**VHSL Regular Season 2016-2017 - Round 26 - First Period, Fifteen Tossups**

1. The "arkose" type of this specific rock is characterized by a high amount of feldspar. During metamorphism, this rock loses its clastic structure and becomes quartzite. This rock is named for a material that is smaller than gravel and larger than silt on the Udden-Wentworth scale of particle grain size. When this rock erodes, it can create dunes. For 10 points, name this sedimentary rock that is named for a substance found at a beach.
ANSWER: **sandstone**

2. This man failed to obtain profits promised him in the Capitulations of Santa Fe. An exchange named for this man explains how peanuts and tomatoes were first grown in Europe. This man's imposition of a tribute system may have wiped out the Taino people on the island of Hispaniola (HISS-pan-yo-la). For 10 points, name this captain of the ship *Santa Maria*, who was sent by Spanish monarchs Ferdinand and Isabella on a 1492 voyage to the Caribbean.
ANSWER: Christopher **Columbus** [or Cristóbal **Colón**]

3. In 2015, this man released a document subtitled "On Care For Our Common Home," which denounced consumerism and global warming. He gained one million followers in the first twelve hours after he created an Instagram account in March 2016. This man chooses to live in a guest house as opposed to the Apostolic Palace, which is similar to his previous way of living as a cardinal in Argentina. For 10 points, name the current Pope of the Roman Catholic Church.
ANSWER: Pope **Francis** [or Jorge Mario **Bergoglio**]

4. The reactance of these devices is inversely proportional to angular frequency. For spherical examples of these devices, their characteristic parameter is four pi epsilon-naught over the difference between the reciprocals of the inner and outer radii. The most common type of these devices consists of a dielectric between two parallel plates, which store electric charge. For 10 points, name these devices whose strength is measured in farads.
ANSWER: **capacitor**s [or **condenser**s]

5. When Erik Bloodaxe visited this location, he met a figure who had runes on his tongue and was the god of poetry, Bragi. Residents of this location eat a boar that is cooked whole every night and is subsequently revived the next morning. This location, which is occupied by the *Einherjar*, has 540 doors that men can walk through. Valkyries lead half of the men who died in combat to this location in Asgard. For 10 points, name this "hall of the slain" from Norse mythology.
ANSWER: **Valhalla**

6. In this film, the mime Daniel Richter choreographed the long, wordless opening sequence that climaxes with his character figuring out how to use a bone as a club. In this film, the hyper-intelligent computer HAL 9000 has a mental breakdown and murders all of the astronauts except Dave Bowman. For 10 points, name this science fiction film directed by Stanley Kubrick and co-written with Arthur C. Clarke.
ANSWER: ***2001****: A Space Odyssey*

7. Cerenkov (chair-en-kov) radiation occurs when the speed of an electron exceeds a local form of this quantity in a nuclear reactor. According to Einstein, energy is equal to mass times this quantity squared. The ratio of its value in a medium to its value in a vacuum gives the index of refraction. It is approximately equal to three times ten to the eighth meters per second. For 10 points, name this value symbolized c, the speed of a photon.
ANSWER: **speed of light** in a vacuum [or **c** until it is read]

8. People's attempts to leave this settlement were stopped on the "Day of Providence" when Baron De La Warr arrived. Christopher Newport arrived at this location on the ship *Susan Constant*. Only 60 out of the original 214 people here survived the "Starving Time" in 1609. This colony was led by John Smith, who had once been legendarily saved by Pocahontas. For 10 points, name this Virginia location, the first permanent English settlement in the Americas.
ANSWER: **Jamestown** [prompt on the Colony of Virginia until it is read]

9. A ruler of this empire was captured at Cajamarca and placed in the Ransom Room shortly after he threw a Bible to the ground. It used the quipu (KEE-poo) system of colored strings to keep records. This empire was weakened after a civil war between brothers Huascar (WAH-scar) and Atahualpa (ATT-uh-WALL-pa). Its capital was at Cusco (KOOZ-co). For 10 points, Francisco Pizarro conquered what empire centered in modern-day Peru?
ANSWER: **Inca**n Empire

10. In a story by this author, Reverend Hooper refuses to take off the title garment. In another story by this author, the title character sees his wife Faith attending a witches' sabbath in the woods. This author of "The Minister's Black Veil" also wrote about the scientist Aylmer, who removes the title imperfection from his wife's face. For 10 points, name this author of "Young Goodman Brown" and "The Birthmark."
ANSWER: Nathaniel **Hawthorne**

11. The auction format for these objects belonging to the United States government was changed from multi-price to single-price in 1992. The zero-coupon variety of these objects pays no regular interest, instead only paying out principal. Distressed companies may issue their junk variety. For 10 points, name these financial instruments that indicate a debt to be repaid at the date of maturity.
ANSWER: **bond**s [prompt on notes; prompt on treasuries]

12. A player in this sport led his team to a World Cup victory by using a squash ball in his glove. The Duckworth-Lewis system is used to extrapolate scores when its matches are cut short. An abridged from of this sport is known as the "T20" format. Its luminaries include Ricky Ponting. This sport uses a hard, leather ball, and a flat bat. For 10 points, name this sport that involves trying to knock over the opposing team's wickets.
ANSWER: **cricket**

13. An *Agro-bacterium* species is named for its ability to cause growth of a type of these structures in plants called crown galls. When they appear in the pituitary (pih-TU-uh-tare-ee) they can cause gigantism. Glands can develop a form of these structures called an adenoma (ad-uh-NO-ma), which can sometimes transform into carcinoma and metastasize (muh-TAS-tuh-size). For 10 points, name these abnormal proliferative growths that are malignant in cancer.
ANSWER: **tumor**s [or **neoplasm**s; or **neoplasia**; or crown **gall**s before it is read; prompt on cancer before it is read]

14. The Benguela (ben-GELL-ah) is one of these phenomena responsible for the fog that envelops the Namib (nah-MIB) Desert. Another of these phenomena named after Humboldt brings nutrients to the Galápagos through upwelling. One of these phenomena explains why parts of Europe are warmer than Canada, even though they are at the same latitude. For 10 points, name these phenomena exemplified by the Gulf Stream, which transport water through oceans.
ANSWER: ocean **currents** [prompt on Gulf Stream until it is read]

15. In this novel, the Glorious Loyalty Oath Crusade is begun by Captain Black to get revenge on another character. Set on the island of Pianosa, this novel includes such characters as Colonel Cathcart and Milo Minderbinder. This novel is about World War II bomber pilots paradoxically trapped into flying endless risky missions. For 10 points, name this novel about Yossarian by Joseph Heller.
ANSWER: ***Catch-22***

 **VHSL Regular Season 2016-2017 - Round 26 - Directed Period**

1A. What literary family included the painter Branwell and the author of *The Tenant of Wildfell Hall*, Anne?
ANSWER: the **Bronte** (BRON-tay) family

1B. What rare transition metal, highly valued for its low reactivity and corrosivity, takes its name from the Spanish for "little silver"?
ANSWER: **platinum**

2A. What Irish satirist proposed eating babies in his pamphlet "A Modest Proposal"?
ANSWER: Jonathan **Swift**

2B. What Jewish-American novelist wrote about the baseball players Reuven and Danny in *The Chosen*?
ANSWER: Chaim **Potok**

3A. What monster, whose name comes from the Greek for "little ruler," is the king of the serpents, and has a deadly gaze?
ANSWER: **basilisk**

3B. What law states that the entropy of a crystal at absolute zero is zero?
ANSWER: **third** law of thermodynamics

4A. What Greek mathematician names the theorem that the square of the length of the hypotenuse of a right triangle equals the sum of the squares of the side lengths?
ANSWER: **Pythagoras** (pie-THAG-or-US) of Samos [or **Pythagorean** theorem]

4B. At the 2016 Republican National Convention, Sheriff David A. Clarke uttered what three-word phrase that controversially alters the name of an African-American activist group to express support for police officers?
ANSWER: **Blue Lives Matter** [do not accept "All Lives Matter," do not accept "Black Lives Matter"]

5A. What was the Dutch settlement of New Amsterdam renamed to when the English captured it in 1664?
ANSWER: **New York** City

5B. In 1968, Martin Luther King Jr. was killed while supporting striking workers in what Tennessee city?
ANSWER: **Memphis**

6A. This is a 20-second calculation question. Patrick is told he will be given 3 bars of gold if he flips a coin and it lands on heads, and 1 bar if it lands on tails. If Patrick flips a fair coin, what is his expected value in terms of gold bars?
ANSWER: **2**

6B. This is a 20-second calculation question. Michael's trapezoid has an area of 40 units squared, and a height of 20 units. What is the sum of both bases of Michael's trapezoid?
ANSWER: **4** units

7A. What island south of mainland Japan is still home to Futenma and 31 other U.S. military bases?
ANSWER: **Okinawa**

7B. What TV show character, played by Kristen Bell, investigates the murder of her friend Lilly while attending Neptune High School?
ANSWER: **Veronica** Mars [or **Mars**]

8A. In multiple sclerosis (SKLUH-roh-SIS), the immune system attacks what "sheath" of material that covers axons in white matter?
ANSWER: **myelin** (MYE-uh-LIN)

8B. What policy from 1994 to 2011 allowed gay Americans to serve in the armed forces if they were not open about their sexuality?
ANSWER: **Don't Ask, Don't Tell** [or **DADT**]

9A. This is a 30-second calculation question. In degrees, what acute angle does the line y equals x times the square root of three make with the x-axis?
ANSWER: **60 degrees**

9B. This is a 30-second calculation question. What is the sum of the quantity i raised to the seventy-seventh power and the quantity i raised to the thirty-ninth power?
ANSWER: **zero**

10A. The term "aubergine" (AWE-burr-JEEN) refers to the purple color that can be found on the skin of what fruit or vegetable?
ANSWER: **eggplant**

10B. The cochineal (COKE-uh-NEAL) insect is often used to make carmine, which is a dye used by artists consisting of a shade of what color?
ANSWER: **red**

 **VHSL Regular Season 2016-2017 - Round 26 - Third Period, Fifteen Tossups**

1. A poem by this author includes the lines, "Ah, but a man's reach should exceed his grasp, or what's a heaven for?" Another poem by this author describes a painting by Fra Pandolf of a woman with a heart "too soon made glad" who was murdered by her husband, the Duke of Ferrara. For 10 points, name this Victorian poet who wrote dramatic monologues such as "Andrea del Sarto" and "My Last Duchess."
ANSWER: Robert **Browning**

2. The Cori cycle transports the products of a type of this process to the liver. Acetaldehyde (aa-sit-AL-duh-hide) is used as an electron acceptor in a form of this process to oxidize N-A-D-H, thereby replenishing N-A-D-plus. That form of it eventually converts pyruvate to ethanol. Muscles perform another type of this process that generates lactic acid as a product. For 10 points, name this anaerobic process used in the production of beer and bread.
ANSWER: **fermentation** [or ethanol **fermentation**; or lactic acid **fermentation**]

3. An event that helped to create this kingdom was the Expedition of the Thousand, led by a man who had fought in the Uruguayan Civil War and his "Redshirt" volunteers. This kingdom's first prime minister was Count Cavour and its first king was Victor Emmanuel II. Giuseppe (JUH-sep-ee) Garibaldi helped establish it by winning battles on behalf of Sardinia. For 10 points, what kingdom was created in the 1860's when kingdoms like the Two Sicilies united?
ANSWER: Kingdom of **italy**

4. This author wrote about his experiences taking mescaline in his book *The Doors of Perception.* The protagonist of a novel by this man confronts the World Controller Mustapha Mond and whips Lenina Crowne before hanging himself in a lighthouse. For 10 points, name this British novelist who wrote about John the Savage in his dystopian novel *Brave New World.*
ANSWER: Aldous **Huxley**

5. In this show, the video game reviewer Tom Yates admits that his dead roommate wrote his novel *Scorpio*. After a character on this show is fired by Tom Hammerschmidt, she starts working at the newspaper *Slugline*. This show's protagonist murders both the journalist Zoe (ZO-ee) Barnes and the Congressman Peter Russo before he becomes president. For 10 points, name this Netflix show in which Kevin Spacey plays the scheming politician Frank Underwood.
ANSWER: ***House of Cards***

6. In a novella by this man, the protagonist visits the criminal Sally Tomato in Sing Sing. In that novella by him, the socialite protagonist calls the unnamed narrator "Fred" because he looks like her brother. This man created Holly Golightly and wrote about the murder of the Clutter family in a non-fiction novel. For 10 points, name this American author of *Breakfast at Tiffany's* and *In Cold Blood.*
ANSWER: Truman **Capote**

7. A piece from this ballet quotes the "Grossvater Tanz", a German folk song. Lev Ivanov took over as choreographer for this ballet after Marius Petipa fell ill. Fritz breaks this ballet's title object, which is gifted by Herr Drosselmeyer. Clara wards off the Mouse King in this ballet, which includes the "Dance of the Sugarplum Fairies." For 10 points, name this ballet by Tchaikovsky (chai-KOFF-sky) about a Christmas present that comes to life.
ANSWER: *The* ***Nutcracker*** [or ***Casse-Noisette*** (Kass-NOY-sett); or ***Shchelkunchik*** (SHUH-chel-KOON-chick)]

8. This thermodynamic potential is the sum of internal energy and the product of pressure and volume. The sum of the changes in this quantity for the steps in a reaction's mechanism is equal to its change for the total reaction according to Hess's law. Processes for which the change in this quantity is negative are exothermic. Under constant pressure, the change in this quantity is equal to the change in heat. For 10 points, name this thermodynamic quantity symbolized H.
ANSWER: **enthalpy**

9. Many historians believe this city's fate was sealed after the removal of Stilicho (STILL-uh-CHO) as general. An agreement allowed this city to be plundered for two weeks by Genseric if he promised not to totally destroy it or murder its population. In 402, it lost its position as capital to Ravenna. This city was sacked in 410 by the Visigoths and in 455 by the Vandals. For 10 points, those attacks on what city were part of a certain empire's fall?
ANSWER: **Rome**

10. This island's "White Terror" was part of martial law that ended in 1987 after almost 40 years. In 1971, its government lost its spot on the UN Security Council. Singapore, Hong Kong, South Korea, and this island were the four strong economies known as the Asian Tigers. After being overthrown, the Kuomintang (KWAM-uh-TONG) Nationalists under Chiang Kai-shek came to this island. For 10 points, what island claims to be the official Republic of China?
ANSWER: **Taiwan** [or the **Republic of China** until it is mentioned; or **ROC** until "Republic" is mentioned; do not accept or prompt on "China"; do not accept or prompt on "People's Republic of China"]

11. Along with Fred Archer, this man developed a photography method known as the Zone Scheme. This founder of the group f/64 (f-stop 64) photographed the Japanese-American internment camp Manzanar. Two of this man's photographs, *Clearing Winter Storm* and *Moon and Half Dome*, were both taken in central California. For 10 points, name this man known for photographing Yosemite National Park.
ANSWER: Ansel **Adams** [or Ansel Easton **Adams**]

12. This country is home to a stadium that can seat a world record of 150,000 people, which it uses during the month-long Arirang Festival. The lair of the unicorn-like *kirin* is said to be in this country, which holds Mount Paektu sacred. This country's citizens embrace the ideology of *juche*, which was introduced by a man who was made its "Eternal President." For 10 points, name this politically isolated East Asian country once ruled by Kim Il-Sung and Kim Jong-Il.
ANSWER: **North Korea** [or **Democratic People's Republic of Korea**; or **DPRK**; or **Choson** Minjujuui Inmin Konghwaguk; do not accept just "Republic of Korea," as that refers to South Korea]

13. The one-gene one-enzyme hypothesis was supported by experiments on a *Neurospora* species in this kingdom. Members of this kingdom form symbiotic relationships with roots called mycorrhizae (my-kuh-RYE-zee). These organisms contain a mycelium (my-SEE-lee-um) made of chitinous (KITE-un-us) filaments called hyphae (HIGH-fee). A very poisonous organism in this kingdom is the death cap. For 10 points, what kingdom includes mold and mushrooms?
ANSWER: **fungi** [accept word forms]

14. After offending this god, Lycurgus killed his son after believing he was a patch of ivy. In an Aristophanes play, this god descends to the underworld to revive Euripides. He drove the women of Thebes mad, causing his aunt Agave to kill his cousin, King Pentheus. This god was accompanied by Silenus and the Maenads. His mother Semele (Sem-ill-ee) was killed when she asked Zeus to reveal his true form. For 10 points, name this Greek god of wine and reverie.
ANSWER: **Dionysus** [or **Bacchus**]

15. This philosopher argued that society was divided between a base and a superstructure in a book offering contributions to the "critique of political economy." This author urged the "workers of the world, unite!" at the end of a treatise he wrote during the 1848 revolutions with Friedrich Engels. For 10 points, name this German economic philosopher who wrote that a "spectre is haunting Europe" at the opening of his *The Communist Manifesto*.
ANSWER: Karl **Marx**

 **VHSL Regular Season 2016-2017 - Round 26 - Tiebreaker Questions**

1. A woman in this play tells her nephew that "health is the primary duty of life" and that his invalid friend Mr. Bunbury needs to make up his mind to live or die. A man in this play falls in love with his friend's ward Cecily Cardew and tries to escape the nagging of Lady Bracknell. For 10 points, name this comedy in which Algernon Moncrieff and Jack Worthing pretend to have the same name, a work of Oscar Wilde.
ANSWER: *The* ***Importance of Being Earnest***

2. While this equation is primarily used for gases, the similar Eyring-Polanyi equation is used for reactions in other phases. The orientation of molecules is taken into account by the pre-exponential factor in this equation. In the plot derived from this equation, the slope is equal to negative activation energy over R. For 10 points, give this equation which relates the rate constant to temperature, named for a Swedish chemist.
ANSWER: **Arrhenius** equation

3. This concept is said to be present in an "object of delight, which involves no cognition of the object" according to Immanuel Kant's *Critique of Judgment*. This concept, which is often contrasted with the terror-inducing sublime, was held to be present in objects exhibiting the "golden ratio" according to the Ancient Greeks. For 10 points, name this concept that is studied in aesthetics, which is often said to be "in the eye of the beholder."
ANSWER: **beauty** [or the **beautiful**]

4. This man referred to the Jews as "the devil's people" in his treatise *On the Jews and Their Lies*. He met with a Swiss colleague to discuss the Lord's Supper at the Marburg Colloquy (COLE-uh-KWEE). This man refused to change his views at Emperor Charles V's Diet of Worms (VURMS) and posted documents on a church door at Wittenberg. For 10 points, what man wrote his *Ninety-Five Theses* to begin the Protestant Reformation?
ANSWER: Martin **Luther**

5. This location's opening date on July 17, 1955, was known as "Black Sunday" because of its many disasters. Doritos were first sold here, which Soviet leader Nikita Khrushchev (KROOSH-cheff) was famously not allowed to visit. This American location contains "Critter Country," a sub-location not found at this place's counterpart in Orlando, Florida. For 10 points, what theme park in Anaheim, California, is home to Sleeping Beauty Castle?
ANSWER: **Disneyland** Park

" What is the domain of the function "one plus the inverse sine of x?"
ANSWER: **[-1,1]** [or the **closed interval from -1 to 1**; or x is **between -1 and 1, inclusive**; prompt on x is between -1 to 1 without the words "closed" or "inclusive"]

What quantity is the rotational analogue of force?
ANSWER: **torque** (TORK)