

**Tossups:**

1. That the Church failed to get the input of the German emperor proved an accurate omen for this pope's contentious relations with the Holy Roman Empire. In his conflicts with the emperor he found allies in the princes of Germany who desired a religious justification for combating imperial centralization; the emperor allied himself with bishops who resented the growing papal power and many of whom had been appointed by the emperor, the basis for the lay investiture controversy. FTP name this great reforming pope whose most famous confrontation with Henry IV was in the snows of Canossa and who was formerly known as Cardinal Hildebrand.

ANSWER: **Gregory VII** (prompt on Hildebrand before mention)

2. This is the number of solutions to the three-body problem when one of the bodies is assumed to be much smaller than the others. This is number under the radical when finding the ratio between successively higher Fibonacci numbers. The Abel-Ruffini theorem states that polynomials of this degree cannot be solved, and this number is the second Fermat Prime and the third Sophie Germain Prime. This number is the When arranging this many unique objects in a circle, there are 24 possible ways to do so, while arranging this many objects in a straight line there are 120 ways. FTP, identify this number, which is also the cube root of 125 and the square root of 25.

ANSWER: **5**

3. In one episode in this novel, Will Cutter mercilessly beats the narrator when he finds him sleeping in one character's bed, and another episode involves a small feud between families over a loaned horse collar and a debt on a milk cow. Characters in this novel include an Austrian hired hand that looks like a cowboy, Otto Fuchs; the title character's arrogant brother, Ambrosch; the flirtatious Norwegian dressmaker, Lena Lingard; and the eventual husband of the title character, Cuzak. FTP, Jim Burden narrates the story of his childhood in Black Hawk, Nebraska and his love for the title daughter of the Bohemian immigrant family, the Shimerdas, in what novel by Willa Cather?

ANSWER: **My Antonia**

4. In its original form it was designed to provide ultimate bliss to everyone who interacted with it, but users found it too unbelievable. Despite currently being in it's sixth version. Bugs persist in the form of rogue programs and the systematic emergence of an integral anomaly. That anomaly usually chooses to return to the Source and reinsert the prime program, but because of love, instead chooses to risk the extinction of the human race. Created by The Architect to pacify humans while they are used as an energy source, FTP Lawrence Fishburne as Morpheus awakens a Keanu Reeves-played Neo from what simulation of life in a 1999 Wachowski brothers movie that saw sequels "Reloaded" and "Revolutions"

ANSWER: The **Matrix**

5. Some of the provisions of the Peace of Constance this man signed with the pope Eugene III were to defend the papacy and make no peace with Roger II of Sicily. This man helped Adrian IV suppress the Roman Commune of Arnold of Brescia, after which he was crowned emperor. Suffering a heavy defeat at the battle of Legnano to the forces of the Lombard League, this man was ultimately unsuccessful in his numerous attempts to control Italy. A Duke of Swabia before he became Holy Roman Emperor, this man is perhaps most famous for the way he died in route to the Third Crusade. FTP, identify this man nicknamed "Red Beard," who drowned while crossing a river.

ANSWER: **Frederick I** or **Barbarossa**

6. This technique is commonly described by the Smoluchowski theory, which seeks to explain movement of the dispersed particles independent of their shape but fails if the double layer is too thick. A zymogram can be used to detect enzyme activity in one variant of it, while the zone type utilizes isoelectric focusing to separate molecules based on their electric charge with respect to pH changes. Gene sequencing and protein separation can be done with the SDS-PAGE variety. FTP, name this electrokinetic technique often completed in agarose gel.

ANSWER: **electrophoresis**

7. This playwright's first success was set during the Revolutionary War and sees the titular apostate, Dick Dudgeon, let himself be arrested instead of the minister, Anthony Anderson, *The Devil's Disciple*. The title character of another play by this author, wishes to marry Adolphus Cusins, disapproves of her father, Andrew Undershaft's armament manufacturing and is a member of the Salvation Army. While another play sees Colonel Pickering bet with Henry Higgins that the latter can't turn Eliza Doolittle into a lady through elocution lessons. FTP, this is what Irish playwright of *Major Barbara* and *Pygmalion*?

ANSWER: George Bernard Shaw

8. It can be degraded to pyruvate via intermediary formation of serine via the action of serine hydroxymethyltransferase, and its combination with succinyl-CoA allows for the production of the porphyrins precursor d-aminolevulinic acid. It is needed as a co-agonist with glutamate for NMDA receptors, and it is one of the major components of collagen along with the amino acid proline. The chief inhibitory neurotransmitter of the spinal cord, FTP, names this smallest amino acid which is optically inactive due to its single hydrogen side chain.

ANSWER: glycine

9. The third piano sonata by this composer is a single-movement work in A minor that begins with repeated E major chords, and his seventh piano sonata features a *precipitato* final movement in 7/8 time. He wrote a flute sonata in D, opus 94, and in one of his operas the Prince and Truffaldino discover the princess Ninnetta after the Prince is cursed with the title affliction by the witch Fata Morgana. That opera is based on a play by Carlo Gozzi. In his best-known ballet, fifteen drumbeats mark the death of one of the main antagonists, and that ballet also features the Dance of the Knights, also known as "Montagues and Capulets." For 10 points, identify this Russian composer of *The Love for Three Oranges*, the ballet *Romeo and Juliet*, and a "Classical" Symphony.

ANSWER: Sergei Prokofiev

10. This man's early career included appointments as ambassador to Russia and France, but he was recalled to his home country to act as prime minister when the parliament refused to fund a proposed reorganization of his country's famous army. This man, who had a World War II battleship named after him, conquered Schleswig and Holstein from Denmark and then contrived a dispute over those territories with a victory at Sadowa. Although he earned domestic ire by restricting freedom of the press and launching the anti-Catholic *Kulturkampf*, he took up the liberal mantle of national unification with a decidedly more martial *Realpolitik* twist, declaring that "the great questions of the time will not be resolved by speeches and majority decision--that was the great mistake of 1848 and 1849--but by blood and iron." FTP, name this minister who published the Ems Dispatch that started the Franco-Prussian war and become the Iron Chancellor of the German empire he united.

ANSWER: Otto von Bismarck

11. In solid compounds, this class of reactions occurs in three distinct phases in which preheating leads to a second distillation stage. At the molecular level, these types of reactions can only be initiated if a heat-induced spin-paired state is achieved, which subsequently reacts to produce the heat that propagates the reaction. Certain types require consideration of the air to fuel ratio, while liquid fuels used in these have to above the flash point temperature. They come in complete, incomplete, and smoldering forms, and are used in devices like the calorimeter and diesel engine. FTP, name this reaction type in which a hydrocarbon reacts with oxygen to form carbon dioxide and water.

ANSWER: combustion reactions

12. In one of several novels by this author set in Thrums, Gavin Dishart is the titular priest of the Auld Licht parish, *The Little Minister*. When the Lasenbys are shipwrecked on a deserted island in one play by this author, the titular butler is revealed to be the only one with practical knowledge and becomes ruler. That is *The Admirable Crichton*. Characters in his most famous novel include Tootles, the Indian princess Tiger Lily, and the Darling children. FTP, the titular little boy won't grow up and fights Captain Hook in what Scottish author's *Peter Pan*?

ANSWER: James Barrie

13. The eighteenth-largest country in the world, this nation of over 70 million inhabitants is bordered by Armenia, Azerbaijan and Turkmenistan to the north. Before Islam arrived in the seventh century, two ruling empires here included the Parthians and the Sassanids. Notable tourist attractions here include the cities of Isfahan, Qom, Shiraz and Tabriz. The US does not currently operate an embassy, following a 1979 revolution in this nation. Formerly known as Persia, FTP, name this Middle Eastern country, whose supreme leader is Ayatollah Ali Khamenei, and whose president is Mahmoud Ahmadinejad.

ANSWER: Iran

14. The title poem of one collection by this author describes plants like the “twiggy stuff of bushes” and the “wildcarrot leaf” as they “grip down and begin to awaken”. While the most famous poem of another collection describes the “tweedle of bagpipes” and the “kicking and rolling about” in the titular painter’s “The Kermess”. Those are the collections *Spring and All* and *Pictures from Breughel*. But his most anthologized poems describe an implement that “so much depends upon” and apologize for eating “the plums / that were in / the icebox”. FTP, name this New Jerseyite poet of “*The Road Wheelbarrow*” and “*This is Just Say*”.

ANSWER: William Carlos Williams

15. Although the last time this title was technically conferred was in 1530, it continued to be used until it was abolished in 1806. Election to this post was governed by the Golden Bull of 1356, which established the seven prince-electors, although the electoral system required some tweaking to maintain balance. The name of the polity headed by this person was mocked by Voltaire, but was meant to show its continuity with the empire of Augustus as well as its newfound Christianity. FTP, name this title for an elected King of the Romans who had been crowned by the pope, notably held by Otto the Great, Frederick Barbarossa, and Charles V, and first granted on 25 December 800 to Charlemagne.

ANSWER: Holy Roman Emperor (do not accept German Emperor or Holy Roman Empire)

16. This painting was the only one signed in full by the artist, and in between the central characters lies a floor mosaic based on the patterns on Westminster Abbey. On a shelf sits a polyhedral sundial, and a lute with a broken string sits next to a Lutheran hymnal. On the floor between the titular figures is a blob of gray paint which, when tilted, is shown to be an anamorphic skull. FTP, name this Hans Holbein the Younger painting which shows the two titular figures from France at the court of Henry VIII.

ANSWER: The Ambassadors

17. One of the commanders in this battle reportedly told his leader “your majesty, we have lost the war,” after they commenced with a retreat. Following shortly after the battle of the Frontiers, this battle saw the sub battle of the Two Morins during it. Karl Von Bulow commanded one of the attacking forces’ armies while Herbert Kitchener agreed to provide 70,000 men from the British Expeditionary Force, which Joffre had requested. Additional reinforcements were provided by ubiquitous taxi cabs which transported French troops from Paris. Before retreating to the Aisne river, von Moltke suffered a nervous breakdown after being told that his forces would be encircled and destroyed. Marking a failure of the Schlieffen plan, a second battle of this name was an resulted in an allied victory in 1918. FTP, name this first major battle of World War I, in which German forces were barely turned back from marching on Paris at the namesake river.

ANSWER: First battle of the Marne

18. A minor character in this work is Leclere, who grants the protagonist the title he holds at the beginning of the work. In another episode, the protagonist gives Caderousse a diamond in exchange for information and for refusing to take part in the plot hatched by Danglars, Fernand, and Villefort. After being accused of supporting Napoleon Bonaparte, the protagonist is taken to the Chateau D’If, where he is known only as Prisoner 34. There, he is educated by Abbe Faria, who names him the inheritor of a vast treasure on the titular island. FTP, name which Edmond Dantes seeks revenge against the conspirators that falsely imprisoned him, by Alexander Dumas.

ANSWER: *The* Count of Monte Cristo

19. This man was a renowned opponent of the prevailing Hegelian philosophy of his day, and his attacks on the Church foreshadowed Nietzsche’s. He placed great emphasis on the choices of the individual, even

claiming that “subjectivity is truth”. This emphasis on individuality had a profound influence on later thinkers such as Sartre, as did his notion of despair as original sin in *The Sickness Unto Death*. This philosopher claimed that reason was unable to bring the individual to love or religion, both of which required a “leap of faith” that overcame but also acknowledged doubt. In *Fear and Trembling*, he contrasts the “knight of faith” and “knight of infinite resignation” while discussing Abraham’s sacrifice of his son Isaac. For ten points, identify this hunchbacked Danish philosopher and theologian known for his Christian existentialism, the author of *Either/Or*.

ANSWER: Soren Aabye **Kierkegaard**

20. He is known as Sakra in Buddhist and Jain texts, and is related to other Indo-European gods like Zeus, Perun and Thor. He is the brother of Agni, and hence the son of Dyaus Pitar. His greatest enemy is the serpent Vritra, who traps all the waters of the world, and whom this god slays with the help of the drink Soma. His weapon is the thunderbolt, and his mount is the albino elephant Airavata. Although his position declined in modern Hinduism with the emergence of the Trimurti, this god is still an important symbol of rulership. For ten points, name this husband of Sachi, the head of the Vedic pantheon.

ANSWER: **Indra**

21. It can be thermodynamically demonstrated by assuming that the processes which this law characterizes are adiabatic. In another formulation, it yields the necessary potential energy to perform that process on a material over any distance. For forces below a material's yield strength, it provides approximations of linear deformations and Young's modulus divides the two variables present in it. FTP, "stress is proportional to strain" is the common formulation of what law by an English scientist that models the motion of springs?

ANSWER: **Hooke's law**

#### **Bonuses:**

1. FTPE, answer questions about a type of cell.

[10] Neurons that lack these structures are known as amacrine cells. They transmit signals away from the cell body towards the dendrites of other neurons, which are found across the synapse.

ANSWER: **axon**

[10] Axons are covered by this type of sheath, which improves the speed of nerve signaling. This sheath is lost in multiple sclerosis, and it is necessary for saltatory conduction.

ANSWER: **myelin**

[10] The myelin sheath is produced by this type of glial cell, which is found between the nodes of Ravier of the axon.

ANSWER: **Schwann** cells

2. FTPE name some things about the Disney Channel.

[10] Miley Cyrus uses this phrase, which was also the name of her 2007-2008 tour, to show that she gets “a limo out front/ hottest styles, every shoe, every color” but can also “chill it out, take it slow” due to her improbably secret rock star alternate personality.

ANSWER: “You get the **best of both worlds**”

[10] This actress is the star of “Wizards of Waverly Place” and, like with her predecessor Miley Cyrus, Disney Channel is also marketing her as a musician.

ANSWER: Selena **Gomez**

[10] Selena Gomez starred with Demi Lovato in this 2009 Disney Channel Original Movie, in which Lovato plays a princess who has to live with an ordinary girl played by Gomez after a coup d’etat and assassination attempt. Although their different backgrounds at first make for friction, they become fast friends and at the end everything works out. Hooray!

ANSWER: “**Princess Protection Program**”

3. FTPE, name some things about laws relating to circuits.

[10] This law is sometimes stated as  $J = \sigma E$ , where J is the current density, E is the magnetic field, and sigma is the conductivity. This law is also commonly stated as I equals V over R, where I is the current, V is the voltage, and R is the resistance.

ANSWER: **Ohm's law**

[10] This law derives from the conservation of charge, stating that the sum of currents flowing into a node is the sum of currents flowing out of it.

ANSWER: **Kirchhoff's current law** (also accept **Kirchhoff's point, junction, or first rule/law**; prompt on "**Kirchhoff's nodal rule**")

4. Name the following pre-Socratic philosophers, for ten points each:

[10] This man is said to be the first Greek philosopher. He used geometry to solve practical problems and claimed that water is the basis of all things.

ANSWER: **Thales** of Miletus

[10] This student of Parmenides is best known for paradoxes of motion such as the arrow paradox and Achilles and the Tortoise.

ANSWER: **Zeno** of Elea

[10] This famous mathematician founded a namesake cult that worshipped mathematics. He believed in reincarnation and was a strict vegetarian.

ANSWER: **Pythagoras**

5. For ten points each, name the following ecumenical councils that reformed the Catholic church:

[10] This most recent ecumenical council lasted from 1962 to 1965 and greatly liberalized the church, allowing masses in the vernacular and establishing a spirit of open dialogue in the church.

ANSWER: **Second Vatican Council** or **Vatican II**

[10] This council lasting from 1545 to 1563 marked the beginning of the Counter-Reformation. It repudiated Protestantism and defined the role of the sacraments.

ANSWER: Council of **Trent**

[10] This council lasting from 1414 to 1418 resolved the Western Schism by electing Martin V to the papacy. It also condemned Jan Hus for his beliefs.

ANSWER: Council of **Constance**

6. Name these scales used for certain types of natural disasters FTPE:

[10] Although now replaced by the moment magnitude scale, this scale is still used by the mass media to quantify the relative strength of earthquakes.

ANSWER: **Richter** magnitude scale

[10] Developed in 1971 at the University of Chicago, this scale refers to the damage caused by tornadoes.

ANSWER: **Fujita** scale

[10] This scale is used to classify tropical cyclones primarily through maximum sustained wind speed.

ANSWER: **Saffir-Simpson** Hurricane scale

7. Answer some questions about a monster and the work he appears in, FTPE:

[10] This apocryphal son of Cain and an unnamed mother who tries to avenge this mute monster's death stalks about Denmark "wearing God's anger" and attacks Heorot because he cannot stand the sounds of their merriment.

ANSWER: **Grendel**

[10] Grendel is the first of the three chief antagonists of this Geat, the titular protagonist of an Anglo-Saxon epic poem.

ANSWER: **Beowulf**

[10] This Irish poet and Nobel winner published a well-received verse translation of *Beowulf*. His own poetry includes the collection *Death of a Naturalist*.

ANSWER: Seamus **Heaney**

8. Cordoba and Rosario are the second and third largest cities in this country. FTPE:

[10] Jose de San Martin crossed the Andes in 1817 to help secure independence for this country. It fought Paraguay in the War of the Triple Alliance alongside Brazil and Uruguay.

ANSWER: **Argentina**

[10] This power couple ruled Argentina in the late 1940s and the early 1950s. After Eva died in 1952, Juan continued to rule until 1955, and then again from 1973-1974.

ANSWER: **Peron**

[10] This contemporary power couple has followed in some respects in the footsteps of the Perons. Their Justicialist Party is Peronist in its policies. Cristina is the current President; Nestor preceded her as President.

ANSWER: **Kirchner**

9. FTPE, answer some related chemistry questions.

[10] This concept can be used to explain molecular structures in which the distribution of single, double, and triple bonds cannot be exactly portrayed by Lewis dot structures. It posits that a molecule exists in many intermediary states in which the only difference is the location of the pi electrons.

ANSWER: **resonance**

[10] This cyclo-alkane has molecular formula  $C_6H_{12}$  and consists of a 6-member carbon ring with only single bonds. Unlike benzene, it does not contain any conjugated double bonds or exhibit resonance.

ANSWER: **cyclohexane**

[10] Cyclohexane alternates between two stable conformations in which the hydrogens move between equatorial and axial positions. This conformation is slightly more stable than the boat one.

ANSWER: **chair** conformation

10. Games played in this play include “Bringing up Baby”, “Humiliate the Host”, and “Get the Guests”, FTPE:

[10] This is what play in which George and Martha engage in scathing verbal abuse and humiliation in front of their guests, Nick and Honey?

ANSWER: **Who’s Afraid of Virginia Woolf?**

[10] *Who’s Afraid of Virginia Woolf?* is by this American playwright of *Seascape* and *Three Tall Women*.

ANSWER: Edward **Albee**

[10] Jerry forces Peter to listen to long stories about all his problems life, before shoving him off the bench where they are sitting in Central Park and drawing a knife in this Albee play.

ANSWER: **Zoo Story**

11. The three acts of this play are titled “Morning”, “Noon”, and “Night”, FTPE:

[10] This is what play in which the title entities are symbols representing the village cheftan Baroka and the schoolteacher Sidi?

ANSWER: *The* **Lion and the Jewel**

[10] *The Lion and the Jewel* is by this Nigerian playwright who also wrote *A Dance of the Forests*.

ANSWER: Wole **Soyinka**

[10] Simon Pilkings attempts to prevent the ritual suicide of Elesin Oba, but his son Olunde carries out instead in this Soyinka play.

ANSWER: **Death and the King’s Horseman**

12. FTPE, answer some questions about the papacy in the 14th century.

[10] From 1309 to 1378, the pope resided in this southern French city, where he was under the influence of the French king and removed from his see in Rome, the theological foundation of his power.

ANSWER: **Avignon**

[10] The Avignon papacy is sometimes termed this, an allusion to the Jews' Mesopotamian sojourn after Jerusalem was sacked by Nebuchadnezzar.

ANSWER: **Babylonian Captivity**

[10] This 15th ecumenical council that lasted from 1414 to 1418 resolved the Western Schism that followed the Babylonian Captivity, made Martin V pope, and condemned Jan Hus.

ANSWER: **Council of Constance**

13. Identify some leaders from China’s Republican period FTPE:

[10] This man was the Provisional President of the Republic of China for three months in 1912. He is still revered by people on both sides of the Taiwan Strait, but his plans for a Republic were quickly frustrated.

ANSWER: **Sun** Yat-Sen (or **Sun** Zhong Shan or **Sun** YiXian)

[10] This man was a Viceroy and a Minister under the Qing but then became the President after Sun Yat-Sen. He helped kill Sun Yat-Sen's Republican dream and had himself declared Emperor in 1916, but died a few months later.

ANSWER: Yuan Shikai

[10] Yuan Shikai feuded with the Guomindang, which was later led by this man. He was commander of the Whampoa Military Academy and led the Northern Expedition in 1928. He ruled Taiwan until his death in 1975.

ANSWER: Chiang Kai-Shek or Jiang Jieshi

14. The twentieth century's most celebrated players of this instrument include David Oistrakh and Jascha Heifetz. For 10 points each:

[10] Identify this instrument whose modern-day virtuosos include Gidon Kremer, Hilary Hahn, and Joshua Bell.

ANSWER: violin

[10] A popular piece for violin and orchestra is the violin concerto in E minor by this German composer who also wrote the "Italian" Symphony and incidental music to *A Midsummer Night's Dream*.

ANSWER: Felix Mendelssohn-Bartholdy

[10] This Italian violinist and composer wrote 24 caprices for solo violin, the last of which, in A minor, has served as the basis for variations by Brahms, Rachmaninoff, and Witold Lutoslawski.

ANSWER: Niccolò Paganini

15. This medieval African empire sprang up around the Niger river and was established by Sundiata. FTPE:

[10] Name this empire, which had its capital at Niani. Its trading cities included Gao and Timbuktu.

ANSWER: Mali

[10] This man ruled Mali at its height. He established the University of Sankore and was said to have controlled the price of gold in the Mediterranean.

ANSWER: Mansa Musa

[10] Mansa Musa was devout Muslim, and undertook an extravagant pilgrimage, complete with 60,000 men, to this city in 1324. He reportedly built a Mosque every Friday during his trip.

ANSWER: Mecca

16. Famous poems in this collection include "Invitation to the Voyage" and "Hypocrite Reader!", FTPE:

[10] This is what dedicated to the poet's "master and friend" Théophile Gautier.

ANSWER: *Les* *Fleurs du mal* or *Flowers of Evil*

[10] This French poet, and predecessor to the Symbolists, wrote *Les Fleurs du Mal*.

ANSWER: Charles Baudelaire

[10] This word is contrasted with the "ideal" in the title of the first section of *Les Fleurs du Mal* and he also wrote a collection called the "this" of Paris. His use of this word draws upon its medieval association with melancholic black bile.

ANSWER: Spleen

17. Answer some questions about American anthropology, FTPE:

[10] This man notably wrote the tracts *Race, Language, and Culture*, along with *The Mind of Primitive man*. He had many students who went on to be famous in their own right while teaching at Columbia University

ANSWER: Franz Boas

[10] One of those students, this woman went on to publish an important study of adolescent sexuality in her *Coming of Age in Samoa*

ANSWER: Margaret Mead

[10] Boas made his career by studying this tribe of northwestern Indians

ANSWER: Kwakiutl

18. The protagonist of this novel is expelled from college by Dr. Bledsoe for accidentally showing Mr. Norton the unglamorous underbelly of the life of poor African-Americans, FTPE:

[10] This is what novel in which the protagonist chronicles his life from student to Black Nationalist to finally his current state, living secretly underground.

ANSWER: **Invisible Man** [do NOT prompt on or accept *The Invisible Man*]

[10] This American author wrote *Invisible Man*.

ANSWER: Ralph **Ellison**

[10] The racist senator Adam Sunraider and the black Baptist minister “Daddy” Hickman are the protagonists of this novel, Ellison’s second, which was published posthumously.

ANSWER: **Juneteenth**

19. Answer the following about photography, for 10 points each.

[10] This American photographer co-founded the Group f/64 with Edward Weston and Imogen Cunningham. He is best known for his photographs of Yosemite National Park.

ANSWER: Ansel **Adams**

[10] Copper plates were used in this early photographic process developed by Niépce and its namesake Frenchman.

ANSWER: **daguerreotype**

[10] This documentary photographer is best known for her work during the Great Depression, including a photograph of Florence Owens Thompson flanked by two of her children, *Migrant Mother*.

ANSWER: Dorothea **Lange**

20. 5-5-10-10, answer some questions about Louis XIV.

[5] Louis Quatorz was sometimes called “the Great,” but was more often known by this name, which highlighted his radiance and his claimed connection to Apollo.

ANSWER: The **Sun King** (or le **Roi Soleil**)

[5] Perhaps the most lasting symbol of the power of Louis, who had one of the longest reigns of all time, was this monumental palace known especially for its lavish gardens and hall of mirrors.

ANSWER: **Versailles**

[10] This clergyman succeeded Richelieu as chief minister of France and was an important adviser to Anne of Austria, regent during Louis’s youth.

ANSWER: Cardinal **Mazarin**

[10] This British nobleman was Louis’s archnemesis near the end of his reign in the War of the Spanish Succession, where he led the Grand Alliance at the Battle of Blenheim.

John **Churchill** or the Duke of **Marlborough**

21. Answer these questions about a certain organ in the body and its functions FTPE:

[10] Tumors at the head of it can be removed through the Whipple procedure. It is responsible for the secretion of many hormones and digestive enzymes including cholecystokinin, somatostatin, trypsin, lipases, and glucagon.

ANSWER: **pancreas**

[10] The endocrine action of the pancreas results from these entities, which produce the pancreas’ hormones through its population of alpha and beta cells, as well as other smaller groups of cells.

ANSWER: **islets of Langerhans**

[10] This other group of cells in the islets of Langerhans produces somatostatin. They can also be found in the stomach and intestines.

ANSWER: **delta** cells