

1. This organelle is structurally homologous to a Type III secretory system. In Gram-negative bacteria, L, P, and MS rings surround its hook and basal body. Eukaryotic ones have a 9+2 arrangement of microtubules and use power from dyenin and ATP to move. Prokaryotic ones rotate like a screw. Like a similar structure, they contain an axoneme (AK-suh-neem), but they are longer than cilia. For 10 points, name these whip-like structures used by sperm cells to move.

ANSWER: **flagellum** [or **flagella**]

079-10-24-03101

2. In 2007, this NFL team's head coach resigned thirteen games into the season to become the head coach at the University of Arkansas. That coach, Bobby Petrino, was replaced the next season by this team's current head coach, Mike Smith. Smith named as his starter this team's rookie quarterback from Boston College, who led the team to a surprising 11-5 record and second place in the NFC South. For 10 points, name this NFL team whose offense features Michael Turner, Roddy White, and Matt Ryan.

ANSWER: **Atlanta** Falcons [or Atlanta **Falcons**]

023-10-24-03102

3. The second section of this poem describes a character "whose soul is electricity and banks" and "whose fate is a cloud of sexless hydrogen." Its third section is about a place "where you've murdered your twelve secretaries," a mental hospital called Rockland. Dedicated to Carl Solomon, this poem's first stanza discusses "angelheaded hipsters" who are "looking for an angry fix." For 10 points, name this Beat Generation poem that opens "I saw the best minds of my generation destroyed by madness" and was written by Allen Ginsberg.

ANSWER: "**Howl**"

019-10-24-03103

4. In one song from this musical, a character claims to have been "hoodblinked" and "hambushed" in "It's A Scandal! It's An Outrage!" Two other characters in this musical make plans to discreetly attend a box social in "People Will Say We're In Love." Ali Hakim pays fifty dollars to Will to get out of marrying Ado Annie, and Laura ends up with Curley, who opens this show by singing "Oh What a Beautiful Morning." For 10 points, name this Rogers and Hammerstein musical, which is about romance among farmers in the Indian Territory and is named for a present-day American state.

ANSWER: **Oklahoma!**

019-10-24-03104

5. The level of this ion in the blood is controlled by FGF23. Upon receiving a signal, epidermal growth factor receptor adds this to itself, starting an intercellular signaling cascade. Three of these ions are found in hydroxylapatite, which is a calcium containing compound that makes up bone. This ionic group is attached to proteins by kinases. It is found on the five prime end of DNA. Three of them are attached to adenosine in ATP. For 10 points, name this ion composed of four oxygens and one phosphorus.

ANSWER: **phosphate** ion [prompt on **PO₄³⁻**]

001-10-24-03105

6. This man wrote of the cousin of Ralph Touchett, a woman who is courted by Lord Warburton before marrying Gilbert Osmond in one work, and of Miles and Flora, who are cared for by an unnamed governess, in another work. Yet another work by this man features a woman who refuses the affections of Winterbourne before dying of malaria, which she catches at the Coliseum. For 10 points, name this author of *The Portrait of a Lady*, *The Turn of the Screw*, and *Daisy Miller*.

ANSWER: Henry **James**

081-10-24-03106

7. One set of works titled for this style of writing complains in its fifth and sixth sections about the treatment of clients at the hands of patrons and the decay of female virtues. Works that are titled for this form include two books of poems by Horace and the aforementioned work by Juvenal, which includes the line "who will watch the watchmen?" For 10 points, name this type of writing that ridicules the weaknesses of its subject with the intent to improve that subject.

ANSWER: **satires**

023-10-24-03107

8. This poem describes a passage "thro' the jaws of Death, back from the mouth of Hell," and claims that the title group "Flash'd all their sabers bare, flash'd as they turn'd in air." The title group is described as facing "Cannon to the right of them, cannon to the left of them, cannon in front of them," though "Into the valley of Death Rode the six hundred." It asserts "theirs not to make reply, theirs not to reason why," and begins "half a league, half a league, half a league onward." For 10 points, name this Tennyson poem about a failed cavalry charge.

ANSWER: "The **Charge of the Light Brigade**"

081-10-24-03108

9. One model of the polymeric type of these entities is named after Flory and Huggins. They are not pure gases, but when the enthalpy of mixing of one of these is zero, it is known as an "ideal" one. The vapor pressure of an ideal one is determined by Raoult's law. Some properties of them are independent of properties of their constituent molecules, and are called colligative properties. They can be characterized by their degree of saturation or their molarity. For 10 points, name these homogeneous mixtures of two or more substances.

ANSWER: **solutions**

024-10-24-03109

10. These entities are modeled by the three-dimensional AIM model, which is an arm of the "activation-synthesis" theory that describes their cause as random activations of cells. Many evolutionary biologists theorize that they aid in problem solving. An older theory suggested that these entities contain manifest and latent content and use symbolic meaning as a means of censorship. For 10 points, name these phenomena which were analyzed in a Sigmund Freud book titled after their "interpretation."

ANSWER: **dreams**

015-10-24-03110

11. This man put up money for the Wardencllyffe communications tower designed by Tesla. He started the International Harvester Company. This man orchestrated the merger of Thomson-Houston Electric Company and Edison General Electric, creating General Electric. During the Panic of 1893, this man organized the replenishment of the U.S. gold reserves. This man bought the Carnegie Steel Company and combined it with other manufacturers to create U.S. Steel. For 10 points, name this American tycoon whose namesake firm is now combined with Chase.

ANSWER: John Pierpont **Morgan**

001-10-24-03111

12. This character looks upon a woman who has stolen the curtains and shirt from a dead man's room. He then sees Ignorance and Want emerge from a cloak. Earlier, he sees a door-knocker transform into a human figure, which drags a belt made of chains and locks. He recalls his relationship with Belle and a party hosted by Fezziwig after seeing the ghost of Jacob Marley, then orders a large turkey to be sent to the Cratchit family. For 10 points, name this character who is visited by some time-specific ghosts in Charles Dickens's *A Christmas Carol*.

ANSWER: Ebenezer **Scrooge** [or **Ebenezer**]

019-10-24-03112

13. This geological feature has a Vishnu Group that consists of the Vishnu, Brahma, and Rama Schists. A trail that can be followed in this site travels along the Bright Angel Fault. The Kaibab Plateau borders one part of this geological feature known as the North Rim. In 2007, a glass skywalk was opened at this site for public use. For 10 points, name this geological feature of northern Arizona that was created by the Colorado River.

ANSWER: **Grand Canyon**

023-10-24-03113

14. In 2009, the Flaming Lips teamed up with Henry Rollins and other guests to release a cover version of this album. Clare Torry was initially uncredited for her vocal work on this album's "The Great Gig In The Sky", and another track featured a 7/4 time signature with looped sound effects including a cash register. An urban legend claims that this album, which ends with "Eclipse", syncs up with *The Wizard Of Oz*. For 10 points, name the album including "Us And Them", "Time", and "Money" whose cover features a triangular prism, created by Pink Floyd.

ANSWER: *The **Dark Side Of The Moon***

082-10-24-03114

15. One story from the mythology of this nation relates how a man who went to the underworld to regain his beloved was shocked to see her transformed into ugliness after she had eaten the food of the dead; that couple had earlier improperly performed a marriage ceremony, rendering them unable to give birth to healthy offspring. One story from this country's mythology sees its sun deity scared into hiding in a cave to evade the wrath of her brother. For 10 points, name this nation whose mythological heritage includes such figures as Izanami, Amaterasu, and many beings known as Kami.

ANSWER: **Japan**

040-10-24-03115

1A. Name the island that was the destination of an ill-fated expedition during the Peloponnesian War, as well as the location of a rebellion that took place on the Vespers in 1282.

ANSWER: **Sicily** [or **Sicilia**]

1B. On what logarithmic scale does a number in the 3.0 to 3.9 range represent "felt by many people, no damage" and a number above 8.0 mean "severe destruction and loss of life over large areas?"

ANSWER: **Richter** scale

2A. Name the behavior of liquid in a medium that is responsible for groundwater recharge and thin layer chromatography, whose name refers to liquid rising through a small tube.

ANSWER: **capillary action**

2B. What American author known for his stark prose wrote the stories "What We Talk About When We Talk About Love" and "Cathedral"?

ANSWER: Raymond **Carver**

3A. This is a 10-second calculation question. What is cosine squared of pi over 4?

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

3B. This is a 10-second calculation question. What is the interior angle of a regular pentagon?

ANSWER: **108** degrees

4A. Former U.S. ambassador to Germany Dan Coats and the long-serving Richard Lugar are the two senators that hail from which state that was also home to Dan Quayle?

ANSWER: **Indiana**

4B. The Maclaurin series is a special case, when centered at zero, of which type of series that approximates a function using a sum of increasing orders of derivatives?

ANSWER: **Taylor** Series

5A. This is a 20-second calculation question. What is the square root of $4x^2 + 36x + 81$?

ANSWER: **2x + 9** [or **-2x - 9**]

5B. This is a 20-second calculation question. What is x if x is congruent to 1 mod 6, x is congruent to 3 mod 5 and x is between 0 and 20?

ANSWER: **13**

6A. Name the novel by Mikhail Bulgakov in which the Devil visits Moscow disguised as Woland.

ANSWER: *The **Master and Margarita*** [or ***Master i Margarita***]

6B. Sometimes named after Rene Descartes, which scientific law relates the angles of incidence and refraction using their sines when a ray of light passes through the barrier between two mediums?

ANSWER: **Snell's** Law

7A. This is a 30-second calculation question. What is the population variance of the set {3, 5, 7, 11, 13, 15}?

ANSWER: **56/3** [or **18 2/3** or **18.66** repeating]

7B. This is a 30-second calculation question. What is the probability of rolling three dice such that the sum of the dice is six?

ANSWER: **10/216**

8A. Name the composer who wrote solo piano works such as *Kreisleriana* and *Scenes from Childhood*.

ANSWER: Robert **Schumann**

8B. The Ross Sea and the Weddell Sea border on what continent?

ANSWER: **Antarctica**

9A. Name the German philosopher who claimed that "God is dead" and also wrote the works *The Birth of Tragedy* and *Beyond Good and Evil*.

ANSWER: Friedrich Wilhelm **Nietzsche**

9B. Name the uprising that occurred in 1676 in Virginia against governor William Berkeley and local Native Americans, which ended after its namesake's death.

ANSWER: **Bacon's** Rebellion

10A. Name the man tested by various misfortunes in the Old Testament after Satan tries to convince God that this man is only pious because of his prosperity.

ANSWER: **Job**

10B. Name the planet that is orbited by the four Galilean moons and is the location of the anticyclonic Great Red Spot.

ANSWER: **Jupiter**

1. He painted Guillaume Apollinaire as a red-jumpsuited strongman and himself as a harlequin in his *Family of Saltinbanques*. Featureless black figures comprise his *Don Quixote*, while another of his works depicts a mother crying over her dead child on the left while a disfigured horse dominates the center. Parisian prostitutes in African masks appear in this artist's *Demoiselles (deh-mwah-ZELZ) d'Avignon*. For 10 points, name this painter whose Blue Period works preceded his co-founding of Cubism and creation of 1937's *Guernica*.

ANSWER: Pablo Ruiz y **Picasso**

019-10-24-03117

2. While in a flower shop, this woman hears the backfiring of a car that she believes may be carrying the queen; that event occurs shortly after this woman meets Hugh Whitbread. Later, this woman hears of the suicide of a man who jumps out of a window, Septimus Smith. She is visited by Peter Walsh and Sally Seton, making her reconsider her decision to marry Richard. For 10 points, name this party hostess and title character of a stream of consciousness novel by Virginia Woolf.

ANSWER: Mrs. Clarissa **Dalloway** [or Mrs. **Clarissa** Dalloway]

081-10-24-03118

3. Edmund Kirby Smith was wounded at this battle and thereafter departed for the western theater. It was fought on Sudley Ford, Matthews Hill, and Henry Hill, and it was where Barnard Bee gave the nickname "stonewall" to Thomas Jackson. This battle began when Joseph Johnston's forces arrived to support P.G.T. Beauregard. Irvin McDowell's losing performance at this battle led to McDowell's replacement with George McClellan. For 10 points, name this 1861 battle at a railroad depot in northern Virginia, the first of two at the same location.

ANSWER: **First** Battle of **Bull Run** [or **First** Battle of **Manassas** Junction; prompt on Battle of **Bull Run**; prompt on Battle of **Manassas** Junction]

019-10-24-03119

4. A nuclear facility constructed during the rule of this man was destroyed during Operation Opera. Tariq Aziz was a longtime advisor and international spokesman for this leader. A U.N. program designed to supply his people with humanitarian aid was known as Oil-for-Food. This man's sons Uday and Qusay held high government positions. This man was criticized for using chemical weapons against the Kurdish population following a disastrous invasion of Kuwait. For 10 points, name this ruling leader of the Ba'ath party, the longtime dictator of Iraq.

ANSWER: Saddam **Hussein** al-Tikriti

064-10-24-03120

5. In Philip Roth's *The Plot Against America*, a radio broadcast of this event is interrupted to announce the death of Presidential candidate Walter Winchell. A novel by W. P. Kinsella deals with the ghosts of men tarnished by involvement in another of these events. Shady dealings regarding one of these events created the fortune of a man who wears human teeth as cufflinks. For 10 points, Meyer Wolfsheim is said to have fixed what sporting event in *The Great Gatsby*, in reference to its actual 1919 rigging by Arnold Rothstein and the Black Sox?

ANSWER: the **World Series** [or the 1942 **World Series** before the word "another" is read; do not accept or prompt on specific series afterwards]

019-10-24-03121

6. Some belligerents within this country signed the Naivasha (nye-VAH-SHAH) Agreement in 2005, which put Abyei (ah-BAY-yay) into a special administrative status. Another rebel group in this county is the Justice and Equality Movement. If a 60% participation threshold is reached in the January 9th to 15th referendum, the non-Muslim southern portion of this country will likely declare independence. For 10 points, name this African country led by Omar al-Bashir, which since 2003 has experienced violence directed from the janjaweed (JOHN-jah-weed) towards the native population of its western Darfur region.

ANSWER: Republic of **Sudan**

082-10-24-03122

7. This man wrote the definitive biography of the duke of Marlborough. He introduced labor exchanges and industry-specific minimum wages as president of the Board of Trade. That led to his promotion to First Lord of the Admiralty, where he orchestrated the disastrous Gallipoli campaign. During his "wilderness years," he denounced the Munich Pact, which lent him credibility when he promised to "fight them on the beaches." For 10 points, name this Prime Minister who succeeded Neville Chamberlain and led the U.K. for most of World War II.

ANSWER: Winston Leonard Spencer **Churchill**

019-10-24-03123

8. Along with sodium and aluminum, this element makes up the uncommon mineral cryolite. This element bound to carbon can be used to create Teflon. Freon was a brand name given to another combination of this element with carbon and chlorine, which is considered a key agent in ozone layer depletion. This halogen has an electronegativity of 4.0, making it the most electronegative element. For 10 points, name this element whose anion is used in a process that makes public water healthier for teeth.

ANSWER: **fluorine**

023-10-24-03124

9. This man included "Miscellaneous Observations on the Tragedy of *Macbeth*" in his edition of *The Plays of William Shakespeare*. He imitated a work of Juvenal in "The Vanity of Human Wishes." He included his biography of Richard Savage with biographies of writers such as Milton and Pope in *The Lives of the Poets*. James Boswell wrote a biography of this lexicographer. For 10 points, name this author of *A Dictionary of the English Language*.

ANSWER: Samuel **Johnson**

079-10-24-03125

10. According to a popular story, this English word was invented during a debate between Alexander Graham Bell and Thomas Edison after the invention of the telephone. In Russian, this word is "zdrastvuite," [zuh-DRAST-vet-yuh], and in Swahili, this word is "jambo," In Japanese, an informal way to say "thank you" or this is "domo." In Italian, one way to say this is "salve," (SAL-vay) although more common phrases are "buongiorno" (bwon-JOR-no) and "ciao." (chow) For 10 points, name this greeting, which is "bonjour" in French.

ANSWER: **hello**

080-10-24-03126

11. In 1961, Claus Jönsson (CLOWS YUHN-sun) reproduced the set up of this experiment with electrons. The set up for this experiment when using only one particle gives the same results as the original, except when a detector is used. That detector being used causes a pair of bands to be formed instead of the usual pattern caused by interference. For 10 points, name this experiment first carried out by Thomas Young sending light through a pair of openings, which showed light has a wave nature.

ANSWER: Young's **double slit** experiment [or **Young's** experiment before it is read]

023-10-24-03127

12. Holographic versions of these entities are unwitnessed, and nuncupative ones are created orally and are sometimes associated with dying soldiers. Do-not-resuscitate orders are associated with the "living" types of these entities that go into effect when an individual enters a vegetative state. Intestacy occurs when one dies without one of these documents, and judicial proceedings interpreting them are known as probate. For 10 points, name these legal instruments used to dispose of assets at one's death.

ANSWER: **will** [or **testament**]

030-10-24-03128

13. The CAR and CDR operators work on this data structure. It's not a tree, but this structure may include sentinel nodes. It can be used to implement a stack efficiently since inserting and removing the first element takes constant time. In the worst case it will take Big-O of n time to insert and remove elements from an n-element instance of this data structure. For 10 points name this type of list which in which each data entry is associated with a pointer to the next item in the list.

ANSWER: **linked list** [prompt on **list**; or **free list** before "circular" is read]

093-10-24-03129

14. One art movement in this country, Renaixensa (RON-uh-SEN-shuh), influenced an architect that designed a park that includes terrace walls designed to look like the nests of birds. That architect of Park Guell (GWELL) also designed an unfinished art nouveau cathedral in this country. This country is the location of the *Sagrada Família* (suh-GRAH-DAH fuh-mil-YAH), as well as an art museum designed by Frank Gehry, which has an organic fish scale like appearance. That museum is this country's Guggenheim, located in its city of Bilbao (bill-BOW). For 10 points, name this country whose Prado art museum is located in Madrid.

ANSWER: **Spain**

001-10-24-03130

15. One episode of this show included the appearance of Izzy LaFontaine, a fictional bassist of Spandau Ballet played by Edward Norton. In another episode, the song "In the Moonlight" is performed by one character's boyfriend Dylan. Other storylines on this show have included the fencing prowess of Gloria's son Manny and the model airplane injury which Jay perpetrates on his son-in-law Phil Dunphy. Other members of this show's title group include the gay couple Cameron and Mitchell, and their adopted daughter Lily. For 10 points, name this ABC sitcom about an unconventional group of relatives.

ANSWER: **Modern Family**

081-10-24-03131

1. A common bacteria genetic structure for the assimilation of this molecule is the *cbb* operon. One of the most important ecological consumers of this substance is *Prochlorococcus*. In some organisms this is captured using the enzyme PEPC (pep c). An zinc containing enzyme reacts this with water to produce an alkaline substance critical to buffering the pH of blood. This inorganic molecule is bound into an organic compound by RuBisCO during the Calvin cycle. For 10 points, name this byproduct of cellular respiration that is exhaled by animals.

ANSWER: **carbon dioxide** [or **CO2**]

001-10-24-03132

2. One figure in this war had his power cemented by his victory at Mortimer's Cross. This war began with the First Battle of St. Albans. One leader in this war was Richard Neville, known as the kingmaker. The origins of this war go back to the overthrow of Richard II. The Battle of Bosworth Field saw the death of Richard III and the rise of Henry Tudor at the end of this war. For 10 points, name this war between the House of Lancaster and the House of York named for the different colored flowers representing the houses.

ANSWER: **Wars of the Roses** [or **War of the Roses**]

001-10-24-03133

3. The city where this event took place lost hundreds more lives forty-four years later in the *Eastland* disaster. The date on which this event took place saw a similar and more deadly catastrophe in Peshtigo, Wisconsin. In the aftermath of this event, Joseph Medill was elected mayor, and the need for architects led many designers, such as Louis Sullivan, to move in permanently. For 10 points, name this event which originated on De Koven Street in a barn belonging to the O'Learys and displaced 100,000 people in 1871.

ANSWER: Great **Chicago Fire** of 1871

019-10-24-03134

4. The posthumous edition of this work included a poem dedicated to Theodore de Banville. One poem in this collection demonstrates synaesthesia by comparing perfumes to the sound of oboes. That poem, "Correspondences," appears in the same section as "The Sick Muse" and "The Albatross." It includes sections entitled "Wine," "Revolt," and "Death," as well as "Spleen and Ideal." The preface to this work addresses the reader as "Hypocrite reader, my likeness, my brother!" For 10 points, name this poetry collection by Charles Baudelaire.

ANSWER: *Les **Fleurs du Mal*** [or *The **Flowers of Evil***]

024-10-24-03135

5. A popular practice by supporters of this theory was parodied with the creation of "Project Steve." The modern form of this theory was postulated by John Whitcomb and Henry Morris, while Duane Gish heads the Institute for Research devoted to confirming it. A law mandating the teaching of this theory was struck down in *Edwards v. Aguillard*. It is typically attacked for a postulate sometimes called "contrived dualism," which states that this theory must be right if evolutionary theory is wrong. For 10 points, name this pseudoscientific theory based on a literal interpretation of the Book of Genesis.

ANSWER: scientific **creationism** [or **creation science**; prompt on **intelligent design** until "Gish"]

003-10-24-03136

This Indian leader teamed up with Josip Broz Tito of Yugoslavia to found the Non-Aligned Movement, which attempted to resist the influence of both the US and the Soviets during the Cold War.

ANSWER: Jawaharal **Nehru**

003-10-24-03137

003-10-24-03137