hsapq

1. In this novel, the housekeeper, Nelly Dean, tells much of the family's story to a guest, Mr. Lockwood. Mr. Earnshaw adopts a homeless boy, and brings him home to live with his son and daughter. A sibling rivalry develops between son Hindley and the adopted boy, while daughter Catherine falls in love with the foundling, though she ultimately marries Edgar Linton. What is the title of this novel by Emily Bronte that ends with the adopted Heathcliff as the master of both Thrushcross Grange and the title estate?
ANSWER: **Wuthering Heights**

045-13-104-11101

BONUS: This is a calculation question. What is the area of the triangle enclosed by the lines "x plus y equals 7", "x minus y equals 3", and the y-axis?
ANSWER: **4** square units

003-13-104-1110-11

2. In the prologue to the *Prose Edda,* Snorri Sturulson claimed the Aesir originally came from this city. According to Geoffrey of Monmouth, Britain was founded by Brutus, whose grandfather was from here. Two gods in another myth system built walls for its king Laomedon, who cheated them out of a reward. Laomedon's son was Priam, whose son began a war when he stole Helen. For 15 points, name this city which was destroyed by Greeks after it allowed in a wooden horse.
ANSWER: **Troy** [or **Ilium**]

121-13-104-11102

BONUS: What adjective is used to describe rhymes involving multiple syllables, such as "double" and "bubble"?
ANSWER: **feminine**

014-13-104-1110-11

3. Eustace of Boulogne tried to convince a commander during this battle to retreat right before Eustace was severely wounded. The victors of this battle pursued the other side into the Malfosse. During this battle, a defensive position was taken by the eventual losing side on Senlac Hill. The winning commander of this battle used fake retreats to draw soldiers out, and the losing commander may be depicted dying from an arrow to the eye on the Bayeux Tapestry. For 15 points, name this battle lost by Harold Godwinson to the Normans under William the Conqueror in 1066.
ANSWER: Battle of **Hastings**

023-13-104-11103

BONUS: What novel-in-verse by Alexander Pushkin describes an aristocrat who kills his friend Lensky in a duel?
ANSWER: *Eugene Onegin*

014-13-104-1110-11

4. This man turned down an opportunity to be the first president of Texas A&M University. During the Battle of Monterrey, he led a successful charge on the La Teneria fort. This Secretary of War in Franklin Pierce's cabinet was captured while Given Campbell attempted to help him escape. His vice-president gave the "Cornerstone" speech and was Alexander Stephens. This man ordered Pierre Beauregard to attack Fort Sumter and gave Robert E. Lee command of the Army of Northern Virginia. For 15 points, name this only president of the Confederate States of America.
ANSWER: Jefferson Finis **Davis**

BONUS: This is a 20-second calculation question. Find the maximum value of the function f of x equals 2 times sine x times cosine x.
ANSWER: **1**

5. According to the Aeneid, this man constructed golden doors near the home of the Cumaen Sibyl depicting it. This man used an ant to thread a string through a shell while staying with King Cocalus on Sicily. This man plotted the death of his one-time jailer, Minos. His son fell into the sea after flying too close to the sun, causing his wings to melt. For 15 points, name this father of Icarus who flew on wings of his own design and created the Labyrinth.
ANSWER: **Daedalus**

BONUS: What kind of computer program transforms source code into object code, to make it executable?
ANSWER: **compiler**

6. This phenomenon distinguishes monosaccharides as either ring or straight chain in the body. Ketones and enols exist in equilibrium due to a form of this phenomenon known as tautomerization. Stereochemistry deals with the spatial form of this phenomenon, which applies to the D- and L- form of sugars and the E and Z forms of alkenes. This phenomenon differentiates pentane into n-pentane, neopentane, and isopentane. For 15 points, identify this term most commonly defined as compounds which have the same formula, but different structures.
ANSWER: **isomer**ism [or **isomer**ization, or **tautomer**ization, or stereo**isomer**s; or word forms]

BONUS: What French artist painted a group of concubines in *The Women of Algiers* and a bare-chested personification of the title concept in his *Liberty Leading the People*?
ANSWER: Eugene **Delacroix** [or Ferdinand Victor Eugene **Delacroix**]

7. The derivative with respect to particle number of a quantity named for this scientist gives the chemical potential. A law named for this scientist states that the number of constituents minus the number of phases plus two equals the degrees of freedom. For spontaneous reactions, the change in his namesake quantity is negative; that namesake quantity is calculated as enthalpy minus quantity temperature times entropy. For 15 points, identify this American chemist who lends his name to a type of free energy.
ANSWER: Josiah Willard **Gibbs**

BONUS: What French-Spanish hybrid language is spoken principally in northeastern Spain, particularly in Barcelona?
ANSWER: **Catalan**

8. A story about six men with this condition and an elephant was used by Buddha to illustrate men made ignorant by their own views. One man with this condition was relieved of it at Bethsaida, and another with this condition was told to wash in the pool of Siloam. That man with this condition was healed of it by blood mixed with Jesus' saliva. For 15 points, name this disability that is sometimes used to describe an unquestioning faith.
ANSWER: **blind**ness [or obvious equivalents; or word forms]

BONUS: What Arabic city was home to the ancient House of Wisdom, where the mathematicians that helped develop algebra worked at?
ANSWER: **Baghdad**

9. This country is the home of Zorbing. Emirates sponsored its team in an event in which they lost the last eight races to a team sponsored by Oracle; that event was America's Cup, which they lost to Team USA. It is the current holder of the World Cups for rugby league and rugby union. For 15 points, name this country, home to the All Blacks, who perform a *haka* based on a war chant used by the Maori.
ANSWER: **New Zealand** [or **Aotearoa**]

BONUS: What leader of the Huns may have killed his brother Bleda and was defeated by Flavius Aetius and Theodoric at the Battle of Chalons?
ANSWER: **Attila** the Hun

10. This play includes a monologue that uses phrases about a courier with a "cap out of fashion" and "French withered pears" to discuss virginity. That monologue in this play is delivered by a man whose cowardice is revealed when he attempts to betray Florence, named Parolles (puh-ROLE-eez). A character who tries to seduce Diana in this play is deceived into sleeping with his own wife. For 15 points, name this Shakespeare comedy which concludes with Bertram and Helena deciding to live as a married couple, proving the title adage about disregarding adversity on the path to happy resolutions.
ANSWER: *All's Well That Ends Well*

BONUS: In a poem written by Thomas Gray, what animal named Selima "tumbled headlong" into a lake and drowned?
ANSWER: **cat**

11. It's not Chick-Fil-A, but in August 2013, this chain was the location of an "Appreciation Day" event which led it to temporarily close its Newtown, Connecticut location. This chain denied a 40,000-signature petition to ban guns from its stores, but, in September 2013, its CEO, Howard Schultz, requested that customers choose not to openly carry weapons here. For 15 points, identify this Seattle-based purveyor of gingerbread lattes, Oreo frappucinos, and a distinctive dark-roasted basic coffee.
ANSWER: **Starbucks**

BONUS: What structures are thought to form from mantle plumes and create archipelagos like Hawaii?
ANSWER: **hotspot**s

12. Johann von Spreckelsen's designed the Grande Arche for a business district in this city. The highway surrounding this city was built on the remains of the Thiers walls, the last defensive walls built here. The Grande Arche was inspired by an earlier structure here on the Champs-Élysées. Many streets were widened or straightened under the direction of Baron von Haussmann. The tallest structure here was built for the 1889 World's Fair. For 15 points, name this capital of France.
ANSWER: **Paris**

BONUS: This is a calculation question. What is the fortieth number in the arithmetic sequence beginning 1, 5, 9, 13...?
ANSWER: **157**

13. For Raman scattering, this person names the lines caused by the positive and negative wavelength shifts. A law named for this scientist states that the drag force on a particle in a fluid is proportional to six pi times the velocity. He is the second namesake of a set of very difficult to solve partial differential equations that describe fluid flow, which he names with Navier (NAH-vee-ey). For 15 points, name this British physicist who generalized Green's theorem to relate surface integrals and volume integrals.
ANSWER: George Gabriel **Stokes**

BONUS: This is a 20-second calculation question. Jack and Jill each roll a six-sided die. What is the probability the number Jack rolls is greater than the number Jill rolls?
ANSWER: **5/12** [or **15/36**]

14. The LUX experiment studying this phenomenon released results in October 2013. MOND was proposed to circumvent the need for this phenmenon, which was inferred using the virial theorem by Fritz Zwicky. A small free-streaming length is characteristic of the particles involved in the "cold" explanation of this phenomenon. Axions, MACHOs, and WIMPS are among the candidate particles for this phenomenon, which accounts for 27% of the universe. For 15 points, name this kind of mass-matter that produces no electromagnetic radiation.
ANSWER: **dark matter**

BONUS: What father of Umberto I became the first king of a united Italy in 1861?
ANSWER: **Victor Emmanuel II** [prompt on partial answer]

15. The publication of this author's nonfiction text *Two Hundred Years Together* late in life led to him being accused of anti-Semitism. The protagonist of one of this author's novels sees an "evil man" throw tobacco into the eyes of a monkey while visiting a zoo shortly after undergoing cancer treatment in Uzbekistan. In another work by this author, the title character is given part of Tsezar's food package, ending a day of forced labor in extreme conditions. For 15 points, name this Soviet dissident author of *Cancer Ward* and *One Day in the Life of Ivan Denisovich*.
ANSWER: Aleksandr Isayevich **Solzhenitsyn**

BONUS: What 17-year-old's shooting death after buying some Skittles led to the Million Hoodie March and the trial of George Zimmerman?
ANSWER: Trayvon **Martin**

16. Allan Maxam and Walter Gilbert developed a method for performing this process in 1977. Frederick Sanger won his second Nobel Prize for devising the "chain-termination method" for performing this action, which uses ddNTPs (d-d-N-T-Ps). Craig Venter's Celera used the "shotgun" method of performing this action to accomplish it much faster than the Human Genome Project could. For 15 points, name this procedure that determines the order of nucleotides in the molecule that encodes genetic data.
ANSWER: **DNA sequencing**

BONUS: This is a 30-second calculation question. What is the range of possible lengths for the third side of a triangle whose first two sides have length five and eight units?
ANSWER: **between 3 and 13** units [or from **3 to 13** units; or **greater than 3** and **less than 13**; do not accept any answer with the word "inclusive"]

17. This philosopher's ideas were supported after his death by Mencius and attacked by Mozi. This man's philosophy included the idea that parent and child and ruler and minister were two of the five basic relationships. This philosopher's concept of goodness, called ren, included showing respect for elders and engaging in filial piety. For 15 points, name this Chinese philosopher who worked on the Five Classics and whose sayings were collected in the *Analects*.
ANSWER: **Confucius** [or **Kongfuzi**; or **Kongzi**; or **Kongqiu**]

BONUS: This is a 30-second calculation question. Find all solutions to the equation "x cubed plus 3 x squared minus 4 x minus 12 equals 0".
ANSWER: x equals **2**, **-2**, or **-3** [or x equals **plus or minus 2** or **-3**; or any answer giving **-3**, **-2**, and **2** in any order; do not accept partial answers; do not accept answers with additional numbers]

18. In an attempt to alleviate this crisis, the U.S. provided unground cornmeal, which became known as "Peel's brimstone." This crisis was aggravated by the election which brought John Russell to power, causing the rollback of relief measures. This event was caused by the arrival of the *Phytophthora infestans* mold, which caused a blight affecting a plant originally imported from the Andes. For 15 points, identify this 1840s crop failure which decimated Ireland.
ANSWER: Irish **Potato Famine**

BONUS: This is a 30-second calculation question. A regular octagon with side length 4 inches is oriented like a stop sign. Four diagonals are drawn, two vertical and two horizontal, which divide the octagon into four triangles, four rectangles, and one square. What is the area of the square?
ANSWER: **16** square units

19. The heaviest element of this group was discovered when actinium-227 emitted an alpha particle. Solvated electrons turn ammonia blue when elements in this group are dissolved in the solution. An element in this group was used in the first accurate atomic clock. This family of metals violently react with water to produce hydrogen gas. For 15 points, name the family of elements which occupy the first column of the periodic table, which include potassium and sodium.
ANSWER: **alkali** metals [do not accept "alkaline earth metals"]

BONUS: What Midwestern city held the 1904 World's Fair in its Forest Park, celebrating the centennial of the Louisiana Purchase?
ANSWER: **St. Louis**

20. Periodic diffraction gratings were found to alter this phenomenon by Smith and Purcell, whose research led to the development of free electron lasers. The IceTop array at the IceCube Observatory uses this phenomenon to detect neutrinos. Analogous to a sonic boom, it causes the emission of a characteristic blue glow, which is often seen in nuclear reactors. It results when a charged particle travels through a medium faster than the speed of light in the medium. For 15 points, identify this phenomenon named for a Russian physicist.
ANSWER: Vavilov-**Cherenkov radiation** [or Vavilov-**Cherenkov effect**]

BONUS: This is a 30-second calculation question. If a data set consists of 5 distinct positive integers, with mean 7, what is the largest the median could be?
ANSWER: **9**

21. This denomination arose out of a circle that met at Swarthmor Hall in opposition to the maintream of the Puritan movement. John Woolman led the campaign for this denomination to become strictly abolitionist, and it was the motivation for the "Holy Experiment" authorized by Charles II. For 15 points, identify this Christian denomination founded by George Fox, whose member William Penn founded Pennsylvania in accordance with its ideal of tolerance.
ANSWER: **Quaker**s [or **Society of Friends**; or **Friends Church**]

BONUS: What kind of simple diagram uses arrows to represent all the forces acting on a central object?
ANSWER: **free-body** diagram

22. A theorem regarding these objects deals with the presence of singularities in tangent vector fields defined on their surfaces. The volume of an n-dimensional version of these objects is inversely proportional to the gamma function of one-half. Triangles in a form of geometry named for these objects can have three right angles. The coordinate system named for these objects uses the coordinates r, theta, and phi. These objects have a surface area to volume ratio of three r. For 15 points, identify these objects that are the set of points equidistant from a given point in three dimensions.
ANSWER: **sphere**s [or 2-**sphere**; or n-**sphere**; or **ball**; or **circle**s]

BONUS: What lake sits in the caldera of the collapsed volcano Mount Mazama in Oregon?
ANSWER: **Crater** Lake

23. For pure substance, the natural log of this quantity at T-sub-two over it at T-sub-one is related to enthalpy of vaporization over gas constant times quantity one over T-sub-one minus one over T-sub-two by the Clausius-Clapeyron equation. For an ideal mixture, this quantity is the sum of it for the individual components multiplied by their mole fraction, according to Raoult's law. This quantity equals the atmospheric pressure at the boiling point. For 15 points, identify this pressure exerted by a substance in a gas phase above a liquid or solid phase.
ANSWER: equilibrium **vapor pressure**

BONUS: What Alan Paton novel depicts Stephen Kumalo's search for his son Absalom in Johannesburg?
ANSWER: ***Cry, the Beloved Country***

24. One of this character's daughters is engaged to Haemon, whose father refuses to allow the burial this man's son. In a play titled for this character, he finds out that he is not actually the son of Polybus. This father of Ismene is able to answer the riddle of the Sphinx, which helps this character fulfill a prophecy that he will kill his father and marry his mother. For 15 points, name this father of Antigone who is *at Colonus* and *Rex* in a pair of dramas by Sophocles.
ANSWER: **Oedipus**

BONUS: This is a 20-second calculation question. What is the side length of a rhombus that has perimeter 64 inches?
ANSWER: **16** inches

25. A city in this state was the first to implement the kindergarten through twelfth grade education system. At a convention in this state, Sojourner Truth delivered the "Ain't I a Woman" speech. It's not Kentucky, but a poet from this state wrote in his poem "Sympathy" that "I know why the caged bird sings." In this home state of Paul Lawrence Dunbar, I.M. Pei built the Rock and Roll Hall of Fame. The Pro Football Hall of Fame is located in this state's city of Canton. This state's largest cities include Cincinnati and Cleveland. For 15 points, name this "Buckeye state."
ANSWER: **Ohio**

26. This letter is used to represent Helmholtz free energy. The lowercase form of this letter symbolizes the unit cell length of a crystal lattice. The pre-exponential factor is denoted by this letter. A quantity symbolized with this letter equals a logarithmic ratio between light shined on a substance and the light transmitted through it. A unit for length symbolized with this letter with a circle on top is equal to ten to the minus tenths meters. For 15 points, name this letter, which represents absorbance and Angstroms.
ANSWER: **A** [or **a**]

27. The creation of a particle and its antiparticle from one of these particles is known as pair production, and these particles carry the electromagnetic force. They are produced when an electron in an atom falls down from an excited state back down to a ground state. Einstein received the Nobel Prize for discovering that high energy ones can knock electrons loose from metals, and the energy of these particles is given by Planck's constant times the frequency. For 15 points, identify these particles that make up light.
ANSWER: **photon**s

226-13-104-11127

00--20-1110-11

28. Early in this poem, the speaker expresses his longing for "a draught of vintage" and "a beaker full of the warm South," since with a drink he can then "fade far away." This poem begins with the speaker feeling that his "head aches, and a drowsy numbness pains my sense," and he concludes by asking, "Do I wake or sleep?" The speaker of this poem climatically exclaims, "Thou wast not born for death," addressing the title bird. For 15 points, name this ode by John Keats.
ANSWER: "**Ode to a Nightingale**"

140-13-104-11128