

2014 Brookwood Invitational Scholars Bowl

Round 10

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1. **62 tourists were killed under this man's administration near Deir el-Bahri. This ex-Air Force commander was also president during the Sharm el-Sheikh attacks. This man, whose entire administration occurred under a state of emergency, won an election against Ayman Nour. He refused to appoint a Vice President from his National Democratic Party until (*) Omar Suleiman took the job in 2011. The first set of protests in Tahrir Square were against this leader, who came to power after the assassination of Anwar Sadat. For 10 points, name this longtime Egyptian dictator deposed in 2011.**

ANSWER: Hosni Mubarak

2. **One of these animals refuses a garland of flowers from Durvasa during the churning of the ocean; that example of these animals came out of Garuda's egg shell and guards over Svarga. Maya conceived the Buddha after having a dream in which one of these animals entered her womb. Indra's mount is one of these animals named Airavata. In an Eastern parable, six (*) blind men are asked to determine the nature of one of these animals. In India, these animals stand at the corners of the compass. After mediating an argument between Shiva and Parvati, Ganesha's head was replaced by this animal's. For 10 points, name this sacred Indian pachyderm.**

ANSWER: elephants

3. **Potassium hydrogen phthalate is used to standardize this technique. It can be used to calculate the degree of unsaturation of a hydrocarbon in the bromine test. Glassware used in this procedure has numbers that increase going downward. This procedure gives a sigmoid curve with multiple (*) inflection points for polyprotic acids. Quantitative analysis makes frequent use of this technique, which has an endpoint when an indicator changes color, often about one drop after the equivalence point. For 10 points, name this procedure which uses a buret to determine the concentration of unknown solutions.**

ANSWER: acid-base titrations [or microtitration or microtiter plates]

4. **This artist removed a fireplace from the original version of his painting of mistress Leocadia Weiss, the model for his *Milkmaid of Bordeaux*. At the left of one of this man's paintings, a monk in a green robe looks down at a dead man illuminated by a lantern in the center. He made several paintings on the walls of the Quinta del Sordo. This painter depicted a Titan (*) eating a corpse in *Saturn Devouring his Son*. During the Napoleonic Wars, a firing squad points their guns at a man in a white shirt raising his arms up in a painting by this artist. For 10 points, name this Spanish Romantic artist of *The Black Paintings* and *The Third of May, 1808*.**

ANSWER: Francisco Goya y Lucientes

5. **A character in this novel tries to poison herself with iodine at the Montenegro Hotel. Poems written by the protagonist are included as an addendum to this novel. This novel begins with the protagonist weeping after his father dies from jumping off a train. At a Christmas party, Komarovsky is shot by a woman he tried to seduce. A character in this novel uses the nickname (*) Strelnikov while employed as a guerrilla leader, but his real name is Pasha Antipov. This book's title character marries Tonya, but even after he's forced to fight in the Russian Civil War, retains his love for Lara. For 10 points, name this epic romance written by Boris Pasternak.**

ANSWER: Doctor Zhivago

6. **This thinker referred to the factors which affect social stratification as "life-chances." This man called the modern organization of governments the "polar night of icy darkness". Talcott Parsons translated this man's concept that over-rationalization in society was trapping individuals in their role as the (*) "iron cage." This man defined the state as an entity with a "monopoly on legitimate violence" in his essay "Politics as a Vocation." This thinker quoted Calvinist doctrine in a work railing against the "red tape" of bureaucracy. For 10 points, name this political theorist and sociologist, the German author of *The Protestant Ethic and the Spirit of Capitalism*.**

ANSWER: Max Weber

7. A device for carrying out this process uses a spherical grid that focuses electrons using multipacting, and is named for Farnsworth. Whether or not it occurs is estimated by the triple product of temperature, ion density, and confinement time. This process occurs if the strong force overcomes the Coulombic force. ITER will use magnetic confinement to build a donut-shaped (*) tokamak where it can occur. Pons and Fleischmann suggested that electrolysis of heavy water at room temperature was actually this process happening. The proton-proton chain uses it. For 10 points, name this process in which small nuclides collide, a process that powers the Sun. ANSWER: nuclear fusion [or cold fusion; don't accept or prompt on "fission"]

8. One hundred rivers of flowing mercury protected this work of art. Forty-six life-size bronze cranes were sculpted as a companion piece to this work of art. A fourteen-sided-die was included in a set of thirteen of these sculptures depicting some acrobats. One of these sculptures with a unique green face is often considered a symbol of bravery. These sculptures are found in (*) Pits 1, 2, and 3. They were created by firing porous clay in an early example of mass production. These sculptures were first discovered by peasants in 1974 digging a well near Xi'an. For 10 points, name this group of sculptures created to protect the grave of the Qin Emperor in China. ANSWER: Terracotta Army [or Terracotta Warriors; or obvious equivalents]

9. In a story by this author, all humanity is destroyed by inertia when a man who causes miracles stops the world from spinning. This author of *The Outline of History* created a paradise led by Samurai in his novel *A Modern Utopia*. Thomas Marvel apprentices himself to Griffin in a book by this author. Another of his characters describes crabs to his Richmond dinner-mates, who are enthralled by a tale of (*) Morlocks and Eloi. Human-animal hybrids created by Dr. Moreau, a heat ray, and a way to turn flesh invisible are among this author's sci-fi creations. For 10 points, name this author of *The Time Machine* and *The War of the Worlds*. ANSWER: Herbert George Wells

10. This event prompted some rounds of name-calling between the "Azymites" and the "Fermentarians." This event was spurred by a piece of paper that Humbert of Silva Candida laid on the high altar of the Hagia Sophia. A controversy leading to this event was named for the Latin word meaning "and the son": *filioque*. The Second (*) Council of Lyon attempted to resolve this dispute. A letter explaining the validity of the Donation of Constantine sparked a mutual excommunication of Michael Cerularius and Pope Leo IX, kicking off this conflict. For 10 points, name this 1054 division between the Catholic and Eastern Orthodox Churches. ANSWER: the East-West Schism [or the Great Schism; or the 1054 Schism; or the Eastern Schism; prompt on schism; do not accept "Western Schism"]

11. The penultimate section of an orchestral work by this composer is a "Romanza" which uses a clarinet passage from a Mendelssohn overture and a drumroll to imitate a rocking ship. He wrote only two symphonies, but composed a choral work whose title character pleads, "Take me away..." to Purgatory. This composer wrote a piece for his friend Augustus Jaeger entitled (*) "Nimrod," the ninth movement of a work he wrote on an unnamed theme. The song "Land of Hope and Glory" is the trio for his march that's played at high school graduations. For 10 points, name this British composer of the *The Dream of Gerontius*, *Enigma Variations*, and *Pomp and Circumstance*. ANSWER: Edward Elgar

12. This metal varies in concentration with magnesium in olivines and other mafic rocks. Fertilizing oceans with this element causes phytoplankton blooms. Distinct bands of this element in Precambrian sedimentary rocks provide the most evidence for the Great Oxygenation event. This is the heaviest element produced in stellar (*) nucleosynthesis because it has the highest binding energy per nucleon. This element and nickel make up the inner core. This element's oxides, such as magnetite and hematite, give Mars its red color. For 10 points, name this metal which has symbol Fe. ANSWER: iron [or Fe before it is read]

13. This author wrote a play with two characters called “Black” and “White” who discuss the meaning of life after Black saves White from committing suicide. This author of *The Sunset Limited* created a character who has no body hair and who explains that “war is god” to the Glantons. The antagonist of one of his novels uses a silenced shotgun and a cattle gun to kill Carson Wells. This author created the evil (*) Judge Holden, and, in another novel, wrote about hitman Anton Chigurh’s attempts to track down Llewelyn Moss and his 2.4 million dollars. For 10 points, name this author of *Blood Meridian* and *No Country for Old Men*.

ANSWER: Cormac McCarthy

14. A sad picture was taken of this coach eating pizza by himself after a loss at Lucas Oil Stadium. This man replaced Luke Fickell at his current coaching job. He led Utah to a perfect season in 2004 and did the same with his current team in his first year, despite the team being ineligible for (*) postseason play. Chris Leak and Percy Harvin starred in this coach’s first national championship win in 2006. This coach was an ESPN analyst for the year after he “retired,” after which he took a job in Columbus. For 10 points name this football coach who led Florida to two national championships before moving up north, to coach national champions Ohio State.

ANSWER: Urban Meyer

15. The first historical Swedish king had this first name, and the epithet “the Victorious”. An explorer with this first name abandoned an expedition after he fell off his horse on the way to the boat. A king of this name, the successor of Margaret I, was the first king of the Kalmar Union and eventually ruled Pomerania in old age. A pagan with this name got banished from Oxney for murder but built a church for his Christian wife Tjodhilde at Brattahlid. The (*) son of a man with this first name founded Vinland on Newfoundland. For 10 points, give this first name of an explorer of Greenland nicknamed “the Red”, the father of Viking Leif.

ANSWER: Erik [or Erik; or Erik the Red; or Erik XIV; or Eric of Pomerania]

16. Lord Barnett disinherited his controversial Barnett formula in the leadup to this event. A speech given in aftermath of this event promised to answer the West Lothian question in the form of devo-max. This event led to a debate over the location of Trident submarines and the amount of oil left in the (*) North Sea. The voting age was lowered to 16 solely for this event. Alistair Darling chaired the Better Together campaign during this event, debating against Alex Salmond, who resigned his First Ministership after it. For 10 points, name this September 18, 2014 event in which 54% of those polled rejected independence for England’s northern neighbor.

ANSWER: 2014 Scottish independence referendum [or obvious equivalents; prompt on answers that don’t mention a vote in Scotland]

17. This individual quoted St. Faustina’s words to Jesus by opening a speech with the line, “Do not be afraid.” This person condemned abortion as part of the “culture of death” in a tract whose title translates as “The Gospel of Life.” 129 of his lectures were compiled into the collection *Theology of the Body*. He authorized the *Opus Dei* to become a personal prelature. A Costa Rican woman with an inoperable (*) brain aneurysm, as well as a French nun with Parkinson’s Disease were miraculously healed by this man. He pardoned Galileo Galilei as well as Catholics who didn’t speak up during the Holocaust. For 10 points, name this canonized Polish Pope.

ANSWER: Pope Saint John Paul II [or Karol Józef Wojtyła]

18. A poem titled after one of these objects describes an “invisible worm that flies in the night” which “does thy life destroy.” The speaker of another poem titled for these objects mentions that his love will last “Till a’ the seas gang dry.” The poem *Sacred Emily* repeats this word four times in one sentence. One of these objects forces the (*) Little Prince to leave his asteroid. This is the final word in the title of a novel in which Adso of Melk and William of Baskerville investigate a series of deaths in a Benedictine monastery. That novel by Umberto Eco is about the “name” of one. For 10 points, Robbie Burns wrote that his “luv was like a red, red” type of what flower?

ANSWER: roses [prompt on flowers or equivalents]

19. The first radioimmunoassay quantified levels of this protein. This protein activates phosphoprotein phosphatase, diminishing the phosphorylation state of the cell. This protein is stored in solution as a hexamer coordinated to zinc. Dorothy Hodgkin won a Nobel for crystallizing this protein, which was also the first one to be sequenced, since it only has 51 amino acids. It inhibits (*) gluconeogenesis, activates glycogen synthesis, and signals liver cells to import glucose. This hormone is secreted by beta cells in the Islets of Langerhans when blood sugar level is high. For 10 points, name this pancreatic hormone which is inactive in diabetics.

ANSWER: insulin

20. William Markham was the first governor of this colony. This colony's founder first arrived on the ship *Welcome* and originally intended to call it New Wales. A leader of this colony wrote "[t]he cause of one is the cause of all" in a set of letters he published as "A Farmer" in 1767. That man later wrote a peace offering which George III reportedly refused to read called the (*) Olive Branch Petition, and was named John Dickinson. Its founder instilled his Quaker beliefs on the colony. For 10 points name this colony founded and named for William, in which the Second Continental Congress was hosted in Philadelphia.

ANSWER: Pennsylvania Colony [or Province of Pennsylvania]

TB: Steady-state probability distributions at time infinity are named for this scientist. This scientist proposed an experiment in which a wall separating two containers of identical gas particles is removed, apparently decreasing the system's entropy. This man's namesake rule gives the degrees of freedom as a function of components and (*) phases. A quantity named for this man is zero at chemical equilibrium and is positive if a process is nonspontaneous. That quantity equals enthalpy minus temperature times entropy and is a measure of the work extractable from a system. For 10 points, give this American namesake of a form of free energy.

ANSWER: Josiah Willard Gibbs

1. This bandleader was assumed dead after his plane disappeared over the English Channel. For 10 points each:
[10] Name this jazz trombonist and performer of the best-known version of the swing tune “Chattanooga Choo- Choo.” A musical “fight” between two tenor saxophones happens in this man’s biggest hit, “In the Mood.”

ANSWER: Glenn Miller

[10] The music of Glenn Miller was highly popular during the World War II era, as was this Andrews Sisters song. In this song, the title instrumentalist from Company B “makes the company jump when he plays ‘Reveille.’”

ANSWER: “Boogie Woogie Bugle Boy”

[10] Both Glenn Miller and the Andrews Sisters performed on records with this American crooner of “White Christmas.” This singer appeared in a number of “Road to…” musicals with comedian Bob Hope.

ANSWER: Bing Crosby [or Harry Lillis Crosby Jr.]

2. In the 1950s, the government’s forced relocation of Mexican-American residents of a housing area for the construction of a baseball stadium in this city led to the so-called “Battle of Chavez Ravine.” For 10 points each:

[10] Name this Western city. Mexican-Americans had earlier been blamed for fighting with some Marines in the docks of this city in the Zoot Suit Riots.

ANSWER: Los Angeles, California

[10] Los Angeles was also the site of these race riots in 1965 named for the predominantly African-American neighborhood in which the fighting took place. These riots started after the arrest of 21-year old Marquette Frye.

ANSWER: Watts Riots [or the Watts Rebellion]

[10] The Watts Riots were the biggest riots in Los Angeles until the 1992 race riots, which started after news broke that this African-American man had been severely assaulted by five white LAPD officers.

ANSWER: Rodney King

3. After falling in love, this character loses her ability to act due to finding it shallow. For 10 points each:

[10] Name this actress who commits suicide after her rejection by a man she calls “Prince Charming”. Her brother James, a sailor, is accidentally shot by a hunting party while trying to avenge her death.

ANSWER: Sibyl Vane [accept either underlined answer]

[10] Sibyl’s death convinces the title character of this Oscar Wilde novel to live a life of decadence. It ends with the protagonist stabbing his portrait, which had aged in his place.

ANSWER: *The* Picture of Dorian Gray

[10] The preface to *The Picture of Dorian Gray* compares the “dislike of realism” and “romanticism” to the rage of this Shakespearean character. This son of Sycorax tries to rebel against Prospero with the help of Stephano.

ANSWER: Caliban

4. Answer the following about phylogenetic trees, for 10 points each:

[10] On a phylogenetic tree, this term refers to any group of organisms that share a common ancestor, and *all* the descendants of that common ancestor. It’s often contrasted with paraphyletic and polyphyletic trees.

ANSWER: monophyletic tree [or clade]

[10] Each branching point of a phylogenetic tree corresponds to this process. The allopatric form of this process occurs due to geographical isolation.

ANSWER: speciation [or the formation of a new species]

[10] An indication that two species might be related is the presence of one of these structures, which have similar structure but different functions in different organisms. A classic example is a bat wing and a human arm.

ANSWER: homologies [or homologs; or homologous structures; or word forms; do not accept “analogies”]

5. Every surah begins with one of these things, Ar-Rahman, as part of the *bismillah*. For 10 points each:

[10] Name this list of 99 words, which translate to concepts like, “The Exceedingly Merciful” and “The Giver of Honor.”

ANSWER: names of God [or names of Allah; or allah al-husna; prompt on Allah or God or similar answers]

[10] Surahs are effectively the chapters in this holy book of Islam.

ANSWER: Koran [or Qu’ran; or other close phonetic equivalents]

[10] Either 99 or 100 of these objects are used on a misbaha in Islam in order to represent the names of God. A group of ten of these objects, representing 10 Hail Marys, corresponds to one decade in Catholicism.

ANSWER: prayer beads [or a rosary]

6. A description of this event comes near the very end of Tacitus' *Annals*. For 10 points each:

[10] Name this 64 AD event. After it was over, Christians were persecuted by being thrown to lions.

ANSWER: Great **Fire** of **Rome** [prompt on partial answer; both parts of the answer must be given for points]

[10] This Roman emperor unfairly gets the blame for the fire, and though he was pretty crazy, he didn't really fiddle during it. He did persecute Christians, though.

ANSWER: **Nero** Claudius Caesar Augustus Germanicus [do not accept or prompt on "Claudius" or "Caesar" or "Augustus"]

[10] Nero committed suicide, partly for fear of the growing power of this general in Spain. He was the first emperor in the Year of the Four Emperors.

ANSWER: **Galba**

7. One type of these artworks shows figures with webbed feet to depict ergot poisoning. For 10 points each:

[10] Name these types of artworks, one of which was done by Matthias Grunewald. Another of these artworks contains the "Adoration of the Mystic Lamb" section.

ANSWER: **altarpiece**

[10] The aforementioned altarpiece is named the *Ghent Altarpiece*, which is by this Flemish painter and brother of Hubert. His most famous painting includes a small dog between the two central figures.

ANSWER: Jan **van Eyck**

[10] Jan van Eyck is most famous for this painting depicting Giovanni and his future wife inside a small room. A convex mirror in this painting depicts scenes from the life of Christ.

ANSWER: *The **Arnolfini Wedding*** [or **Arnolfini Marriage**; or *The **Arnolfini Portrait*** or **Portrait of Giovanni Arnolfini and his Wife**]

8. If you want to sound pedantic, write QED at the end of them. For 10 points each:

[10] Name these assertions which are often written in two columns in geometry. They use deductive reasoning.

ANSWER: mathematical **proof**

[10] Proof by induction involves three steps: proving the statement is true for a base case; assuming that the statement is true for N; and then proving that the statement is true for what value?

ANSWER: **N+1** [**n plus 1**]

[10] A classic proof by contradiction and infinite descent involves showing that this number is irrational. Hippasus was supposedly murdered by Pythagoreans for proving the irrationality of this constant.

ANSWER: square **root** of **2** [or **1.414...**]

9. This author was crowned with a wreath at Capitoline Hill on Easter 1341, the first writer since antiquity to achieve such an honor. For 10 points each:

[10] Name this "Father of Humanism", a poet best known for his love-wrenching addresses to Laura.

ANSWER: Francesco **Petrarch** [or Francesco **Petrarca**]

[10] Petrarch sometimes lends his name to the Italian form of this poem, which is traditionally written in 14 lines. Shakespeare wrote a lot of them too.

ANSWER: **sonnets**

[10] Both Italian and Shakespearean sonnets usually have a "turn" or shift in tone between these two numbered lines. In many sonnets, these two lines mark the end of the "problem" and the beginning of the "resolution."

ANSWER: Lines **8 and 9** [prompt on partial answer]

10. For 10 points each, name these things about abnormal psychology:

[10] This anxiety disorder is characterized by insomnia, nightmares, and jumpiness triggered by a horrific life-changing event. Soldiers returning from war often return with this disorder.

ANSWER: **PTSD** [or **Post Traumatic Stress Disorder**]

[10] Another abnormal disorder, schizophrenia, can be caused by excessively high amounts of this neurotransmitter. A shortage of this chemical can lead to Parkinson's disease.

ANSWER: **dopamine**

[10] Most current diagnoses of anxiety disorders refer to this manual, currently on its fifth rendition, to classify mental disorders.

ANSWER: **DSM** [or **Diagnostic and Statistical Manual of Mental Disorders**]

11. Every year, criminals siphon away billions of dollars of petroleum from the Niger River's delta in this country. For 10 points each:

[10] Name this most populous nation in Africa.

ANSWER: Federal Republic of **Nigeria**

[10] Human rights abuses in the Niger Delta have been blamed on this supernational oil company headquartered in both The Hague and in London. It's the second-largest corporation in the world.

ANSWER: Royal Dutch **Shell**

[10] Ethnic clashes in Nigeria have also prompted issues, since the majority of the country's southeast is made up of Igbo tribes who follow this religion. This is the predominant religion of the Democratic Republic of the Congo.

ANSWER: **Christianity**

12. Raziyya al-Din ruled a historical state centered in this city, but that sultanate lost to Babur at the Battle of Panipat. For 10 points each:

[10] Name this city which fell to the Mughals. The Mughals' capital was then established in this city.

ANSWER: **Delhi**, India [do not accept or prompt on "New Delhi"]

[10] Delhi was sieged by this joint-stock company in 1857 during the Sepoy Mutiny. This company basically ruled over India until the British Raj took control.

ANSWER: British **East India** Company [or the **EIC**]

[10] The East India Company had to deal with a pandemic of this disease in 1820, which started in India but killed tens of thousands of people. John Snow traced an 1854 epidemic of this disease on Broad Street in London.

ANSWER: **cholera**

13. This effect's namesake parameter equals two times the rotation rate of the Earth times the sine of the angle of latitude. For 10 points each:

[10] Name this fictitious force which causes moving objects to appear to deflect due to the rotation of the Earth, but really doesn't determine what direction your toilet flushes.

ANSWER: **Coriolis** force [or **Coriolis** effect]

[10] The Coriolis effect occurs because the Earth is not this type of reference frame. This type of reference frame is one that is not accelerating. Luckily, most physics problems assume this type of frame.

ANSWER: **inertial** reference frame [or word forms]

[10] According to the equivalence principle, gravity itself might be a fictitious force, since an observer in this situation wouldn't be able detect any acceleration. In this situation, an object is acted on only by gravity.

ANSWER: **free fall** [or word forms; prompt on partial answer]

14. Enyo is sometimes conflated with this other goddess. For 10 points each:

[10] Name this goddess of discord who threw the Golden Apple inscribed with "To the Fairest" leading to the Judgment of Paris.

ANSWER: **Eris** [do not accept or prompt on "Eros"]

[10] After the Judgment of Paris, Eris sided with Aphrodite during the Trojan War and attempted to protect this hero, the son of Aphrodite and Anchises.

ANSWER: **Aeneas**

[10] Eris stirred up trouble between Aedon and Polytechnos, eventually culminating in both of the mortals and their entire family being transformed into these animals. Philomela and Procne were turned into these animals.

ANSWER: **birds** [or more specific birds such as **nightingales** or **swallows**]

15. Answer the following about novels narrated from mental institutions, for 10 points each:

[10] This character's narrative about the "madman stuff" that happened to him "last Christmas" is delivered in a sanatorium. He ends it by explaining, "Don't ever tell anybody anything. If you do, you start missing everybody."

ANSWER: **Holden Caulfield** [accept either first or last name]

[10] Chief Bromden, a fake deaf-mute, narrates this Ken Kesey novel set in a hospital ruled by Nurse Ratched.

ANSWER: **One Flew Over the Cuckoo's Nest**

[10] This character narrates his story to Bruno in a mental hospital after he's accused of murdering Sister Dorothea. This protagonist of a 1959 novel grows a hump and decides to finally get taller after his "presumptuous" fathers die.

ANSWER: **Oskar** Matzerath [prompt on **Matzerath**]

16. Answer the following about some people that Leonardo da Vinci met on his great travels, none of whom were good painters, for 10 points each:

[10] Leonardo was employed as an ambassador to Milan by Lorenzo, a member of this leading family of Florence during the Renaissance

ANSWER: **Medici** [or de **Medicis**; or Lorenzo de **Medici**]

[10] This other Italian leader employed Leonardo to draw a map of Imola, in Bologna, for a military campaign. Machiavelli based “the prince” on this son of Alexander VI.

ANSWER: **Cesare Borgia** [prompt on **Cesare**; prompt on **Borgia**]

[10] Leonardo died at the court of Francis I, a king of this nation. The Renaissance here began under Charles VIII.

ANSWER: **France**

17. Many of this man’s works, such as “Weeping Willow,” were first written on rolls for a player piano rather than being performed by a person. For 10 points each:

[10] Name this 20th-century American composer of the two-step “The Entertainer.” This man was the innovator of a certain form of music, examples of which include the “Pine Apple” and the “Maple Leaf.”

ANSWER: Scott **Joplin**

[10] Scott Joplin is known the King of this musical form, the namesake of a “time” in the US during the 1910s and 1920s. These dance works emphasize syncopation and offbeat rhythms.

ANSWER: **rags** [or **Ragtime**]

[10] Joplin’s “Maple Leaf Rag” is based in this major key. This key with four flats is also the key for Chopin’s “Heroic Polonaise.”

ANSWER: **A-flat** major

18. This quantity is the pressure required to increase the chemical potential of a solution up to the chemical potential of the pure solvent. For 10 points each:

[10] Name this quantity which equals molarity times the van’t Hoff factor times RT by the Morse equation. It’s often visualized as the difference in height between two halves of a dialysis tube.

ANSWER: **osmotic pressure** [or **pi**; prompt on partial answer]

[10] Osmosis is a special case of this phenomenon in which water moves through a semipermeable membrane. This phenomenon is the net movement of particles from areas of high concentration to low concentration.

ANSWER: mass **diffusion**

[10] According to Graham’s Law, diffusion of gases is inversely proportional to the square root of this property of the gas. Uranium 235 and 238 can be separated because they are different with respect to this quantity.

ANSWER: molar **mass** [or molecular **weight**; or **atomic mass**; or **atomic weight**]

19. The DACA initiative helps people that would have been affected by this law. For 10 points each:

[10] Name this law which would offer citizenship to children of illegal immigrants that graduated from college or served in the military. Versions of it have been passed by 15 states.

ANSWER: **DREAM** Act [or **Development, Relief, and Education for Alien Minors**]

[10] Immigrants to the US can become permanent residents by acquiring one of these “colorful” IDs. A lottery for them is held each year for immigrants from uncommon countries.

ANSWER: **green cards** [prompt on partial answer; or USCIS Form I-**551**]

[10] Congress is in committee debating the STAPLE Act, which would offer permanent residence to illegal immigrants who earn a Ph.D in one of these four skilled fields of study. The common four-letter acronym is fine.

ANSWER: **STEM** [or **science, technology, engineering**, and **math**ematics; prompt on partial answer]

20. This movement led to the development of naturalism and regionalism. For 10 points each:

[10] Name this American literary movement which opposed the fantasy of Romanticism and instead focused on characters in ordinary social situations. Mark Twain and William Dean Howells belonged to this movement.

ANSWER: American **realism** [or word forms]

[10] Local color realism, or regionalism, included this author, who set her works, such as “A White Heron” and *The Country of the Pointed Firs*, in Maine.

ANSWER: Sarah Orne **Jewett**

[10] This other Regionalist author from New England wrote the novels *Ethan Frome* and *The Age of Innocence*.

ANSWER: Edith **Wharton**