



1. This author's longest play opens with a prologue in the theater between a manager, a poet, and a clown. His prose works include the bildungsroman *Wilhelm Meister's Apprenticeship* and an epistolary novel about a youth who shoots himself out of unrequited love for Lotte (LAH-tuh). This author of *The Sorrows of Young Werther* (VAIR-ter) also created a scholar who impregnates and abandons Gretchen after making a pact with Mephistopheles (meff-ih-STAH-fuh-lees). For 10 points, name this German writer of the two-part drama *Faust*.

ANSWER: Johann Wolfgang von **Goethe** (GURR-tuh)

014-12-70-12101

2. The probability that this law is seemingly violated on small scales is given by the fluctuation theorem, which was used to explain away Loschmidt's paradox. One method of stating it sets the line integral of  $dQ$  over  $T$  around a closed path as equal to or less than zero, which is called Clausius' theorem. This law limits the maximum possible efficiency for a Carnot (CAR-nough) engine and rules out the possibility of a perpetual motion machine. For 10 points, name this law which states that the entropy of a closed system always increases.

ANSWER: **second law of thermodynamics** [accept obvious equivalents]

048-12-70-12102

3. An expedition of this force prompted a speech at Tilbury by a woman who claimed to "have the heart and stomach of a king." This force was prevented from meeting up with troops of the Duke of Parma at the Battle of Gravelines, where it was defeated by Francis Drake. Storms that blew this force off course were called the "Protestant Wind" by this force's English enemies. For 10 points, name this Spanish fleet that failed to invade England in 1588.

ANSWER: Spanish **Armada** [or Invincible **Armada**; or **Armada** Espanola; or **Armada** Invencible]

121-12-70-12103

4. This organelle is responsible for O-linked glycosylation of the proteoglycans used in the extracellular matrix. The subject of the vesicular transport model, this organelle has a "cis" phase and a "trans" face and is made up of a number of stacks called "cisternae." Its functions include modifying and sorting proteins delivered in vesicles from the endoplasmic reticulum. For 10 points, name this organelle named for an Italian scientist, where various molecules are "packaged" for delivery.

ANSWER: the **Golgi** apparatus [or **Golgi** bodies]

080-12-70-12104

5. This author wrote about Joel Harrison Knox being sent to live with his father at Skully's Landing in *Other Voices, Other Rooms*. He is thought to have been the basis for Dill in *To Kill a Mockingbird* because of his friendship with Harper Lee. This author wrote a novel which follows the New York life of Holly Golightly, and he wrote about the real life murder of the Clutter family in another work. For 10 points, name this author of *Breakfast at Tiffany's* and *In Cold Blood*.

ANSWER: Truman **Capote** [or Truman Streckfus **Persons**]

015-12-70-12105

6. This animal names a short needle attached to a flexible tube and flanked by two rubber appendages. Both Bates and Muller discovered their namesake types of mimicry while studying these animals. Their pupal stage is known as the chrysalis. Due to their sensitivity to initial conditions, chaotic systems are said to exhibit an effect named for them. For 10 points, identify these animals whose larval form, like moths, is the caterpillar.

ANSWER: **butterfly**

066-12-70-12106

7. This scientist names a type of reflecting telescope with a concave primary mirror and flat diagonal secondary mirror and was the first fully functional one. One law named for this man has a proportionality constant that was measured with a torsion balance by Cavendish. That law governs a solely attractive inverse-square force. Another of his results states that force is equal to mass times acceleration. For 10 points, name this man who outlined three laws of motion in his *Principia Mathematica*.

ANSWER: Isaac **Newton**

048-12-70-12107

8. In this play, Si Crowell repaces his older brother Joe as the paper boy, and Mrs. Soames likes to gossip about the drunken antics of the choirmaster Simon Stimson. The third act of this play takes place in a cemetery, where the protagonist speaks from the grave after dying in childbirth. It concerns the courtship and marriage of George Gibbs and Emily Webb in the small town of Grover's Corners. For 10 points, name this play which is narrated by a Stage Manager, a work by Thornton Wilder.

ANSWER: ***Our Town***

015-12-70-12108

9. One of these locations features a semicircular portion known as the Garganta del Diablo, or Devil's Throat. Another one of these sites starts on the Auyan-Tepui, or Devil's Mountain, and was named for an American who crash-landed his plane nearby. The largest one of these sites creates a mist that led it to be named "The Smoke that Thunders" and occurs along the course of the Zambezi River. Iguazu, Angel, and Victoria all name, for 10 points, what areas of rapidly descending rivers?

ANSWER: **waterfalls**

023-12-70-12109

10. The majority of the standard array of these things were developed by Maurice Hilleman. Max Theiler remains the only person to win a Nobel for developing one of these things. The development of the most successful of these saw a little boy variolated after being injected with pus from a milkmaid's blisters. That one was developed by Edward Jenner using what we now know to be cowpox. For 10 points, identify these things used to confer immunity to infectious agents and which include the smallpox one.

ANSWER: viral **vaccines**

066-12-70-12110

11. This man founded a law practice with Oliver Tambo and delivered the "I Am Prepared to Die" speech during the Rivonia Trial. For his activities as a leader of the Spear of the Nation, he was imprisoned at Robben Island. This man established the Truth and Reconciliation Commission to investigate human rights abuses under a certain policy. In the 1990s, his negotiations with F.W. de Klerk successfully ended apartheid. For 10 points, name this first black president of South Africa.

ANSWER: Nelson Rolihlahla **Mandela**

014-12-70-12111

12. The unnamed narrator of one story by this author barely escapes an Inquisition torture device when rats gnaw through his ropes. He wrote another story in which the narrator turns himself into the police when he hears the beating of the title object under his floorboards. This author of “The Pit and the Pendulum” and “The Tell-Tale Heart” also wrote about Montresor, who takes revenge on Fortunato by bricking him in. For 10 points, name this American author of “The Cask of Amontillado.”

ANSWER: Edgar Allan **Poe**

015-12-70-12112

13. At St. Augustine's Church, this organization initiated its Free Breakfast for Children program. One leader of this organization described how he raped women as an act of rebellion in his book *Soul on Ice*. This group used the phrase "What We Want What We Believe" to preface their Ten-Point program. This organization was led for a time by Eldridge Cleaver and was founded by Huey Newton and Bobby Seale in Oakland. For 10 points, name this radical black nationalist organization.

ANSWER: **Black Panther** Party for Self-Defense

020-12-70-12113

14. This author compared Mary Datchet and Katharine Hilbery in her novel *Night and Day*. One novel by this author concludes with Lily Briscoe finishing her painting and the long-awaited trip to the title location by what remains of the Ramsay family. Another of her novels depicts the suicide of Septimus Smith and a party thrown by the title woman. For 10 points, name this female modernist author of *To the Lighthouse* and *Mrs. Dalloway*.

ANSWER: Virginia **Woolf** [or Adeline Virginia **Woolf**]

191-12-70-12114

15. This artist tried to downplay his youthful apprenticeship to Ghirlandaio. He painted a self-portrait as the flayed St. Bartholomew in his fresco of *The Last Judgment*. In one of his paintings, the outstretched hand of Adam nearly touches the index finger of a reaching God. That fresco, *The Creation of Adam*, is the most famous of the paintings this artist did for the ceiling of the Sistine Chapel. For 10 points, name this Renaissance artist who also sculpted a marble *David*.

ANSWER: **Michelangelo**

015-12-70-12115



1A. What Italian sculptor created the first free-standing nude since antiquity with his bronze statue of David?

ANSWER: **Donatello**

1B. A 1908 race riot in this city led to the founding of the NAACP. Name this state capital, also the home of Abraham Lincoln's tomb.

ANSWER: **Springfield**, Illinois

2A. In which U.S. state is Todd Akin, who was criticized for remarks about rape, running for Senate against incumbent Claire McCaskill?

ANSWER: **Missouri**

2B. This is a 20-second calculation question. Consider a normal distribution with a mean of 50 and a standard deviation of 10. What is the z-score for a value of 35?

ANSWER: **-1.5** [or **negative 3/2**]

3A. This is a 20-second calculation question. What values of A and B satisfy the equation  $(3+5x^2+9x) \cdot (3x^2-2x+1) = 15x^4 + 17x^3 + Ax^2 + Bx + B$ .

ANSWER: **A = -4** and **B = 3**

3B. Which branch of economics focuses on measuring and studying the operations of an entire economy rather than the role of individual players within the economy?

ANSWER: **macroeconomics**

4A. Newton's method, polynomial factoring, and the quadratic formula are all ways to compute what values for a function?

ANSWER: **roots** [or **zeros**]

4B. What character from American folklore has a giant axe and owns a blue ox named Babe?

ANSWER: **Paul Bunyan**

5A. Name the brass instrument played by jazz composer and bandleader Glenn Miller.

ANSWER: **trombone**

5B. What branch of Buddhism popular in Japan favors quiet meditation and riddle-like koans?

ANSWER: **Zen** Buddhism

6A. King Letsie III occasionally intervenes in politics in what country, which is entirely surrounded by South Africa?

ANSWER: **Lesotho**

6B. Immanuel Kant's *Critique of Judgment* is considered a foundational text in what subfield of philosophy, which analyzes questions such as the definition of art and whether there is an objective standard of beauty?

ANSWER: **aesthetics** [or **aesthetic** philosophy; prompt on **philosophy of art**]

7A. This is a 30-second calculation question. What is the volume, in terms of pi, of a sphere of radius 5/2?

ANSWER: **125/6 pi** units

7B. This is a 30-second calculation question. What is the area of a parallelogram with length and width both equal to 6 and an angle of 135 degrees?

ANSWER: **18 root 2** square units [or **18 radical 2** square units]

8A. Octavia Spencer won an Oscar for playing Minny Jackson in what 2011 movie documenting the lives of Mississippi domestic workers?

ANSWER: **The Help**

8B. What Alawite dictator of Syria has used the plain-clothed Shabiha to assault protesters against his regime?

ANSWER: Bashar al-**Assad**

9A. Chuck D and Flavor Flav were members of what pioneering rap group whose songs included "Fight the Power" and "He Got Game?"

ANSWER: **Public Enemy**

9B. Name the Jewish American author of *Portnoy's Complaint* and *American Pastoral*.

ANSWER: Philip **Roth** [or Philip Milton **Roth**]

10A. Name the war in which Matthew Ridgway replaced Douglas MacArthur in command after a successful landing by American forces at Inchon.

ANSWER: **Korean** War

10B. What scientist restructured the periodic table by moving the lanthanides and actinides below the main body?

ANSWER: Glenn **Seaborg**



1. This condition is linked with the phosphorylation of a microtubule assembling protein called tau, which ultimately leads to the development of neurofibrillary tangles. This disease is also linked with deficiencies in the synthesis of acetylcholine. In general, this disease is characterized by complications in the cytoskeletons of neurons in the cerebral cortex. For 10 points, identify this disease characterized by loss of memory and dementia, named for a German.

ANSWER: Alzheimer's disease

189-12-70-12117

2. This form follows clauses such as "dudar que" (doo-DAR kay) and "en cuanto (en QUAN-toe)" in impersonal expressions. When creating this verb form, an indicative verb whose infinitive form ends in "c-a-r" changes the "c" to "q-u" before "e." Regular "-ir" verbs take endings that start with "a" and "-ar" verbs take endings that start with "e" in this mood. For 10 points, identify this Spanish verb mood that is also used to express doubt, uncertainty, and other situations not described by the indicative mood.

ANSWER: Spanish subjunctive mood [or subjuntivo]

019-12-70-12118

3. This player's first coach, Jerry Glanville, said it would take a plane crash to have this man crack the Atlanta Falcons starting roster. Replacing Don Majkowski at his most famous team, he threw for four touchdowns in a 2003 game a day after his father died. Claiming to retire in 2008, he came back and played for both the Jets and the Vikings. For 10 points, name this man who spent over a decade as the quarterback for the Green Bay Packers and is the NFL's leader in touchdown passes.

ANSWER: Brett Lorenzo Favre

052-12-70-12119

4. One poem by this author tells of an Assyrian army that "came down like the wolf on the fold." In addition to "The Destruction of Sennacherib," this author wrote an epic poem in which the title character pursues a romance with Haidee after fleeing Spain. A poem by this author notes how "all that's best of dark and bright meet in her aspect and her eyes," describing a woman who is "like the night of cloudless climes and starry skies." For 10 points, name this British Romantic poet of *Don Juan* who died in Greece.

ANSWER: George Gordon, Lord Byron

194-12-70-12120

5. This organ is responsible for absorbing vitamin B12 because of its production of intrinsic factor with parietal cells. The mucosal lining of this organ can become the residence of *H. pylori*, which causes ulcers. This organ is connected to the duodenum by the pyloric sphincter. For 10 points, identify this digestive organ that uses enzymes and strong acids to break down food, and which is located between the esophagus and small intestine in humans.

ANSWER: stomach

066-12-70-12121

6. The perpetrator of this event was initially arrested for killing J.D. Tippitt. Abraham Zapruder supplied the best known film of this event, in which Governor John Connally was wounded. Jack Ruby fatally shot the man responsible for this event, which was the focus of the Warren Commission. This shooting is believed to have occurred from the sixth floor of the Texas School Book Depository. For 10 points, name this November 22, 1963, event that resulted in the death of the 35th US President.

ANSWER: **assassination** of **John Fitzgerald Kennedy** [or **assassination of JFK**; accept other words for "assassination" such as **killing**; prompt on **assassination of Kennedy**]

131-12-70-12122

7. The baryon-to-photon ratio can be used to compute the products of the nucleosynthesis predicted by this theory. As originally posited, this theory suffers from the flatness, horizon, and monopole problems, which prompted Guth and Linde to develop inflation. This theory, which was partly confirmed by Penzias and Wilson's discovery of the CMB, was originally posited by Lemaitre after Hubble discovered redshift. For 10 points, name this theory which states that a singularity of infinite density and temperature exploded into the universe.

ANSWER: **big bang** theory

048-12-70-12123

8. This character speaks with unusual affection to his mentor Brunetto Latini, and his companion protects him from Malacoda. Later in his narrative, he describes a man who holds his severed head in front of him like a lantern named Bertran de Born. Initially pursued by a leopard, a lion, and a she-wolf, this character is guided by Beatrice through Paradise after traversing Purgatory and Hell with Virgil. For 10 points, name this protagonist and author of *The Divine Comedy*.

ANSWER: **Dante** Alighieri [or Dante **Alighieri**]

014-12-70-12124

9. Augustin de Candolle demonstrated these phenomena using the action of a plant's leaves. These phenomena can be shifted by stimulating the suprachiasmatic nuclei in the hypothalamus, and they are influenced by cues known as zeitgebers. These phenomena are partially influenced by melatonin, though they are more heavily influenced by environmental cues such as light. For 10 points, identify these "biological clocks" which influence our daily cycles and sleep patterns.

ANSWER: **circadian rhythms**

189-12-70-12125

10. Noah Claypole torments the protagonist of this novel when he works in the home of Sowerberry the undertaker. Mr. Bumble gives a locket to the protagonist's half-brother, Monks, who tries to take him away from Rose Maylie and Mr. Brownlow. This novel's protagonist first meets Brownlow when he is caught stealing a handkerchief under the guidance of the Artful Dodger. For 10 points, name this novel by Charles Dickens whose title orphan famously asks for more food at the workhouse.

ANSWER: ***Oliver Twist***

121-12-70-12126

11. This substance's "pillow" type is formed underwater. Another type of this substance advances as a series of toes and lobes extruding from a cooled crust and is pahoehoe (pa-HO-ay-HO-ay). This non-solid substance can be classified into felsic, intermediate, mafic and ultramafic. When this substance solidifies, it forms igneous rock. For 10 points, identify this term for molten rock above the Earth's surface, which is expelled in many volcanic eruptions.

ANSWER: **lava** [prompt on **magma**]

066-12-70-12127

12. Pope Alexander II ordered the construction of Battle Abbey as penance for the bloodshed in this battle. The loser in this battle had defeated Harrayd Hardrada two weeks earlier at the Battle of Stamford Bridge. This battle is depicted on the Bayeux (buy-YOU) Tapestry, which depicts Halley's Comet and Harold Godwinson taking an arrow to the eye. This battle resulted in Norman control over England. For 10 points, name this 1066 victory of William the Conqueror.

ANSWER: Battle of **Hastings**

015-12-70-12128

13. These devices contain parallel concentric, or spiral, tracks, which are divided into blocks. The time it takes the actuator arm to move the head to a track is the seek time of these devices. One type of failure in these devices occurs when that read/write head comes into contact with a rotating platter, which is coated with a magnetic oxide. For 10 points, name these secondary, or non-volatile, storage devices that commonly come in sizes of two point five and three point five inches.

ANSWER: **hard** disk **drive** [or **HDD**; or **disk drive**; or **computer disk**]

066-12-70-12129

14. This composer responded to the death of his daughter Maria with a song cycle setting poems by Friedrich Rückert, entitled *Kindertotenlieder*. This composer set German translations of poems by Li Bo in his unnumbered symphony *Das Lied von der Erde*. His eighth symphony in E-flat major is often nicknamed for the large chorus it calls for. For 10 points, name this early 20th-century Austrian composer of the "Symphony of a Thousand."

ANSWER: Gustav **Mahler**

014-12-70-12130

15. The "D-" and "L-" configurations of these molecules are distinguished in the Fischer Projection. The absence of these compounds can force the body into ketosis and accelerate the breakdown of proteins into amino acids for use in gluconeogenesis. More complex examples of these compounds are built up from several of them linked by glycosidic bonds. These compounds include chitin and starches. For 10 points, name these molecules including glucose and other sugars that are made up of hydrogen, oxygen, and carbon.

ANSWER: **Carbohydrates** [or **sugars** before it is read; or **saccharides** before it is read; or poly **saccharides**; or **disaccharides**; or mono**saccharides**]

080-12-70-12131



1. This President allegedly had an African-American ancestor according to William Chancellor. As President, this man established the Bureau of Veteran Affairs in addition to releasing Eugene Debs from prison. This man campaigned on the promise of a "return to normalcy." His presidency was hurt by Albert Fall's leasing of oil reserves in the Teapot Dome Scandal. For 10 points, name this President who came into office after World War I and Woodrow Wilson.

ANSWER: Warren Gamaliel **Harding**

149-12-70-12132

2. August Kohler developed an optimal method of illumination for use with the simplest type of this device. Another type of this device uses a sputter coater to make samples conductive and is the scanning electron type. A cover slip is placed over a slide to hold a specimen for viewing with the simplest type of this device. Extensive observations with this device were made by Anton van Leeuwenhoek . For 10 points, identify these devices used to magnify objects too small for the human eye to see, such as bacteria.

ANSWER: **microscope**

066-12-70-12133

3. After this event, one perpetrator attempted to commit suicide by consuming a cyanide pill and jumping into a shallow river. This event took place during a military inspection near the Latin Bridge, and it was perpetrated by a member of the Black Hand. One casualty in this action was Duchess Sophie. After this event, several European powers mobilized their armies. For 10 points, identify this incident perpetrated by Gavriilo Princip that ultimately led to World War I.

ANSWER: **assassination** of Archduke **Franz Ferdinand** [accept equivalents for "assassination"; accept additional information mentioning Duchess Sophie]

189-12-70-12134

4. In F. Scott Fitzgerald's "Babylon Revisited," a resident of this city named Charlie Wales tries to get back his daughter Honoria. Hemingway's *A Moveable Feast* is set here, as is *The Autobiography of Alice B. Toklas*. Gertrude Stein described some residents of this city as a "lost generation," referring to the group of expatriate American artists and writers who came to live here after World War I. For 10 points, name this European capital.

ANSWER: **Paris**

015-12-70-12135

5. This character resolves to have bloody thoughts after he passes a group of soldiers heading to Poland to dispute a worthless piece of land. This character decides not to kill his enemy at prayer, since that would send him to heaven. After shouting, "How now, a rat?" he blindly thrusts his sword through an arras, killing Polonius. This character declares Prince Fortinbras to be his successor as he dies in Horatio's arms after killing Claudius. For 10 points, name this Shakespearean Prince of Denmark.

ANSWER: **Hamlet**

153-12-70-12136

This is a calculation question. What are the roots of the polynomial  $x^2 + 12x + 36 = 0$ ?

ANSWER:  $x = \underline{-6}$  [or **-6 and -6**]

This layer marks the transition from the mixed surface water layer to the deep water layer. In what layer of water does water temperature decrease rapidly with depth?

ANSWER: **thermocline**