



1. This building's construction was protested by a "Committee of Three Hundred," one for each meter of its height, which included Guy de Maupassant, who ate lunch at its restaurant so he could avoid seeing it. No women are counted among the 72 scientists and engineers whose names are engraved on this building's first balcony. This puddle iron structure served as the entrance arch for the 1889 World's Fair and has since been used to jam German communications in the First World War. For 15 points, name this radio tower, the tallest building in Paris.

ANSWER: **Eiffel Tower** [or La **Dame de Fer**; or the **Iron Lady**; or **Eiffel** after "tower" is read]

020-12-85-15101

BONUS: What Catholic priest and poet used sprung rhythm in such poems as "Pied Beauty" and "God's Grandeur"?

ANSWER: Gerard Manley **Hopkins**

192-12-85-1510-1

2. This President's Attorney General Janet Reno ordered the seizure of the Cuban immigrant child Elian Gonzalez. During his presidency, American helicopters were shot down in Mogadishu and FBI agents botched a raid on a cult complex in Waco, Texas. This man served as governor of Arkansas before his presidency, which was marred by perjury allegations and an impeachment after his relations with intern Monica Lewinsky. For 15 points, name this President from 1993 to 2001.

ANSWER: Bill **Clinton** [or William Jefferson **Clinton**; or William Jefferson **Blythe III**]

015-12-85-15102

BONUS: Which catecholamine (CAT-uh-COAL-uh-meem) neurotransmitter is under-produced by the substantia nigra (NYE-gruh) in Parkinson's disease?

ANSWER: **dopamine**

192-12-85-1510-1

3. One character in this work is forced to sit in the coal-hole as punishment for running away and playing in the mud. Another character dies by accidentally falling into a stone-pit on his way home after inadvertently killing a horse belonging to his brother, Godfrey Cass. In this novel, the reclusive protagonist raises a baby he discovers in his cottage and names Eppie after his precious gold is stolen. For 15 points, name this novel about the title "Weaver of Raveloe" written by George Eliot.

ANSWER: **Silas Marner**

014-12-85-15103

BONUS: Name the Dutch Jewish philosopher who advocated freedom of religion in the *Tractatus Theologico-Politicus* but is more known for his pantheistic, geometrically constructed work of metaphysical and moral philosophy, *Ethics*.

ANSWER: Baruch **Spinoza** [or Benedict de **Spinoza**; or Benedictus de **Spinoza**]

019-12-85-1510-1

4. In two final novels, this author idealized female characters who want to be raped by powerful male figures. In another work by this author, *Equality 7-2521* lives in a world in which people who say the word "T" are put to death. She also wrote a novel in which Dominique Francon's lover, the architect Howard Roark, is put on trial for dynamiting his own building. For 15 points, name this "Objectivist" author of *Anthem*, *Atlas Shrugged*, and *The Fountainhead*.

ANSWER: Ayn **Rand** [or Alissa Zinovievna **Rosenbaum**]

015-12-85-15104

BONUS: The city of Nagasaki is found on what island of Japan, the southernmost of the four major islands?

ANSWER: **Kyushu**

019-12-85-1510-1

5. The central dogma of molecular biology, as elucidated by Francis Crick, encompasses this many structures. This many tectonic ridges meet at the Afar junction. Spherical and cylindrical coordinates have this many variables. There are this many generations of leptons and quarks, each containing two leptons and two quarks. This many points are required to define a plane. This number of nucleotides makes up a codon. Lithium contains this number of protons. For 15 points, identify this first odd prime number.

ANSWER: **three**

066-12-85-15105

What doctor of theoretical physics is the roommate of Leonard Hofstadter on the CBS sitcom *The Big Bang Theory*?

ANSWER: **Sheldon** Cooper [or Sheldon **Cooper**]

192-12-85-1510-1

6. This man won the Nobel Prize in Literature for his biography of his ancestor the Duke of Marlborough and his *A History of the English-Speaking Peoples*. This man praised some pilots in one speech by claiming "Never was so much owed by so many to so few." After succeeding Neville Chamberlain as Prime Minister, he eschewed the appeasement strategy and promised "we shall fight them on the beaches." For 15 points, name this leader of Britain during World War II.

ANSWER: Winston Leonard Spencer **Churchill**

015-12-85-15106

BONUS: What Czech novelist and playwright coined the term "robot" in his play *R.U.R.*?

ANSWER: Karel **Capek**

088-12-85-1510-1

7. This agent contains the gag and rev polypeptides, and its exterior expresses the gp120 glycoprotein. Chemokine antagonist treatment for this condition was devised by Robert Gallo, a ranking expert on it. This agent's progress is often shown by non-hereditary skin lesions from Kaposi's sarcoma. Azidothymine, or AZT, was an early treatment for this virus which attacks the body's T-cells. For 15 points, name this virus which damages the immune system, whose symptoms can progress to AIDS.

ANSWER: **HIV** [or **Human Immunodeficiency Virus**]

104-12-85-15107

BONUS: What musical key, which has no sharps or flats in its key signature, was used by Schubert in a "Great" symphony and by Mozart for his *Jupiter*?

ANSWER: **C major**

195-12-85-1510-1

8. In the ocean, a minimum for this quantity occurs in a layer known as the SOFAR channel. This value is equal to the square root of the bulk modulus divided by the density. Dividing the velocity of an object by this value gives the Mach number, and surpassing this value causes a sonic boom. For 15 points, name this value which in air is approximately 340 meters per second, the velocity at which acoustic waves travel through a medium.

ANSWER: **speed of sound** [accept obvious equivalents]

048-12-85-15108

BONUS: Jacintha Saldanha committed suicide in December 2012 after a hoax call from an Australian radio show convinced her to put DJs onto the phone in the room of what celebrity maternity patient?

ANSWER: Catherine "Kate" **Middleton** [or the **Duchess of Cambridge**]

019-12-85-1510-1

9. Legend holds that this group founded the cities of Cyme, Myrine, Ephesus and Smyrna. One story claims that Solois drowned himself in a river after falling in love with one named Antiope. One member of this group was Penthesilea (PEN-thuh-sil-EE-uh), who was killed by Achilles after coming to King Priam's aid. The ninth labor of Heracles was to obtain a girdle from Hippolyta, the queen of this group. For 15 points, name this race of female warriors from Greek mythology.

ANSWER: **Amazons**

015-12-85-15109

BONUS: This is a 30-second calculation question. Describe all asymptotes of the function $f(x) = (x + 3)(2x + 4)/2x^2(x + 2)$ (quantity $x + 3$ times quantity $2x + 4$, all over $2x$ squared times quantity $x + 2$.)

ANSWER: vertical asymptote at **$x = 0$** , horizontal asymptote at **$y = 0$** [or vertical asymptote at the **y axis**, horizontal asymptote at the **x axis**]

080-12-85-1510-1

10. A machine used to measure this phenomenon comes in pin-on-a-disc and four-ball varieties. The arctangent of its coefficient is equal to the angle of repose, and the coefficient of this phenomenon is the y-coordinate of the Stribeck curve. On a non-banked curve, this is the force that provides the centripetal acceleration. This force is equal to a coefficient, μ , times the normal force, and it occurs parallel to a ramp. For 15 points, name this force that comes in kinetic and static varieties, the resistance to sliding between two surfaces.

ANSWER: **friction** [accept **kinetic friction** or **static friction**]

048-12-85-15110

What 80s "King of Pop" recorded "The Way You Make Me Feel" and "Thriller"?

ANSWER: Michael Joseph **Jackson**

088-12-85-1510-1

11. Albert Einstein wrote a 1939 letter to Franklin Roosevelt stressing the necessity of this program. The main production base for this program was in Oak Ridge, Tennessee. Much of its testing took place at White Sands because of the proximity to Los Alamos. This project was led by Robert Oppenheimer, and it led to the Enola Gay dropping "Little Boy" on Hiroshima. For 15 points, name this American effort to develop the atomic bomb that was named for a New York borough.

ANSWER: **Manhattan** Project

015-12-85-15111

BONUS: What movement during the Radical segment of the Protestant Reformation emphasized pacifism, autonomy from the larger society, and the idea that infants could not choose to accept Christianity, and survives today as groups such as the Amish and the Mennonites?

ANSWER: **Anabaptism** [or **Anabaptists**, etc]

019-12-85-1510-1

12. This writer included alternation between masculine and feminine rhymes in a unique type of sonnet he used in a longer work. In one of his poems, the flooding of the Neva destroys the home of Parasha, whose suitor Yevgeny curses the title statue, which then comes to life. This author of “The Bronze Horseman” wrote a novel-in-verse about an aristocrat who kills his best friend Vladimir Lensky in a duel. For 15 points, name this Russian poet of *Eugene Onegin*.

ANSWER: Alexander **Pushkin** [or Alexander Sergeyevich **Pushkin**]

014-12-85-15112

BONUS: This is a 20-second calculation question. Consider a triangle with angles of x , $3x$, and $5x$ degrees. What is the value of x ?

ANSWER: **20** degrees

197-12-85-1510-1

13. In his final speech, this character asks, “Pray you, undo this button.” In another scene, he commands the “all-shaking thunder” to “smite flat the thick rotundity o’ the world.” This character states that “nothing will come of nothing” when his favorite daughter refuses to participate in a public love test. Accompanied into a storm by his fool, this character fails to save Cordelia from execution. For 15 points, name this British king, the title character of a Shakespearean tragedy.

ANSWER: King **Lear**

014-12-85-15113

BONUS: This is a calculation question. Using a double angle identity or any other method, calculate $2\sin(75)\cos(75)$ (2 times the sine of 75 degrees times the cosine of 75 degrees).

ANSWER: **1/2** [or **0.5**]

197-12-85-1510-1

14. In this country, in September 2012, Chou Wan swallowed a fake diamond to distract police as his accomplice got away with the real one. Its Northern Province contains the Jaffna Peninsula, and it is southeast of the Palk Strait. This country's president, Ranasinghe Premadasa (RA-nah-SIN-gay PRAY-mah-DA-suh), was killed in the 1983-2009 civil war between its Sinhalese majority and the Tamil Tigers. It was formerly known as Ceylon. For 15 points, name this island to the southeast of India.

ANSWER: **Sri Lanka** [or **Ceylon** before it is read]

080-12-85-15114

BONUS: Name the animal whose head is borne by the Egyptian god Horus.

ANSWER: a **falcon**

080-12-85-1510-1

15. John Ingram was unable to sustain this rebellion after its leader died of dysentery. This rebellion was opposed by the colonial governor William Berkeley, who was unable to prevent it from burning Jamestown. This rebellion was sparked by frontier Indian violence that went unaddressed by the colonial government. For 15 points, name this 1676 rebellion in Virginia that was led by a namesake planter.

ANSWER: **Bacon's** Rebellion

015-12-85-15115

BONUS: What opponent of the wave theory of light names a discrete probability distribution that can approximate a binomial distribution with large n and small p ?

ANSWER: Siméon Denis **Poisson**

066-12-85-1510-1

16. After being defeated by the llaneros (yah-NAIR-ohs) of Jose Tomas Boves, this man fled to Jamaica and wrote a letter proposing a government modeled on that of Britain. This man theorized about the fall of the First Republic in the Cartagena (CART-uh-HAY-nuh) Manifesto. This man won the Battles of Carabobo and Boyaca. For 15 points, name this president of Gran Colombia who liberated Venezuela and several other South American countries from Spanish rule.

ANSWER: Simon **Bolivar**

014-12-85-15116

BONUS: Name the Andrew Wyeth painting which shows a disabled girl in a pink dress turning towards a farmhouse.

ANSWER: ***Christina's World***

019-12-85-1510-1

17. 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 15 points, name this early 20th-century Austrian composer of the "Symphony of a Thousand."

ANSWER: Gustav **Mahler**

014-12-85-15117

BONUS: Name the popular reformist mayor of Newark who gained fame for personally rescuing victims of Hurricane Sandy and for open responses on his Twitter account.

ANSWER: Cory **Booker**

019-12-85-1510-1

18. Underwater examples of these structures include guyots (GEE-ohs). Biomes associated with these structures parallel what one would expect from increasing latitude. These structures cause air to condensate and precipitate, thus forming a "rain shadow" on their lee side. These structures are formed in orogenies, which can happen when two plates collide. For 15 points, name these landforms that stretch above the surrounding area and whose largest example on Earth is Everest.

ANSWER: **mountain** ranges

066-12-85-15118

BONUS: What chemist discovered the covalent bond and names dot structures used to model the bonding between atoms and electron pairs?

ANSWER: Gilbert Newton **Lewis**

052-12-85-1510-1

19. This language uses the prefixes "tsi" and "ag," indicating inalienable possession, at the start of all words for body parts and relatives. Speakers of this language refer to it as Tsalagi, and are concentrated in North Carolina and Oklahoma. This member of the Iroquoian family became the first Native American language with a written form, when, in 1821, its syllabary was devised by Sequoyah. For 15 points, identify this language spoken by the second-largest tribal affiliation in the United States.

ANSWER: **Cherokee** language [or **Tsalagi** before it is read]

019-12-85-15119

BONUS: What Japanese import and longtime Seattle Mariner was traded to the New York Yankees in July of 2012?

ANSWER: **Ichiro** Suzuki [or Ichiro **Suzuki**]

015-12-85-1510-1

20. Different types of these proteins are distinguished by unique sequences in their hinge region, and some subtypes of them can fix complement. One isotype of these molecules is a dimer held together by a J chain. They consist of at least two heavy and two light chains connected by disulfide bonds, and they have both a constant and variable regions. These molecules are produced by B cells and attach to antigens, coating them for disposal. For 15 points, name these y-shaped immune proteins

ANSWER: **antibody** or **immunoglobulin**

048-12-85-15120

BONUS: This is a calculation question. If you roll a standard six sided die, what is the probability that cube of the number you roll is greater than 10?

ANSWER: **2/3** [prompt on **4/6**]

001-12-85-1510-1

21. This letter denotes the complex part of the propagation constant, the phase constant. This letter denotes the second carbon attached to a functional group. The release candidate phase of software development is preceded by this phase. A discrepancy in the energy balance of this type of radioactive decay was solved by Wolfgang Pauli's addition of the neutrino. That type radioactive decay releases electrons or positrons. For 15 points, identify this Greek letter often sandwiched between alpha and gamma.

ANSWER: **beta**

066-12-85-15121

BONUS: Lily Bart becomes indebted to Gus Trenor in what novel by Edith Wharton?

ANSWER: *The **House of Mirth***

020-12-85-1510-1

22. In these organisms, two layers of cells are divided by the amoebocyte-containing mesohyl. These animals are divided into the groups Silicea and Calcarea depending on the material of the spicules that make up their skeletal system. "Glass" ones belong to the clade Hexactinellida. These animals excrete water through the osculum and consume food through the use of flagella-beating choanocytes. These suspension feeders take in food particles from the surrounding water. For 15 points, name these organisms belonging to the phylum Porifera.

ANSWER: **sponges** [or **Porifera** before it is read]

080-12-85-15122

BONUS: What Babylonian king promulgated his namesake law code, which often punished 'an eye for an eye?'

ANSWER: **Hammurabi** [or **Hammurapi**]

030-12-85-1510-1

23. At the first one of these events, Mr. T competed against a man whose theme song involved bagpipe music, Roddy Piper. At the twentieth of these events, Goldberg and Brock Lesnar competed with Steve Austin officiating. In 2011, the twenty-eighth of these events featured the Rock beating John Cena, while Hulk Hogan beat Andre the Giant at the third one. For 15 points, name this annual pay-per-view event, run every year since 1985 by World Wrestling Entertainment.

ANSWER: **WrestleMania**

052-12-85-15123

BONUS: The "last theorem" of what French mathematician was solved by Andrew Wiles?

ANSWER: Pierre de **Fermat**

189-12-85-1510-1

24. A group of later criminal defendants in this country announced themselves in October 2011 by playing the song "Kill the Sexist" while wearing ski masks. In this country, former members of the art collective "War" were convicted of the crime "hooliganism motivated by religious hatred" after performing a song structured as a prayer to the Virgin Mary at the Cathedral of Christ the Saviour. For 15 points, name this country where members of an all-female punk band were prosecuted for breaking into an Orthodox church to denounce Vladimir Putin.

ANSWER: **Russia** [or **Russian** Federation]

019-12-85-15124

BONUS: This is a calculation question. Solve for x in $59x+33-24=45-11x$.

ANSWER: $x = \mathbf{18/35}$

001-12-85-1510-1

25. In one story by this author, Petro murders the child Ivas in Bear's Ravine as part of a deal with the devil to obtain treasure. This author of "St. John's Eve" also wrote about the barber Ivan Yakovlevich (yuh-KOFF-luh-vitch) cutting open a loaf of bread to discover a body part belonging to Major Kovalyov. In another of his stories, the clerk Akaky Akakievich (uh-KAH-kee AH-kah-KYAY-vitch) returns as a ghost after he dies in despair from being robbed of the title article of clothing. For 15 points, name this Russian author of "The Nose" and "The Overcoat."

ANSWER: Nikolai **Gogol**

014-12-85-15125

BONUS: In what Guy de Maupassant short story do Madame Mathilde Loisel and her husband work for ten years to pay back the 36,000 francs they borrowed to replace the title object, which is revealed at the end to have been fake?

ANSWER: "The **Necklace**" [or "La **Parure**"; or "The Diamond **Necklace**"]

066-12-85-1510-1



26. 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 15 points, name this organelle named for an Italian scientist, where various molecules are "packaged" for delivery.

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

080-12-85-15126

BONUS: What weak non-covalent interactions are responsible for holding water molecules together and for base-pairing in DNA?

ANSWER: **hydrogen** bond

048-12-85-1510-1

27. 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 15 points, name this novel by Charles Dickens whose title orphan famously asks for more food at the workhouse.

ANSWER: **Oliver Twist**

121-12-85-15127