant of Venice*?
ANSWER: **Shylock**

5B. The rainbow bridge Bifrost **(BEEF-rost)** is guarded by what Norse god of light who will blow the Gjallarhorn **(YAHL-er-hoorn)** when Ragnarok begins?
ANSWER: **Heimdall** [or **Heimdall**r]

6A. In January 2015, the Virginia Senate voted to ban the adoption of what controversial set of English and math curriculum standards used in forty-two states?
ANSWER: **Common Core** [or **Common Core** State Standards Initiative]

6B. Ceres **(series)**, Pluto, and Eris **(air-iss)** are all categorized as what type of astronomical object that has not cleared its gravitational orbit?
ANSWER: **dwarf planet**s [do not accept "planets"]

7A. What American poet experimented with unusual punctuation and typography in poems such as "my sweet old etcetera" and "anyone lived in a pretty how town"?
ANSWER: E. E. **Cummings**

7B. The main settings of both *The Middle* and *Parks and Recreation* are in what U.S. state?
ANSWER: **Indiana**

8A. This is a 30-second calculation question. Line segment AB has endpoints at (6,2) **(six comma two)** and (2,5) **(two comma five)**. If the line segment is reflected about the y-axis, then rotated 90 degrees clockwise about the point (-6, 2) **(negative six comma two)**, the new endpoints are (-6, 2) **(negative six comma two)** and what point?
ANSWER: **(-3, -2)**

8B. This is a 30-second calculation question. A coin is flipped five times and comes up heads once. How many times more likely is this to happen if the coin is fair than if the coin is unfair with probability of heads equal to 3/4?
ANSWER: **32/3** times more likely [or **10 2/3** times more likely]

9A. *Life* magazine photographer Alfred Eisenstaedt **(asian-shtit)** is best known for his image of a sailor performing what action during a V-J Day celebration in New York City?
ANSWER: **kiss**ing a nurse [or obvious equivalents of **kiss**ing]

9B. What country in South America formerly had the word "British" in its name and still has English as its official language?
ANSWER: **Guyana** [or Cooperative Republic of **Guyana**]

10A. What term, which can mean "perpendicular," refers to the force counteracting gravity on an object placed on a surface?
ANSWER: **normal**

10B. At what 732 battle did forces under Charles Martel and Odo of Aquitaine defeat an invading Umayyad army led by Abd el-Rahman?
ANSWER: Battle of **Tours** [or Battle of **Poitiers**]

 **2016 VHSL Conferences - Round 06 - Third Period, Fifteen Tossups**

1. This man posted a link to a Yale course syllabus titled "Perception" to support his memory of a professor's hoax about burning class exams. Many stories told in his autobiography *Gifted Hands* have been questioned, such as the claim that he once stabbed a friend in ninth grade, only for his knife to hit the belt buckle. In 2015, this man claimed that Joseph could have built the pyramids as grain silos. For 10 points, name this neurosurgeon campaigning for the Republication Presidential nomination.
ANSWER: Ben **Carson** [or Benjamin Solomon **Carson**, Sr.]

2. Defining the object for which this quantity is calculated as two 2D vectors yields this quantity as half the determinant of the cross product. A way to calculate this quantity is to multiply side lengths and divide by four times the circumradius. This quantity is calculated using the semiperimeter in Heron's formula. It can be calculated as half times two side lengths times the sine of the angle between them. For 10 points, name this quantity conventionally defined as one-half base time height.
ANSWER: **area** of a triangle [or obvious equivalents]

3. This god gives life to Ask and Embla shortly after teaming up with his brothers Vili and Ve to take down Ymir **(ee-meer)**. He is accompanied by a pair of ravens that bring him news from all over the world. This god's steed is an eight-legged child of Loki named Sleipnir **(slayp-near)**. This father of Baldur gives one of his eyes to drink from the Well of Mimir. Half the soldiers who fall in combat are taken to this god's hall of Valhalla. For 10 points, name this All-Father who leads the Norse pantheon.
ANSWER: **Odin**

4. A poem by this author notes that "Heard melodies are sweet, but those unheard are sweeter." This author ended a poem with the speaker wondering "Do I wake or sleep?" An object in a poem of his is addressed as a "Sylvan historian" and an "unravish'd bride of quietness". That poem concludes that "Beauty is truth, truth beauty." He wrote about a "light-winged Dryad of the trees" in an ode addressed to a bird. For 10 points, name this poet of "Ode on a Grecian Urn" and "Ode to a Nightingale."
ANSWER: John **Keats**

5. Isotopically purifying this element is commonly performed via gaseous diffusion of its hexafluoride. This element's main ore is called pitchblende and is processed into yellowcake. The only naturally occurring fissile materials are nuclides of this element. Alpha decay of its primary isotope yields 234-thorium. The amount of its isotope 235 determines whether it is "enriched". For 10 points, name this radioactive element that was used with plutonium in early nuclear weapons and has symbol U.
ANSWER: **uranium** [or **U** until it is read]

6. Intergrowth of moganite and this mineral forms chalcedony. This mineral displays very strong piezoelectricity and lies at the very bottom of Bowen's reaction series. Clastic sedimentary rocks mostly consist of feldspar and this mineral. Asteroid impacts can create planar deformations in it, creating its "shocked" form. Iron impurities in crystals of this mineral can create citrine. For 10 points, name this second most abundant mineral in the Earth's crust, which has chemical formula Si-O-2.
ANSWER: **quartz** [prompt on **silica** or **silicon dioxide**]

7. During this leader's tenure, hundreds were injured in riots protesting the Community Charge or poll tax. The Brighton Hotel bombing almost killed this politician. This politician became prime minster after the "Winter of Discontent" and advertising with the slogan "Labour Isn't Working." John Major succeeded this politician as prime minister. During the Falklands War, she was known as the "Iron Lady." For 10 points, name this Conservative leader of the United Kingdom during the 1980's.
ANSWER: Margaret **Thatcher** [Margaret Hilda **Thatcher**; or Margaret **Roberts**]

8. In this novella, the protagonist is nursed back to health by an old woman who reveals that she once had her buttock removed to feed some starving men. At the end of this novella, the protagonist states "we must cultivate our garden." This novella's protagonist loves the daughter of Baron Thunder-ten-Tronckh, Cunegonde **(koo-neh-GOND)**. Its title character is taught by Pangloss, who believes that this is "the best of all possible worlds." For 10 points, name this satirical novella written by Voltaire.
ANSWER: ***Candide***

9. The orientation of stereo-chemical centers in these molecules is referred to as tacticity **(tack-tiss-uh-tee)**. Lewis diagrams for these molecules use large parentheses with a lowercase n in the bottom right. Common ways of making them are the step-growth and chain-growth mechanisms. Common artificial examples of these molecules include Teflon, nylon, and plastics. For 10 points, name these macromolecules that consist of many repeating subunits called monomers.
ANSWER: **polymers**

10. It's not in Africa, but this country was the subject of the op-ed "What I Didn't Find in Africa" by Ambassador Joseph Wilson, who claimed that Scooter Libby and the Vice-President blew the cover of his wife, a CIA agent, in retaliation. After events in this country, a speech was given aboard the *USS Abraham Lincoln*, in front of a "Mission Accomplished" banner, by President Bush. For 10 points, name this Middle Eastern country invaded by the US to take out "weapons of mass destruction."
ANSWER: **Iraq** [Republic of **Iraq**; or Jumhuriyat al-**Iraq**; or Komar-i **Eraq**]

11. The malaria-resistant Tharu people live in this country's Inner Terai Valleys, and the Bagmati is the largest of eight rivers to flow through its capital. This country's Sagarmatha National Park contains the Khumbu Icefall. Ever since Tenzing Norgay assisted Edmund Hillary on a climb in this country, its ethnic group of sherpas has become a shorthand for "mountain guide". For 10 points, Kathmandu **(kaht-mahn-doo)** is the capital of what Himalayan country, which shares Mount Everest with China?
ANSWER: **Nepal** [Federal Democratic Republic of **Nepal**; or Sanghiya Loktantrik Ganatantra **Nepal**]

12. At the start of this play, a man calls a woman a "little squirrel" and teases her for making Christmas gifts. Near this play's end, a woman says "during eight whole years…we have never exchanged one serious word." A bank manager in this play angrily berates his wife after discovering she's in debt to his employee Krogstad. It concludes with the female protagonist slamming the door on her husband, Torvald, and her children. For 10 points, name this play about Nora Helmer written by Henrik Ibsen.
ANSWER: *A* ***Doll's House*** [or *A* ***Doll House***; or *Et* ***Dukkehjem***]

13. After executing a group of people led by Piet Retief **(peet ruh-teef)**, soldiers from this empire massacred about 250 people near the modern-day city of Weenen. Two competitors for the throne of this empire died at the Battle of Blood River. Its soldiers used the *assegai* **(ahss-uh-guy)** spear and were trained in the "Buffalo Horns" formation. This empire lost the Battle of Rorke's Drift during a 1870s war against the British. For 10 points, name this South African tribe that was led by Shaka.
ANSWER: **Zulu** tribe [or **Zulu** Kingdom; or **Zulu** Empire; or **Zululand**]

14. In a book by this author, Mother Abigail telepathically directs other characters to meet her in Boulder, Colorado. Several of this author's books are set in the fictional town of Derry. His novel *Under The Dome* was adapted into a TV show. Antagonists created by this author include Pennywise the Clown and a rabid St. Bernard called Cujo. Roland Deschain is the protagonist of a series of novels by this author. For 10 points, name this author of the *Dark Tower* series, as well as *It* and *The Shining*.
ANSWER: Stephen **King** [Stephen Edwin **King**]

15. This composer invented the term "tone poem" to describe pieces he wrote such as *Les préludes* and *Mazeppa*. He depicted the devil tuning his violin at the start of his *Mephisto Waltz* No. 1. This composer wrote some very difficult pieces for piano, such as his *Transcendental Études*, the pieces "Un sospiro" and "La campanella," *Liebestraum* **(LEE-bess-TRAUM)** No. 3, and nineteen pieces based on Magyar folk melodies. For 10 points, name this composer of the *Hungarian Rhapsodies*.
ANSWER: Franz **Liszt** [or **Liszt** Ferenc; or Franz Ritter von **Liszt**]

 **2016 VHSL Conferences - Round 06 - Tiebreaker Questions**

1. This man's second symphony has text featuring a man arguing with his Father, the "Tin God," was dedicated to the recently killed John F. Kennedy, and is named for a Jewish prayer for the dead. This composer of the *Kaddish Symphony* did the music for a musical about New York street gangs called the Sharks and the Jets. For 10 points, name this longtime music director of the New York Philharmonic and the composer of the music for *West Side Story*.
ANSWER: Leonard **Bernstein** [or Louis **Bernstein**]

2. This activity used devices called *quadriga*. In response to unrest among groups associated with this sport, an emperor tried to flee by boat but was told "royal purple is the noblest shroud." Narses and Belisarius dealt with fans of this sport known as the Blues and the Greens during the Nika riots. This sport was played in a stadiums like the Hippodrome and the Roman Circus Maximus. For 10 points, name this sport in which participants raced in vehicles
ANSWER: **chariot** races [or **harmatodromia**; or **ludi circenses**]

3. The protagonist of this ballet is given exotic sweets in a series of four dances from Spain, Arabia, China, and Russia. The celesta plays the melody of a solo variation performed by a character who earlier introduces the "Waltz of the Flowers." Drosselmeyel gifts Clara the title object at the start of this ballet, which is most frequently performed around Christmastime, and includes the "Dance of the Sugar Plum Fairy." For 10 points, name this Tchaikovsky ballet in which toys come to life.
ANSWER: *The* ***Nutcracker*** [or ***Casse-Noisette***; or ***Shchelkunchik***]

4. In this book, Ophelia's initial attempts to educate Topsy fail because Topsy isn't shown love. In response to kindnesses in this book, various characters convert to Christianity, including Tom Loker and the previously brutal Quimbo and Sambo. In this novel, Eliza escapes across a frozen river, while the title character is beaten to death on orders of Simon Legree. Abraham Lincoln joked that this book caused the Civil War. For 10 points, name this Harriet Beecher Stowe anti-slavery novel.
ANSWER: ***Uncle Tom's Cabin****; or, Life Among the Lowly*

5. For a sequence of Bernoulli trials, this type of distribution models both the trial number of the first success and the number of failures before the first success. This type of mean is the lesser than or equal term in the AMGM inequality. This type of mean is defined as the *n*th root of the product of *n* numbers. This type of progression grows by a common ratio, instead of by a common difference. For 10 points, identify this term that describes a progression that grows by multiplication, unlike an arithmetic progression.
ANSWER: **geometric**

Jose Hernandez's *Martin Fierro* **(mar-TEEN fee-AIR-oh)** is an example of gaucho literature from what South American country, whose more modern authors include Julio Cortazar **(HOO-lee-oh cor-TAZ-ar)** and Manuel Puig **(PWEEG)**?
ANSWER: **Argentina** [or **Argentine Republic**; or Republica **Argentina**]

If scores on a quiz are normally distributed with mean 20 and standard deviation 10, what is the z-score corresponding to a quiz score of 45?
ANSWER: **2.5** [or **5/2**]